Earnings Instability and Response of Means-Tested Transfers

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Preliminary Draft: Please ask before citing.
December 27, 2002

I. Introduction

Several recent papers have documented changes in the instability of earnings and income over time. Gottschalk and Moffitt (1994), Haider(1999), Dynarski and Gruber(1997)) suggest that earnings are becoming more variable, particularly for the less educated. Temporary earnings instability might be thought not to be a major problem because households can smooth consumption by borrowing and saving. But this is not the case for the poor who are likely to be liqui

time. Response changes over time might occur for several reasons: households may delay

(1) $$y_{it} = \mu_i + \beta' x_{it}\, t + \lambda_t + \eta_{it}$$

where y_{it} is log household income, μ_i is a time invariant household specific term, $\beta' x_{it} t$ allows for different trend coefficients that depends on demographic characteristics of the household, d_t allows for calendar time specific effects, and η_{it} is an income shock. The income shock is defined as a random walk: $_{it}$ $_{it\ 1}$ v_{it}

groups, particularly the low-education group. For many tables, I use low education to

normalized to have mean one in each panel so that the weighted sample size is the same as the unweighted.

The unit of observation in this study is the family. I used the family of the head of the household.[2] Subfamilies were not considered separately. For much of the analysis, I disaggregate households into two types: families with a married head, and families with an unmarried female head. The latter face higher poverty rates and are thus of particular concern to policymakers. Most of the analysis also disaggregates by the education level of the head: less than high school completion (low education), high school graduate (12 years), and more than high school (high education). The income and transfer program amounts refer to the family. Earnings are separately recorded for the head and for others in the family (non-head earnings). All dollar amounts were deflated to 1996 dollars using the GDP personal consumption deflator. Race, age, and other demographic characteristics refer to the head.

The sample was restricted to households with heads who were age 25-59, and months were excluded when the head was in school, in the armed forces, or self-employed. For the later difference models, the sample excludes differences where months are not consecutive due to sample cuts.

In later work, I consider two transfers: Food stamps, and an aggregate called Means-tested cash transfers that includes: AFDC/TANF, general assistance, SSI and state SSI, veterans pensions, refugee relief, foster child payments and other cash welfare.

IV. Income and Earnings Decomposition

To begin, I estimated the transitory variances for income over time based on the differences equation 2. Since the method is similar to that of Gunderson and Ziliak, estimates of variance trends from SIPP can be compared to their trends which are based on the PSID. The covariates on the trend were education indicators, black, age and age squared, number of children, whether family had a child under age six. For time dummies, I included calendar year dummies as well as seasonal dummies, and an indicator for whether the month was a seam month between two SIPP interviews.[3] Figures 1A and 1B show the estimates of variance of v computed by calendar year, disaggregated by head type and education. One caveat is that the samples in year 1995 and in 2000 are only about one fourth the size as the other years owing to the staggered nature of SIPP interviewing. So those years, which appear to be off trend, should be viewed with caution.

Figure 1A for Married Heads appears to s

pattern, in earlier years. If one were to compar

As before, let earnings be divided into a permanent and transitory component. We want to compare $E[Earnings_{it} \mid \text{separation at time s}]$ with $E[Earnings_{it} \mid \text{no separation}]$. If the

time dummies to measure the shift in earnings at the time of job change.[5] The model include a dummy for the 4 months prior to job loss (Dprior), the four months commencing at job loss (D1), months 5 to 12 following the loss (D2), and months 13 or more after the loss (D3). The coefficients on these dummies will measure the shift in average wages measured over months prior to change relative to months after. I refer to these as the "drop" dummies below because they measure the earnings drop.

To eliminate permanent individual specific effects, the model is run on differences:

(3) $\Delta y_{it} = \alpha_0 Dprior + \alpha_1 D1 + \alpha_2 D2 + \alpha_3 D3 + \beta' x_{it} + \delta_t + v_{it}$

The model is estimated for earnings, including zeros (thus not logged), as well as food stamps and means tested transfers. Models are estimated separately for married heads and unmarried female heads. The sample is restricted to the group most likely to be eligible for transfers, the low education group. As before the independent variables include race, age, age squared, number of children and child age less than 6, as well as the full set of calendar year dummies, seasonal dummies, and the seam dummy. The results for the time from job loss dummies are shown in Table 1.

In the table 1A, the third column shows earnings drops and the first two the transfer responses. For Married Heads with less than 12 years of education, the coefficient on time at job loss (D1) shows an average monthly drop of $108 for each of the 4 months, a total of $432. The coefficients for months 5-12 show a slight rise and the months 13 and on show no significant effect. There is also a large drop in the 4 months prior to job loss. This is

[5] Jacobson et al use a more general model that uses dummies for each quarter relative to time of separation with time splines for periods before, during and after job loss used in interactions with covariates.

consistent with Lalonde who noted a marked earnings dip prior to job loss as hours are reduced.

Our interest is in the transfer response. Column one shows that means-tested cash transfers rose by about $10 per month in the 4 months starting at job loss for a total of $40. This $40 rise is approximately ten percent of the $400 earning drop in the period. The sizeable dip prior to job loss induces no transfer response. This may be the period before the household applies for transfers or before the tr

V. Participation and Permanent and Transitory Components of Earnings

In this section we investigate how transfer participation depends on the permanent and transitory components of earnings. In the literature, models of the decision to participate in a transfer program usually postulate that a potential recipient weighs the utility of participating against the utility of non-participating(e.g. Moffitt 198x). If one allows the model to become dynamic, the utilities include the expected future value of entering the next period conditional on the decision today (ie. the value function).Using a simplified framework, the unit participates if

$$U_t(Y_t+B_t)-S_t+EV(Partic_t) > U_t(Y_t) + EV(Not\ Partic_t)$$

where Y_t is current income, B_t is benefits of participation, S_t is the stigma cost of participating, EV(Partic) and EV(Not Partic) are the expected discounted values of future utility given that one enters the next period as a Participant or Non participant, respectively. For our purposes, the point is simply that EV depends on the expected distribution of future earnings. Thus we expect that the decision to participate today depends on current earnings as well as future expectations. I will proxy these expectations by using the average

transitory earnings will likely generate many short periods of eligibility over time. Thus we predict that those with higher variance may be more likely to participate, given permanent income, because the fixed costs of becoming a recipient will be spread over future occurrences. But, after 1996, those who anticipate repeated episodes may be less willing to participate if they want to bank their lifetime benefits for the future.

I compute the transitory variance for each family head as the mean over time of v squared where v is computed as in equation 1, but run separately for our two demographic groups. I compute permanent earnings P as the mean of permanent earnings = Earnings - v. This corresponds to the decom

The specification interacts permanent earnings and transitory variation with the job loss indicators, so that we can observe whether the transfer response to a job loss varies with transitory variation. That is, are families with highly variable earnings more likely to participate in transfers when the head suffers a job loss (conditional on permanent earnings)?

Table 4A displays results for married heads with low education. The table shows the

Repeating the size of effect computations above for means tested transfers, we observe a 10.2 percentage point rise in participation probability using the 1984 means and a 9 percentage point rise using 1996 means. For food stamps, we see a 14.4 percentage point rise in participation at job loss in 1984 and a 12.3 percentage point rise in 1996. Again, there is some reduction in response in 1996.

VI. Conclusion

We began by looking at transitory income variances. Based on data from SIPP, the transitory variance of log income and log earnings shows a mildly declining trend until 1996 and then a rise. When one looks at non-logged earnings the rise after 1996 is not apparent.

Our goal has been to investigate the role of means-tested transfers and food stamps in cushioning earnings fluctuations. Even though these programs are not primarily designed as unemployment insurance, they offer benefits following job loss that helps smooth income. We use monthly data from SIPP that allows us to observe short term responses of transfers to job loss. One contribution of the paper is its focus on these short term adjustments.

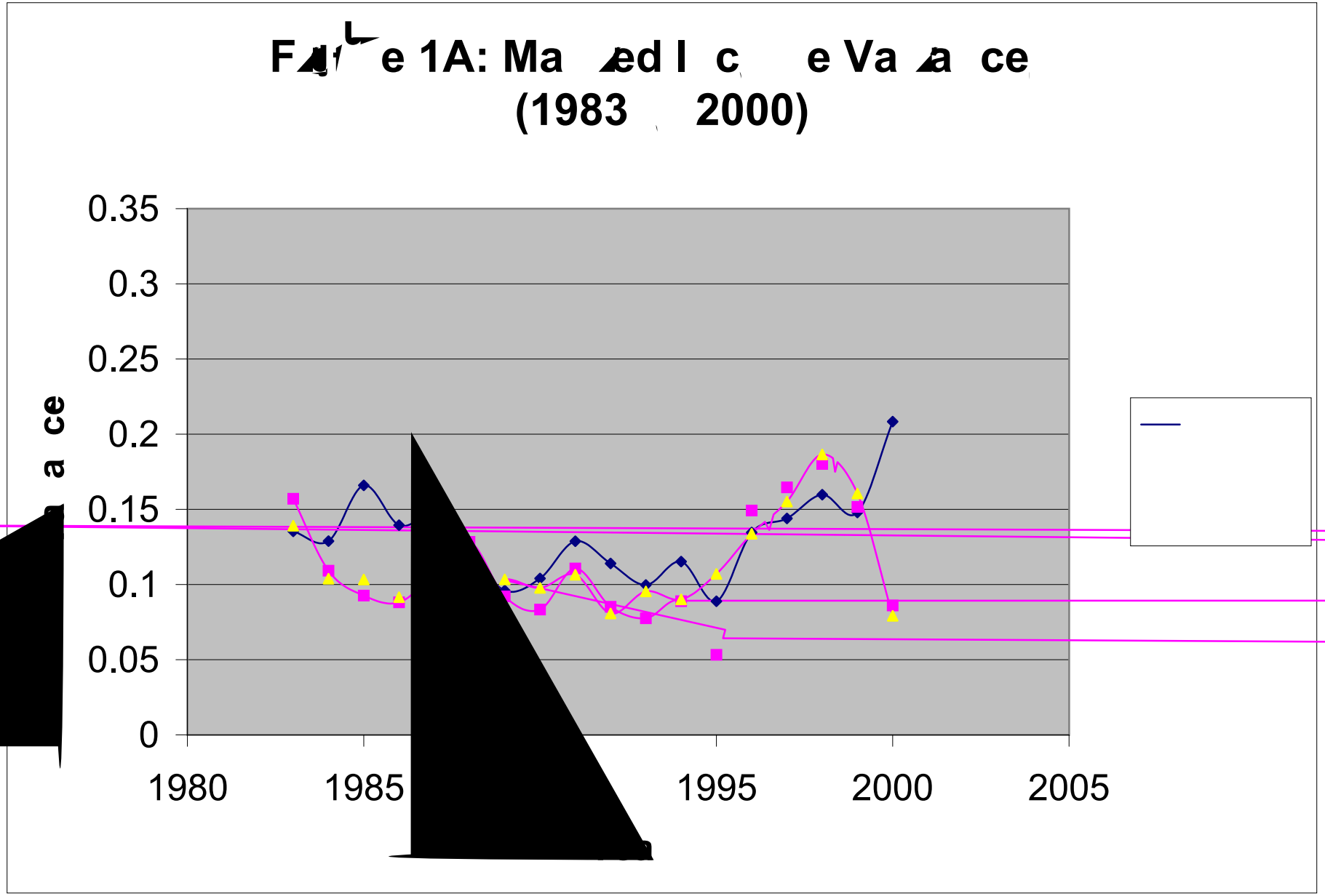
We restrict our attention to families whose head has less than 12 years of education since these families are more likely to be eligible for transfers. The paper focuses its attention on the response to job losses since these allow us to see response to what is more likely to be exogenous earnings variation. For families with married heads, we observe that means tested transfers and food stamps combine to offset, on average, about 13 percent of the earnings drop (14/108) due to job loss. For unmarried female headed families, the combined response is about 21 percent of the earnings drop. The responses vary by time since the job loss, but there does not appear to be a systematic trend over the years

A second analysis shows that participation in these transfer programs rises significantly following job loss. Families with higher transitory variation in earnings (when not receiving transfers) show a slightly reduced probability of participating.

The paper could be improved in a number of ways. One could consider joint impacts of means tested transfers and food stamps with Unemployment Insurance and non-head earnings. One could also improve on measures of permanent and transitory variation to reduce measurement error, or consider alternative earnings models. This might help explain some anomalies in the analysis of transfer participation probabilities.

References

Blundell, Richard, and Luigi Pistaferri. “Incom


F e 1A: Ma ed l c e Va a ce
(1983 2000)
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0.3
0.25
0.2
0.15
0.1
0.05
0
1980
1985
1995
2000
2005

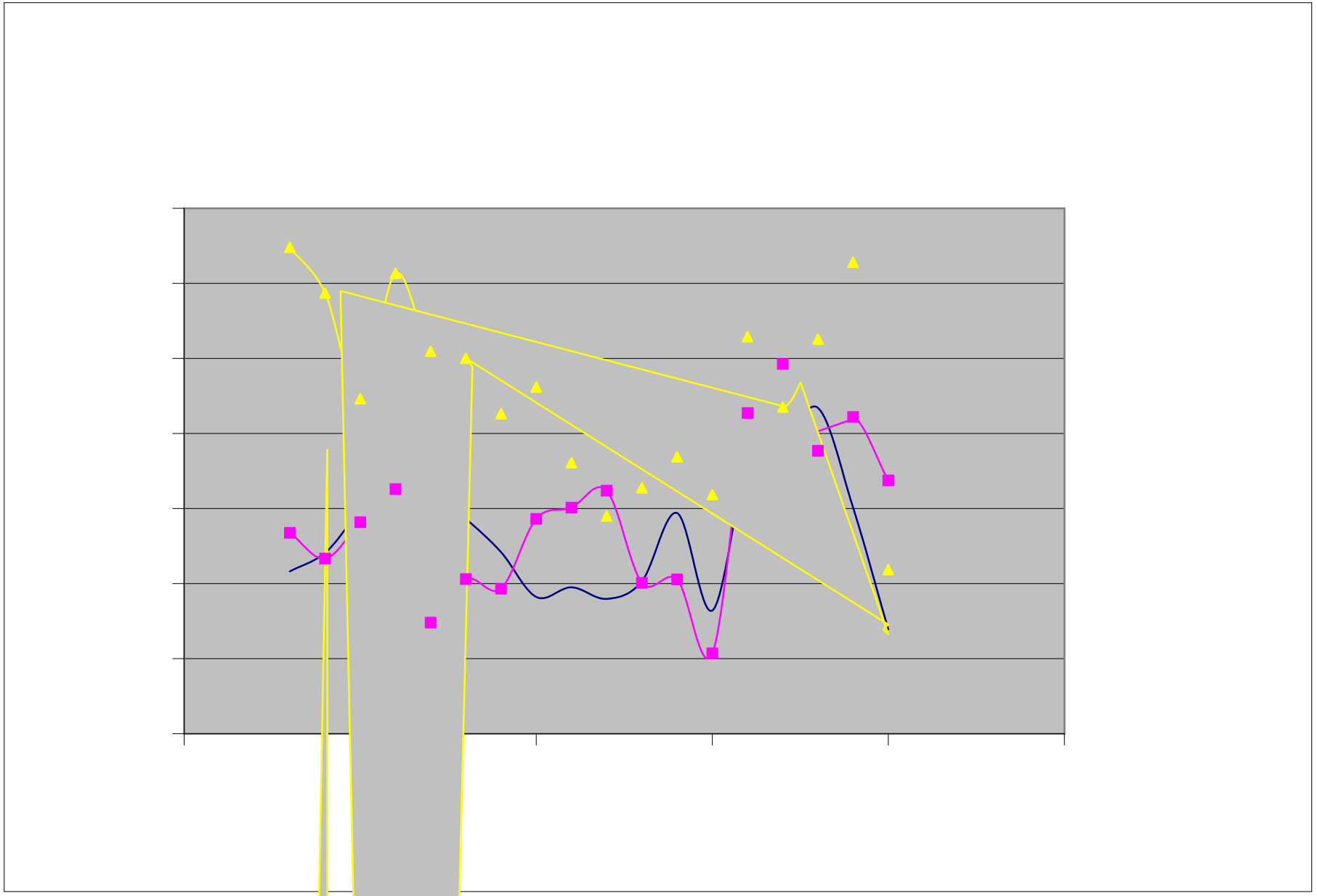


Figure 2A: Married Earnings Variances (1983 to 2000)

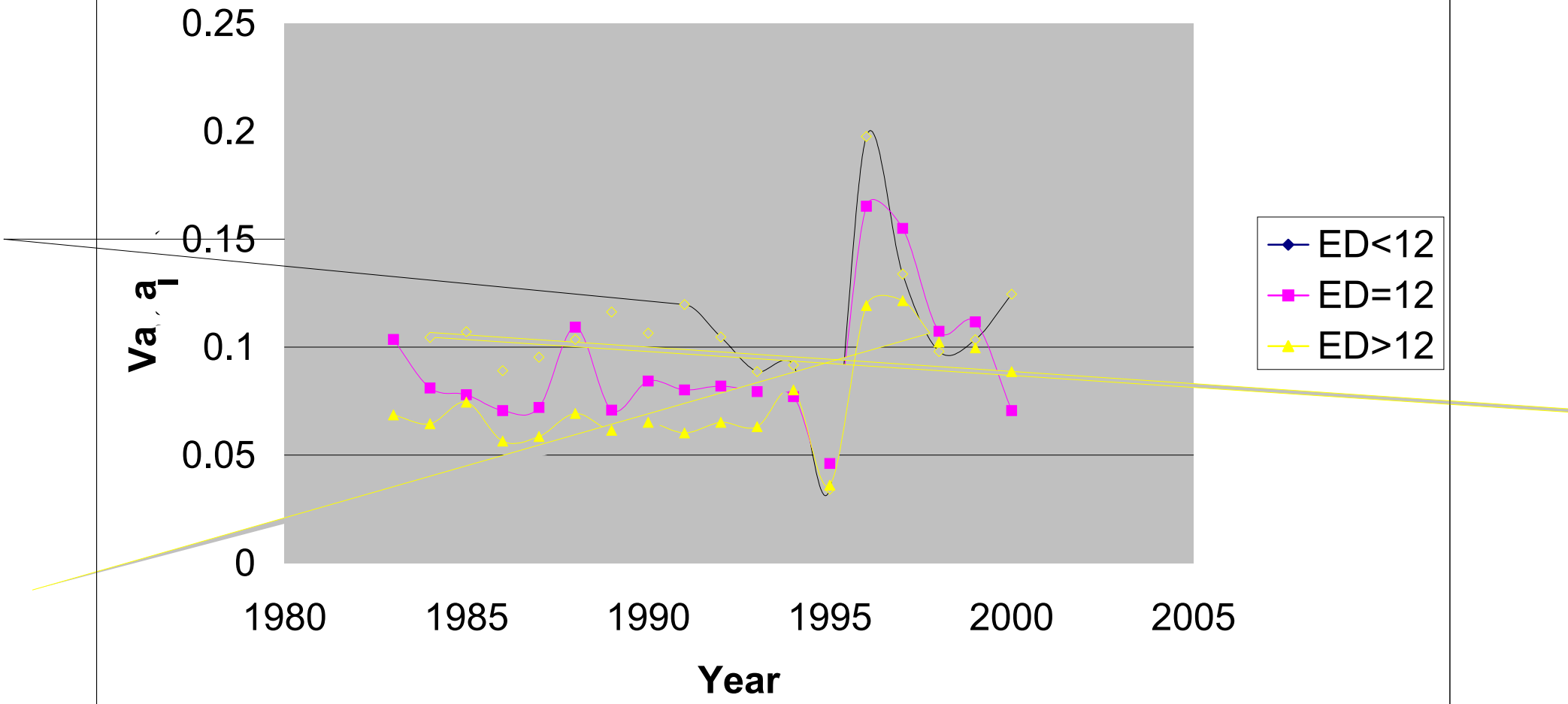
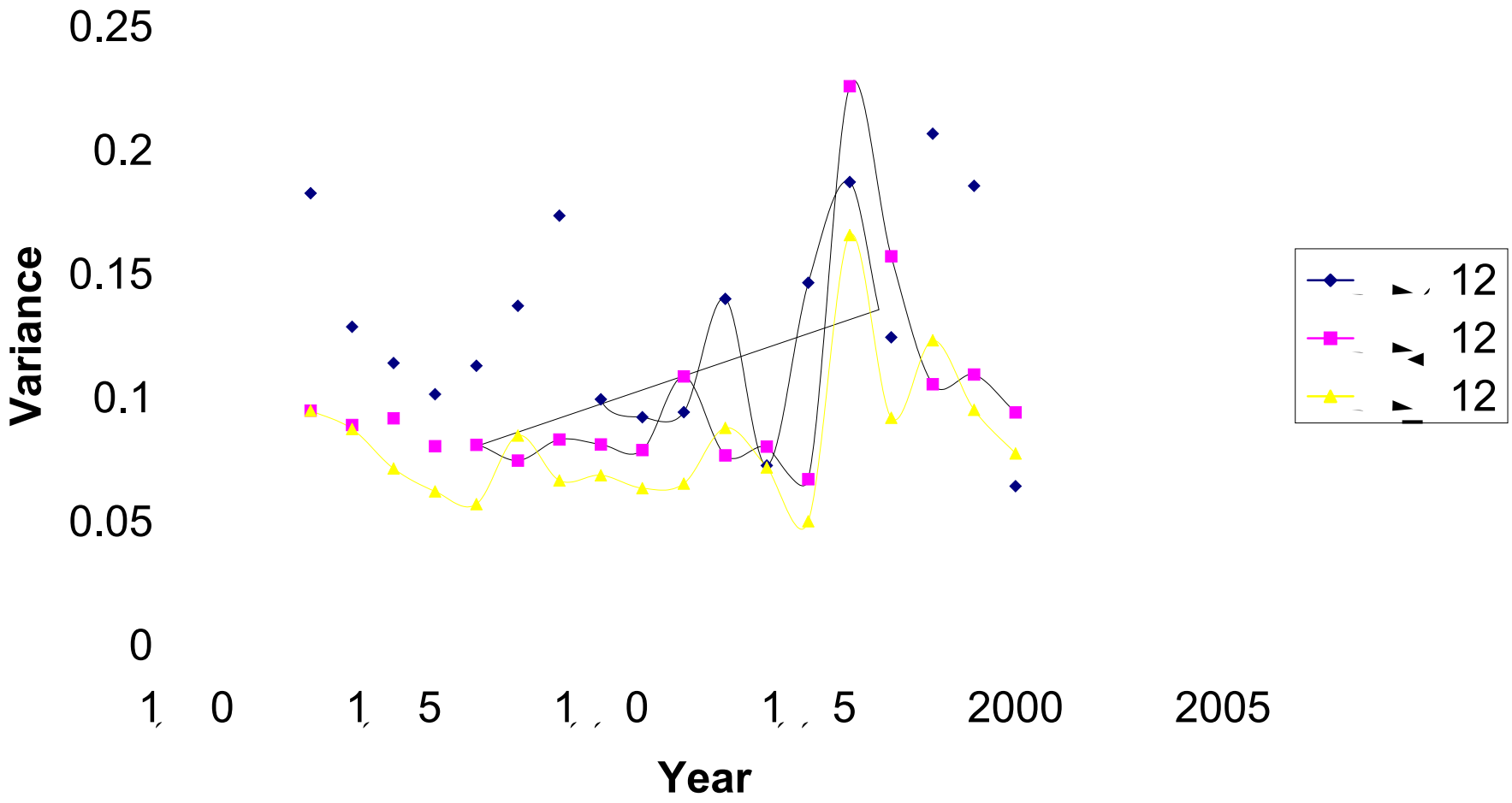
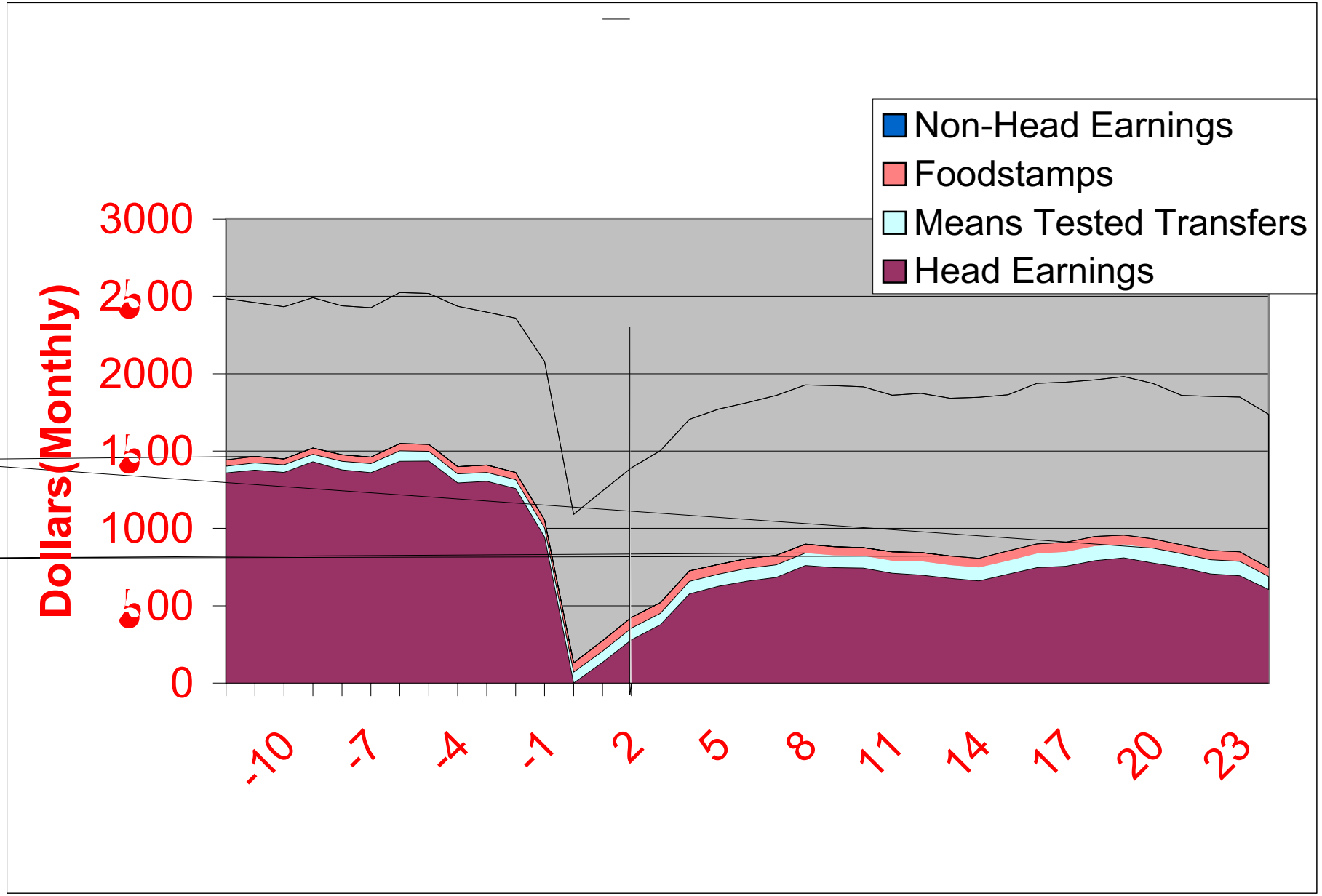


Figure 2B: Female Headed Earnings Variances (1983 to 2000)




Non-Head Earnings
Foodstamps
Means Tested Transfers
Head Earnings
Dollars(Monthly)
3000
2500
2000
1500
1000
500
0
-10
-7
-4
-1
2
5
8
11
14
17
20
23

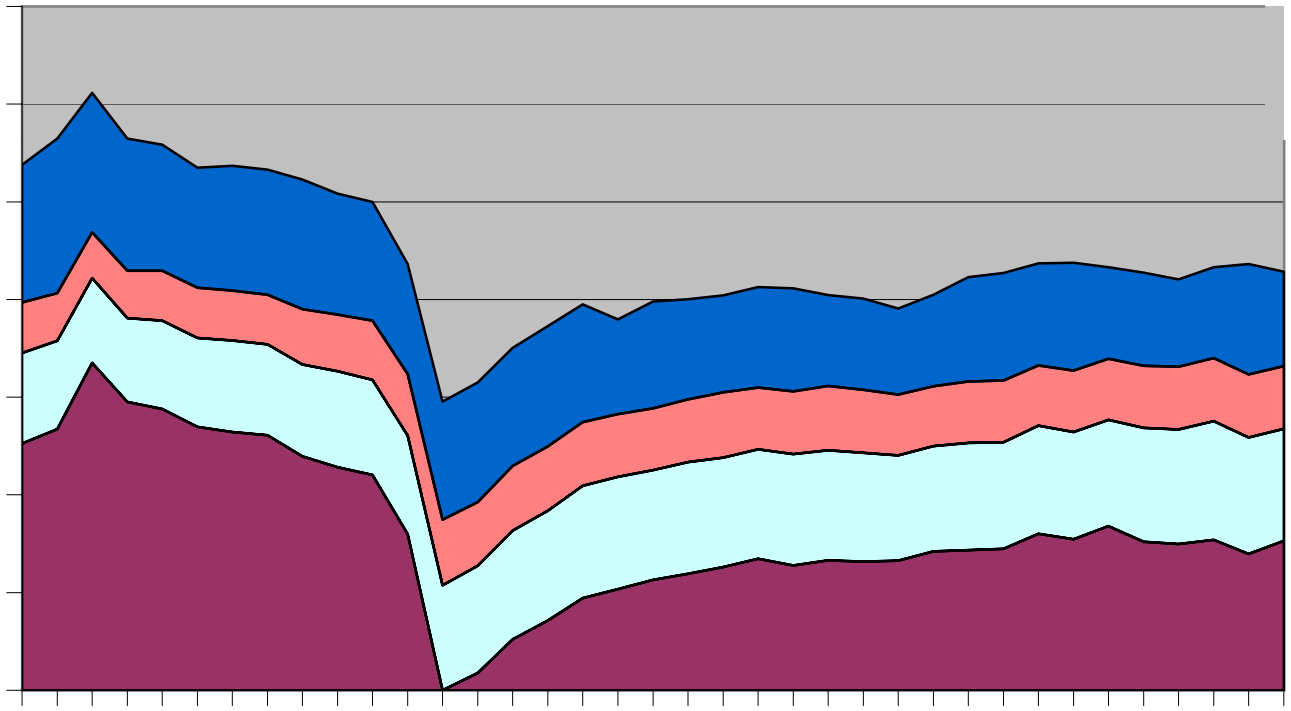


Table 1A
Transfer and Earnings Changes at Job Loss: Married Heads with Low Education

	Means tested cash transfers	Food stamps	Head's Earnings
D1 (1-4 months after job loss)	10.432***	4.161***	-107.679***
	(7.06)	(5.14)	(7.45)
D2 (5-12 months after job loss)			

Table 1 B
Earnings and Transfer Changes at Job Loss: Female Headed Families with Low Education

	(1) Means Tested Cash Transfers	(2) Foodstamps	(3) Head's Earnings
D1 (months 1-4 after job loss)	6.079**	0.658	-32.441***
	(2.44)	(0.64)	(3.53)
D2 (months 5-12 after job loss)	-1.312	-0.738	10.086
	(0.77)	(1.06)	(1.61)
D3 (months 13+ after job loss)	-0.099	0.141	-2.349
	(0.09)	(0.33)	(0.61)
Dprior (4 months prior to job loss)	-0.194	0.443	-36.093***
	(0.09)	(0.51)	(4.63)
Black	0.187	-0.343	0.333
	(0.24)	(1.07)	(0.12)
Number kids (age<18)	-0.357	-0.204	0.051
	(1.15)	(1.61)	(0.05)
Have child age<6	0.432	1.185**	3.700
	(0.37)	(2.48)	(0.86)
Age	-0.180	-0.102	1.104
	(0.50)	(0.70)	(0.84)
Age squared	0.002		
	(0.59)		

Table 2
Means for Monthly Permanent Earnings and Transitory Earnings Standard Deviation

A. Married Heads with Low Education

Panel	Variable	Obs	Mean
1984	Mean Permanent Earnings (1000s)	23126	1.818134
	Transitory Earnings Std Dev(1000s)	23126	0.498695
1986	Mean Permanent Earnings (1000s)	10955	1.832638
	Transitory Earnings Std Dev(1000s)	10955	0.529763
1988	Mean Permanent Earnings (1000s)	9591	1.758624
	Transitory Earnings Std Dev(1000s)	9591	0.472316
1990	Mean Permanent Earnings (1000s)	20441	1.67007
	Transitory Earnings Std Dev(1000s)	20441	0.500578
1992	Mean Permanent Earnings (1000s)	22119	1.485034
	Transitory Earnings Std Dev(1000s)	22119	0.45401
1994	Mean Permanent Earnings (1000s)	26187	1.306701
	Transitory Earnings Std Dev(1000s)	26187	0.424226

B.Female Heads with Low Education

Panel	Variable	Obs	Mean
1984	Mean Permanent Earnings (1000s)	7041	0.859547
	Transitory Earnings Std Dev(1000s)	7041	0.259068
1986	Mean Permanent Earnings (1000s)	3522	0.982413
	Transitory Earnings Std Dev(1000s)	3522	0.278532
1988	Mean Permanent Earnings (1000s)	2913	1.107194
	Transitory Earnings Std Dev(1000s)	2913	0.338278
1990	Mean Permanent Earnings (1000s)	7394	0.878324
	Transitory Earnings Std Dev(1000s)	7394	0.237331
1992	Mean Permanent Earnings (1000s)	6435	0.894187
	Transitory Earnings Std Dev(1000s)	6435	0.260206
1996	Mean Permanent Earnings (1000s)	12631	0.76854
	Transitory Earnings Std Dev(1000s)	12631	0.267667

Table 3A

Table 3B
Participation Probits: Unmarried Female Heads with Low Education

	Receipt of Means Tested Cash Transfers	Receipt of Food Stamps
Dprior (4 months prior to job loss)	-0.007 (0.47)	0.022 (1.44)
Perm. Earnings	-0.119*** (24.57)	-0.159*** (31.66)
Transitory Earnings Standard Deviation	0.005 (0.35)	0.015 (0.70)
D1 (months 1-4 after job loss)	0.018 (1.03)	0.042** (2.29)
D2 (months 5-12 after job loss)	-0.022** (2.11)	-0.001 (0.07)
D3 (months 13+ after job loss)	-0.048*** (7.69)	-0.024*** (3.53)
Perm Earnings* Dprior	0.012 (0.49)	0.053** (2.11)
Perm Earnings* D1	0.131*** (4.40)	0.200*** (6.60)
Perm Earnings* D2	0.055*** (2.71)	0.196*** (9.74)
Perm Earnings* D3	0.190*** (16.72)	0.114*** (10.50)
Trans Earnings SD*Dprior	0.023 (0.50)	-0.197*** (3.45)
Trans Earnings SD*D1	-0.106* (1.94)	-0.270*** (4.05)
Trans Earnings SD*D2	0.120*** (3.39)	-0.166*** (3.06)
Trans Earnings SD*D3	-0.203*** (7.00)	-0.076*** (2.64)
Number of kids (age<18)	0.029*** (20.04)	0.042*** (27.76)
Have child age<6	0.060*** (9.47)	0.038*** (5.86)
Age	-0.000 (0.20)	0.000 (0.13)
Age squared	0.000 (0.31)	-0.000** (2.02)
Black	0.050*** (13.18)	0.084*** (20.99)
Observations	39936	39936
Calendar Year, season, Seam dummies	Yes	Yes

Person month data from SIPP. All heads aged 25-59, Excludes self-employed)0***Excludes self-

Appendix Table 1 A
Transfer and Earnings Changes at Job Loss by Panel: Married Heads with Low Education

	Means Tested Cash Transfers	Foodstamps	Head's Earnings
D0 (Month 1-4 after job loss)	12.099***	3.773**	-123.096***
	(3.82)	(2.17)	(3.97)
D1 (Month 4-12 after job loss)	-3.050	-2.950**	26.680
	(1.42)	(2.50)	(1.27)
D2 (Month 13+ after job loss)	0.932	-0.009	-18.809
	(0.71)	(0.01)	(1.51)
panel==86	-0.705	-1.268	-44.920***
	(0.42)	(1.42)	(2.8
panel==88	-0.257	-0.731	-2
	(0.10)	(0.52)	
panel==90	1.010	-0.438	
	(0.25)	(0.20)	9)
panel==92	1.380	-0.229	407
	(0.33)	(0.10)	.52)
panel==96	0.330	-0.524	7.231
	(0.22)	(0.65)	(0.50)
D1& panel==86	0.383	0.881	-37.947
	(0.08)	(0.33)	(0.78)
D1 & panel==88	1.892	3.688	33.515
	(0.36)	(1.27)	(0.65)
D1& panel==90	-2.862	0.892	53.376
	(0.62)	(0.35)	(1.18)
D1 & panel==92	-6.442	-0.725	32.102
	(1.47)	(0.30)	(0.75)
D1 & panel==96	1.671	-2.360	0.444
	(0.26)	(0.68)	(0.01)
D2 & panel==86	-0.742	-0.467	29.350
	(0.22)	(0.25)	(0.89)
D2 & panel==88	4.148	0.624	-7.523
	(1.18)	(0.32)	(0.22)
D2 & panel==90	-0.666	-1.030	10.412
	(0.21)	(0.31)	(0.34)
D2 & panel==92	0.529	0.529	20.284
	(0.32)	(0.33)	(0.70)

Black	0.014	-0.062	-2.426
	(0.02)	(0.20)	(0.43)
Number kids (age<18)	0.017	⊇DC6T	
	(0.10)	80.02)	

Dprior (4 months prior to job loss)	-0.168 (0.08)	0.505 (0.58)	-35.298*** (4.50)
Black	0.173 (0.22)	-0.327 (1.02)	0.536 (0.19)
Number kids (age<18)			