Intergenerational Proximity: Cross-sectional and Life-course aspects

- Working Paper -

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Abstract

This paper explores proximity to mother for 1984-1996 among adult children (age 23-35 in 1984). Using Panel Study of Income Dynamics, preliminary findings in this paper suggest that non-white, lower education, fewer siblings, and mother's residence in non-rural area are significantly associated with closer proximity to mother. And, controlling after time-invariant factors, adult children's higher education, marriage and working are significantly associated with further spatial location from mother while mother's health problem relates closer proximity. To understand the full mechanism of how adult children's proximity to parents is determined and how such proximity facilitates informal transfers, it might be necessary to incorporate further information on individual geographic mobility and/or to explore within-individual variations.

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I. Introduction

Geographical proximity among family members may significantly affect individuals' daily lives such as time use, and also associated with many research questions especially in the fields of demography, sociology, economics, anthropology, public policy and public health. Yet, few studies have provided patterns and relationships of spatial dispersion among family members other than co-residency.

Using National Survey of Families and Households (1987), studies found that a majority of adult children lives within 10 miles from the residence of parents [Lin and Rogerson 1995, Rogerson et.al 1993]. Such a close intergenerational proximity can play important roles in providing resources for both adult children and parents. Informal transfers can emerge in the form of money transfer or time transfer, and time transfer is directly associated with family proximity. If time transfer is more prevalent among the poorer, one should expect closer family proximity among lower income families. Therefore, socio-economic variables can shape family proximity differently.

Life-course events such as schooling, marriage and health can also affect intergenerational proximity. Silverstein (1995) investigates how older people's health and social characteristics influence stability and change in their temporal distance from their children. Using Longitudinal Study of Aging, he finds that decline in older parents' physical health increases the propensity of parents and children to become temporally closer to each other.

This paper investigates patterns of proximity to mother among adult children for 1984 - 1996 associated with socio-demographic and life-course variables using Panel Study of Income Dynamics.

II. Overview : Proximity to Mother

Lin and Rogerson (1995) summarize conceptual model on intergenerational proximity development: the first stage is the spatial separation as children seek independent lives and the second stage is a stabilization or adjustment process of intergenerational separation resulting mainly from the migrations of adult children. In the final stage, parents face health deterioration and potentially loss of a spouse. Children's geographical availability emerges importantly. Figure 1A presents overview of proximity to mother over age 17-50. The rate of residing with parents decreases sharply early 20s, lowest at mid 30s and increases later 30s and older: 96% of 17 years old, 27% of 25 years old, 9% of 35 years old and 57% of 50 years old. Among non-coresidents, a large fraction of adult children still live in the same zip code area with mother: 37% of 35 years old lives in the same zip code area.

Closer proximity to mother among older children might be related with care-giving for elderly mother and/or might be a reflection of greater tendency of having extended family among older generation. Focusing on age cohort 23-35 in 1984, figure 1B depicts distribution of proximity using balanced sample for 1984-1996. The rate of coresident children decreases from 18% to 5%, the rate of those who live in the same zip code area with mother decreases from 41% to 32% over the period.

Economic resources of family can play importantly in shaping overall intergenerational proximity patterns. With greater economic resources, children have less restriction of seeking educational and employment opportunity in terms of geographical mobility, which results in greater spatial separation (Long 1973, Adams 1968 Wenger 1984). Figure 2 A and 2B presents

overall patterns of proximity to mother using PSID SRC and SEO sample separately. The SEO sample initially targeted lower income family[2].

III. Data

To construct intergenerational proximity information for this paper, I use PSID Main files, PSID Geocode Match file and PSID Family Mapping file. PSID Core sample comprises SRC sample and SEO (Census) sample. Note that SEO sample has been reduced substantially since1997 PSID survey and self-reported health status was collected from 1984. For this paper, I explore proximity patterns only with biological mother.

For analysis sample, I use sample period 1984-1996 and construct two samples – i) unbalanced and ii) balanced. For balanced sample, I include only 23-35 years old in 1984, which means adult children in the balanced sample are aged 35-47 in 1996. Correspondingly, age restriction for unbalanced sample is 23-47 years old for 1984-1996.

Using information from PSID Family Geocode Match file, I construct intergenerational proximity variable, which has five exclusive categories – 1. Corsident, 2. Same Zip Code, 3. Same County, 4. Same State and 5. Out-State. Table 1 summarizes overall sample characteristics and distributions: The unbalanced sample comprises 49,827 observations (6,825 individuals, average spell is7.3) and balanced sample comprises 18,655 (1435 individuals, 13 years per individual). In unbalanced sample, 18% cases are coresident with mother, 24% cases live in the same zip code but not coresident, 21% in the same county but not same zipcode, 18% in the same state but not same county with mother. In the balanced sample, 10% are coresident,

[2] Family income level accounts approximately twice of poverty line.

24% are in the same zip code but not coresident, 22% are in the same county but not same zip code, 21% in the same state with mother.

IV. Determinants of Proximity to Mother: Distributions and Estimates

$$\boldsymbol{Y_{it=}F(T, D_i, X_{it};\ \alpha_i, \theta_{it})} \qquad \textbf{(1)}$$

Y_{it} indicates proximity to mother. I generate four cumulative outcome variables – coresident with mother, living in the same zip-code area, same county and same state. $\boldsymbol{T}$ is time. D_i represents time-invariant variables such as demographic and family background. X_{it} represents time variant variables such as life-course events. α_i represents omitted individual time-invariant component and θ_{it} is omitted individual time-variant variable.

A. Demographic and family background factors (Time-Invariant Factors)

Several research papers suggest that informal economic linkage can be a pervasive phenomenon among poorer population in USA [Haider and MaGarry (2005), Sloan, Zhang and Wang (2002), Couch, Daly and Wolf (1999), Schoeni (1997), McGarry and Schoeni (1995)].

Spatial separation pattern and trajectory of proximity between adult children and parents can be significantly associated with initial demographic and family background such as gender, race, parental background and number of siblings.

Gender

Although daughter is more likely to be a care-giver for elderly parents with health problems, there is not evidence of closer intergenerational proximity among daughter compared to son (Lin and Rogerson 1995). From figure 2 and table 2, sons live closer to mother in terms of

coresidency and zip code level although marginal effect in table 2 indicates daughter is more likely to live within state level by 4%.

Race

As shown in Figure 3, among non-white, 17% are coresident with mother, 43% live in the same zip code area, 72% live in the same county with mother while among white 10% coresident, 31% in the same zip code and 52% in the same county with mother from unbalanced sample. Distribution from balanced sample indicates closer proximity in terms of coresidency, zip code level and county level among non-whites in all periods.

Mother's Education

Regarding mother's education level, figure 4 indicates overall greater fraction of adult children with less educated mother live closer to mother than children with more educated mother: 43% in the same zip-code area with less educated mother and 37% with higher educated mother in unbalanced sample.

Number of Sibling

Figure 5 shows that adult children with more sibling tend to live further from mother: 30% coresident, 49% in the same zip code and 63% in the same county among adult children with one sibling while 18% coresident, 41% in the same zip code area and 62% in the same county among adult children with two or more siblings.

Mother in Rural

According to Figure 6, mother's residence in rural area (in baseline year) shows a relativly lower fraction of children living with mother, a greater fraction of children living in the same county.

All Demographic/Family Background Variables

Table 2 summarizes marginal effects using balanced sample. Each column was estimated separately and outcome variables are defined as cumulative proximity. For example, same state includes coresident, same zip code area and same county as well. Results indicate that i) older age cohorts are less likely to live within each geographical boundary. ii) with aging, adult children tend to live in the same zipcode, county and same state with mother. iii) compared to daughter, adult son is more likely coresident with mother and live in the same zip code area with mother, but less likely to live in the same state with mother, ii) non-white is significantly associated with closer proximity in all spatial levels (coresident, zip-code, county and state), iii) children with more educated mother is significantly associated with a lower probability of living in the same zip code area, same county and same state while mother's education is not a significant predictor for whether coresident with mother, iv) number of sibling is a significant predictor of proximity to mother for all proximity levels: the more sibling, the further adult children live from mother and v) mother's residence in rural area is associated with lower probability of coresident with mother and lower probability of being in the same county.

B. Individual life-course variables (Time-Variant Factors)

Adult Child: Years of Schooling

Figure 6 shows adult children with higher education are further from mother: using unbalanced sample, 44% among adult children with lower education live in the same zip code area while 31% with higher education live in the same zip code area with mother. Controlling for time-invariant covariates, the predicted probability of living in the same zip-code with mother is

49.1% among children with high school degree only while 18.0% among adult children with university of higher degree.

Adult Child: Working Status

Working children is more likely to live further from mother compared to non-working children: in terms of whether living in the same zip code area with mother, fraction among non-working adult children is 46% while that among working adult children is 38% from unbalanced sample in Figure 7. Using balanced sample, Table 4 provides the association between working status and proximity outcomes controlling for time-invariant variables: Working children are less likely to live in the same zip-code area nor county. The predicted probability of living in the same zip-code area with mother is 37.6% if children are not working currently but 29.2% if children working.

Adult Child: Marital Status

As depicted in Figure 8, children's marital status is strongly associated with proximity to mother: from unbalanced sample, 26% coresident and 60% in the same zip –code area among unmarried adult children while 2% coresident and 27% in the same zip-code area among married adult children. Using balanced sample, after controlling for time-invariant factors (Control I), the predicted probability of being in the same zip code with mother is 45.5% among un-married children while 23.9% among married children.

Mother's Health

As in figure 9, children with unhealthy mother tend to live closer to mother: 42% in the same zip-code area with mother among children with unhealthy mother while 30% otherwise. After controlling for time-invariant factors (Control I), the predicted probability of living in the same

zip-code are with mother is 36.9% among children with unhealthy mother while 27.1% among children with healthy mother.

Mother's Marital Indicator

Whether an elderly mother lives with a spouse might affect a child's decision on spatial proximity to the mother. As in figure 10, children with a single mother tend to live closer to mother: 10% in the same zip-code area if mother is not coresident with her spouse in 1996 and 3% if a mother lives with a spouse. After controlling for time-invariant factors (Control I), the predicted probability of living in the same zip-code with mother is 34.7% if the mother live with a spouse and 28.9% otherwise.

All Life-Course Variables

Using balanced sample, table 8 presents marginal effects of individual's life-course variables on probability of living in the same zip-code with mother controlling after time-invariant factors (Control I) and lagged variables (Control II) additionally. Overall, children's schooling, working status, marital status and mother health status remain as significant predictors.

V. Summary and Discussion

This paper provides i) overall patterns of proximity to mother, ii) marginal effects of demographic and family background variables, and iii) marginal effect of individual life-course variables on proximity to mother. Overall non-white, less educated mother, fewer siblings, lower schooling level, un-married status and mother's poor health are associated with closer proximity to mother among adult children.

Although this paper address important cross-sectional and life course events that affect proximity to mother, there might be more variables that can potentially play significant roles in determining spatial dispersion among children and mother such as community characteristics, children' s and mother's financial situation, and mother's marital status. In addition, using longitudinal aspects, it might be important to explore how within-individual variations of each life-course variable are associated with proximity to mother.

This paper has limitation to provide any causal implication between various variables and proximity. Closer proximity among lower educated might simply reflect low individual mobility among the poorer. To obtain a valid inference of causal relationship, it might be necessary to incorporate information on individual geographic mobility and/or variation within individuals.

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Figure 1A: Proximity to Mother over Age 17-50
(Sample: PSID Core 1984-1996, **Unbalanced**, N=70,909)

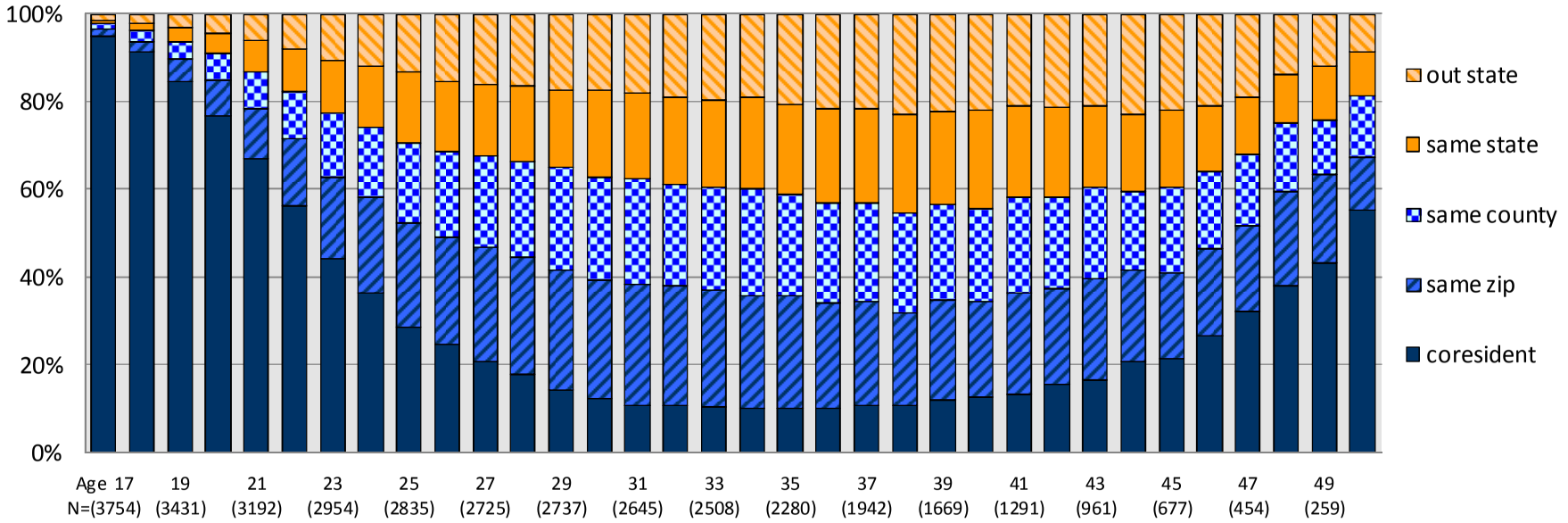


Figure 1B: Proximity to Mother over Years
(Sample: PSID Core 1984-1996, Age 23-35 in 1984, **Balanced**)

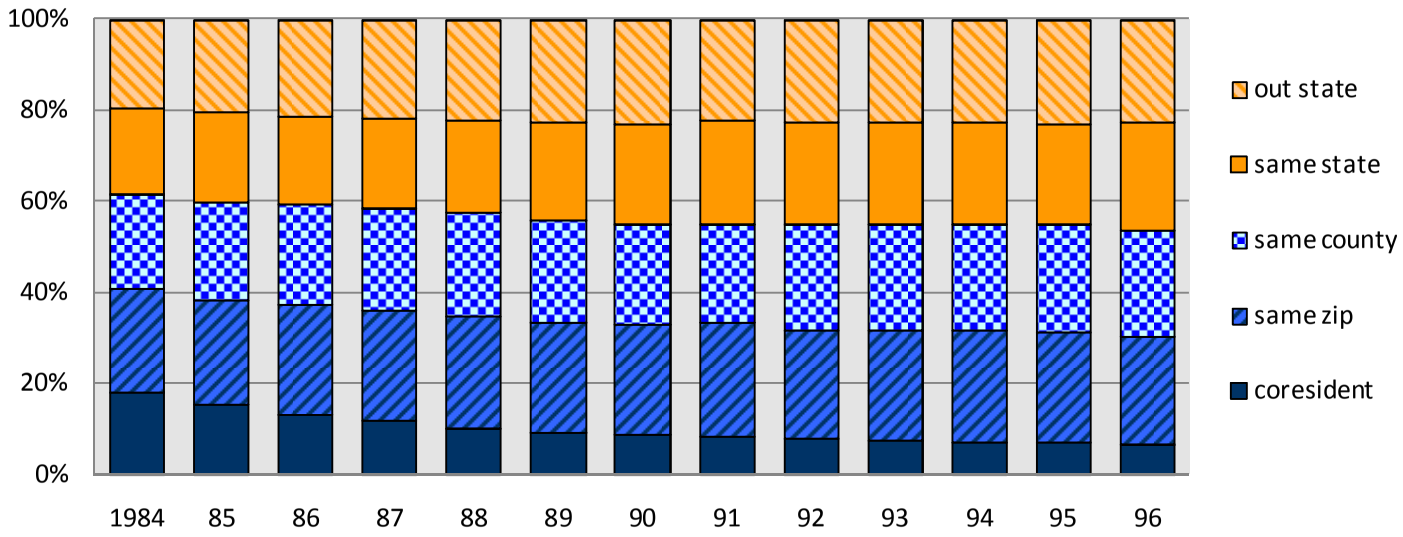


Table 1: Sample Summary
(Sample: PSID Core, 1984-1996)

	Unbalanced	Balanced
Sample Period	1984-1996	1984-1996
Age Restriction	23-48 for sample period	23-35 in 1984
Num. of Observation	49827	18655
Num. of Individuals	6825	1435
Average spell per individual	7.3 years	13 years
Proximity		
Degree0: Coresident	9119 (18.3%)	1871 (10.0%)
Degree1: Same Zipcode	12108 (24.3%)	4498 (24.1%)
Degree2: Same County	10507 (21.1%)	4183 (22.4%)
Degree3: Same State	9140 (18.3%)	3986 (21.4%)
Degree4: Out State	8953 (18.0%)	4117(22.1%)
Mean of		
Age	32.1	34.3
Male=1	0.49	0.48
White=1	0.60	0.67
Mother's scholing>=13	0.21	0.23
Num. of sibling>=2	0.77	0.80
Child's own schooling>=13	0.44	0.48
Working now=1	0.77	0.8
Married = 1	0.52	0.63
Mother's health=Poor	0.11	0.31

Figure 2: Proximity to Mother over Years (Sample: Age 23-35 in 1984, Balanced)

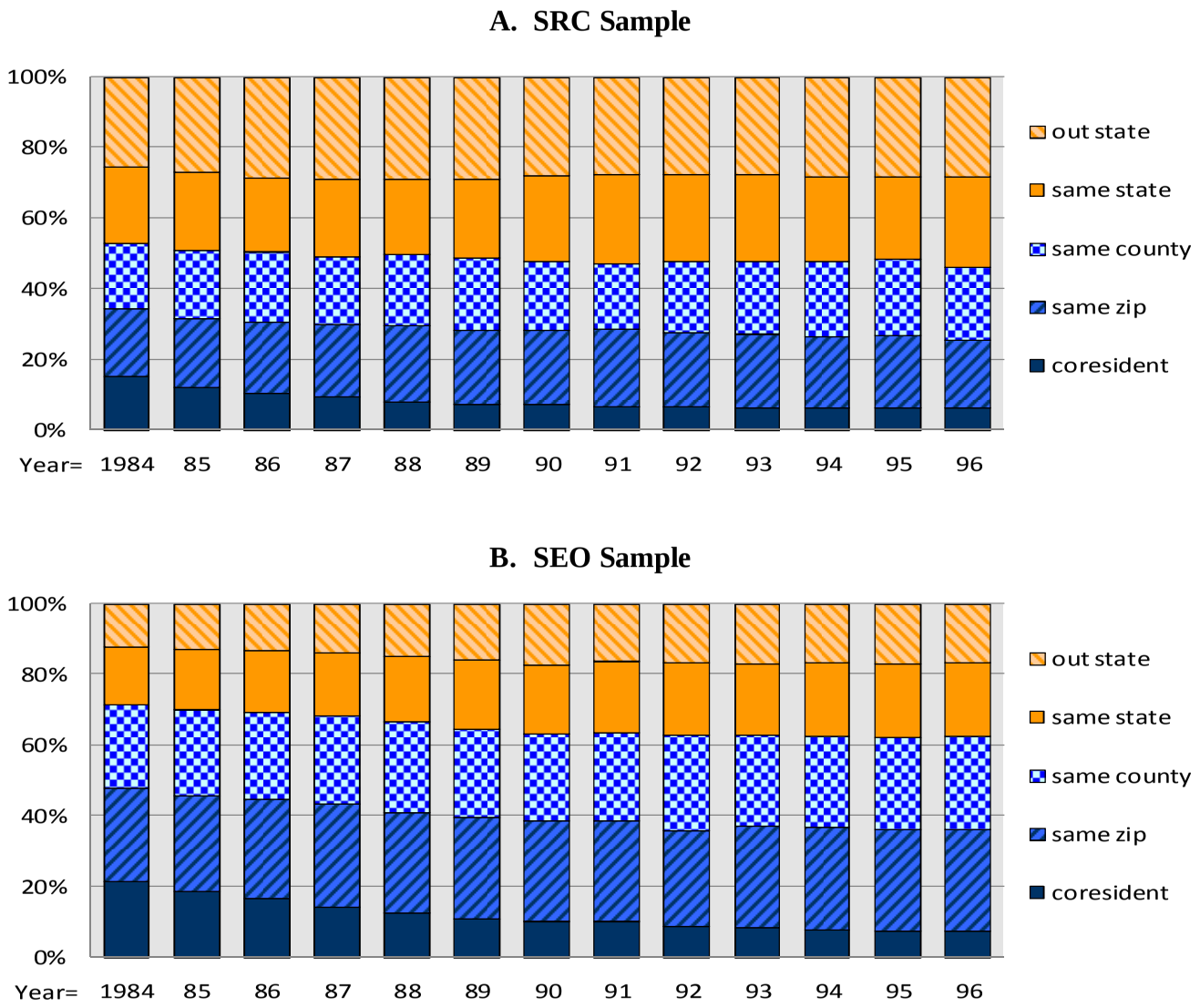


Figure 2: Proximity to Mother by **Gender**
(Sample: PSID Core)

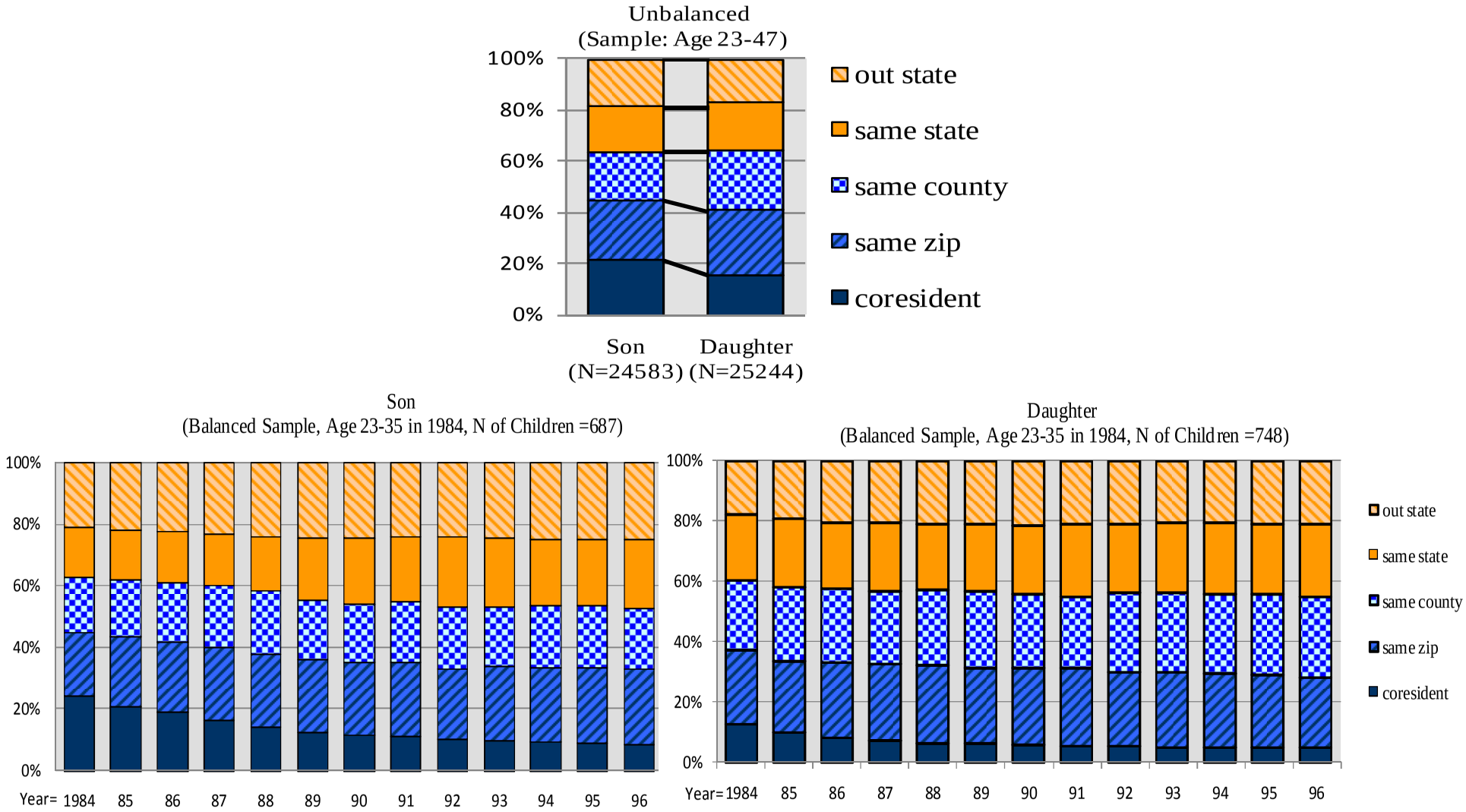
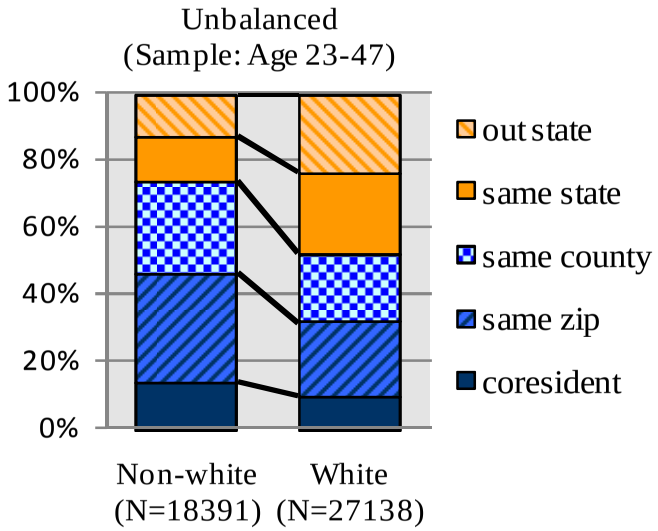
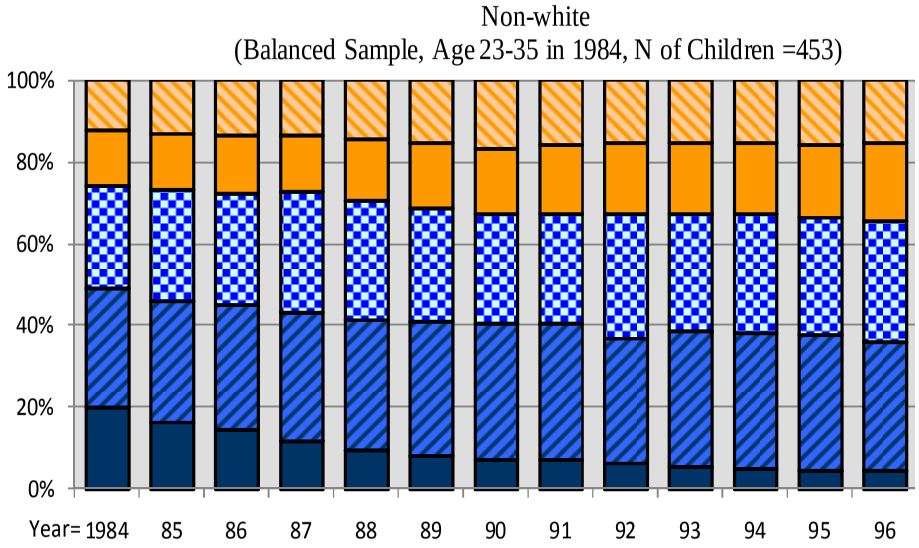


Figure 3: Proximity to Mother by **Race**
(Sample: PSID Core)





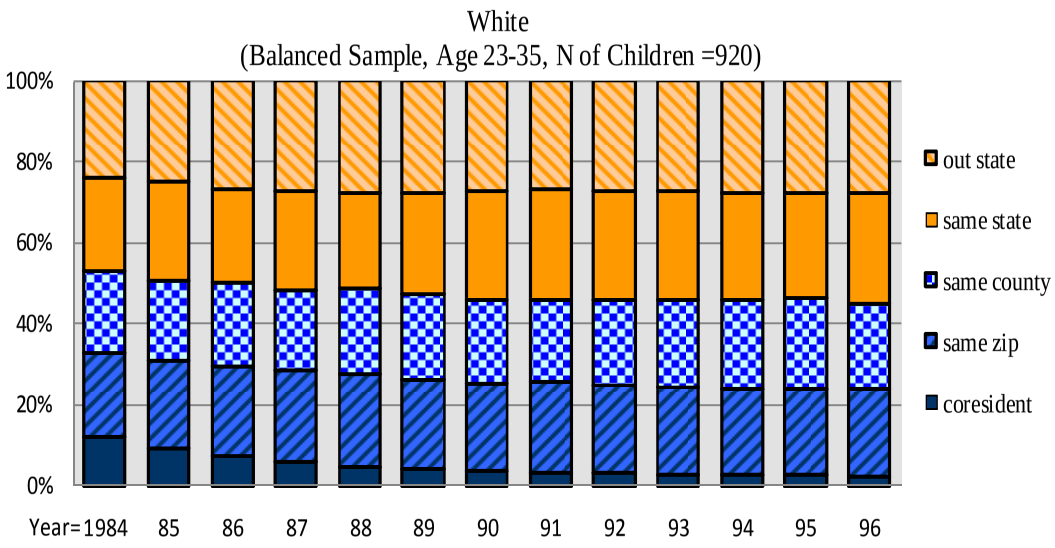
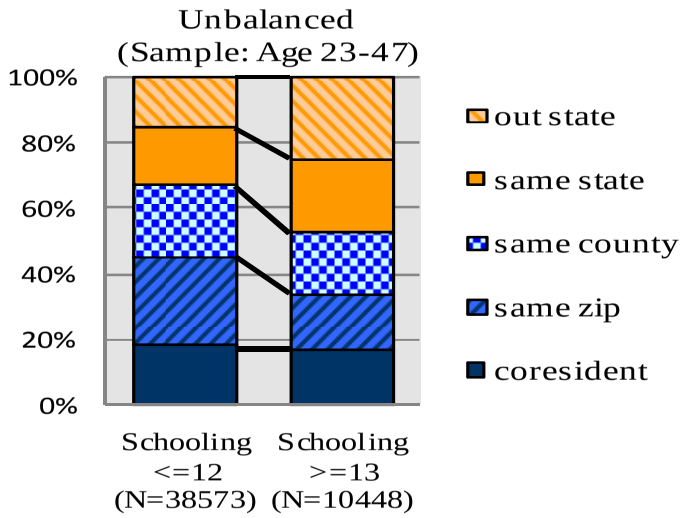
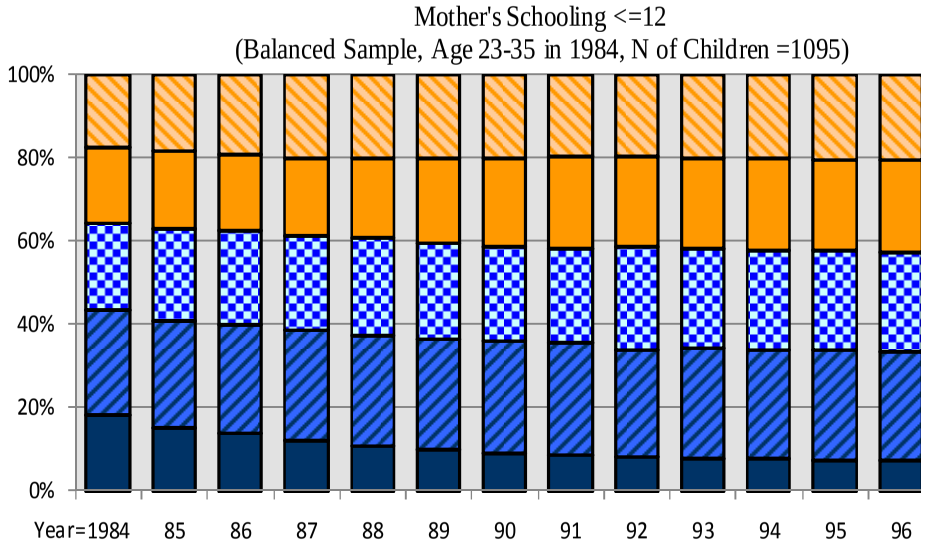


Figure 4: Proximity to Mother by **Mother's Education Level**
(Sample: PSID Core)





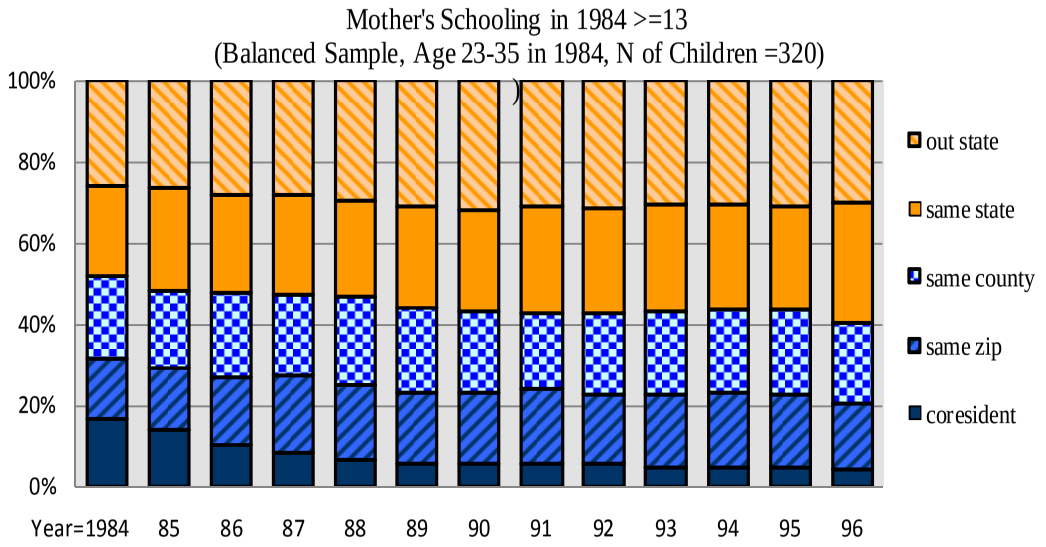
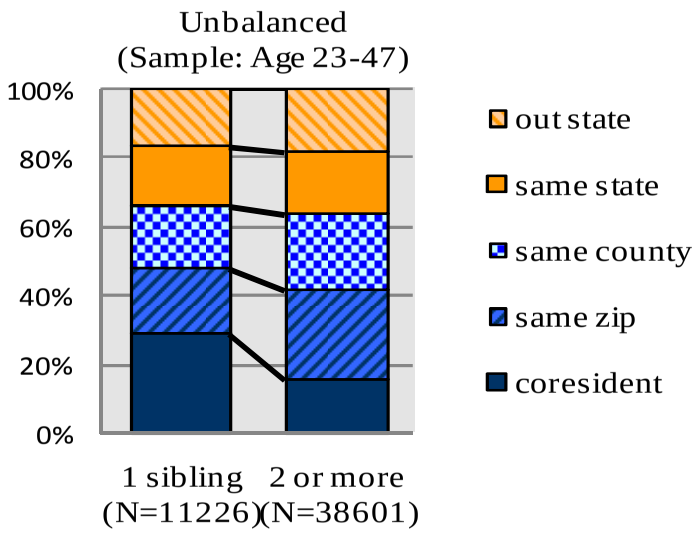
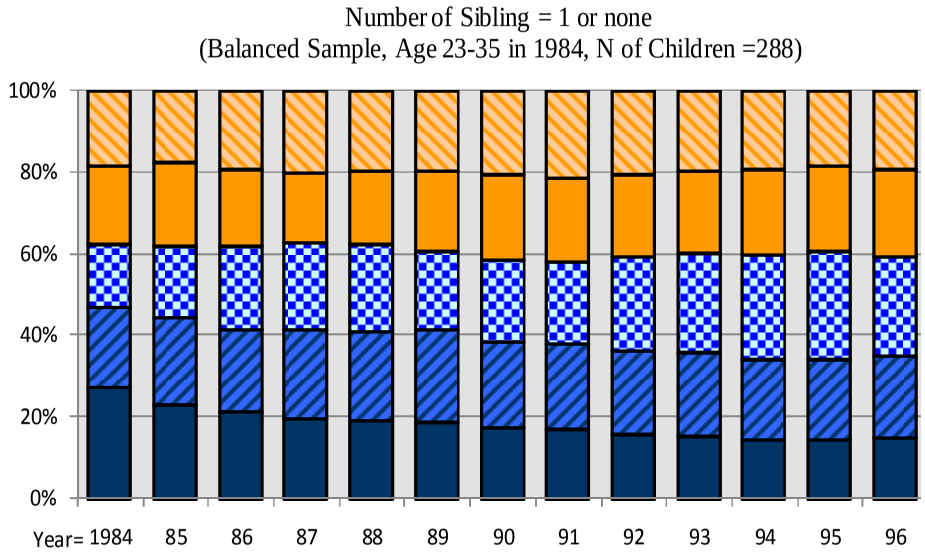


Figure 5: Proximity to Mother by **Number of Siblings**
(Sample: PSID Core)





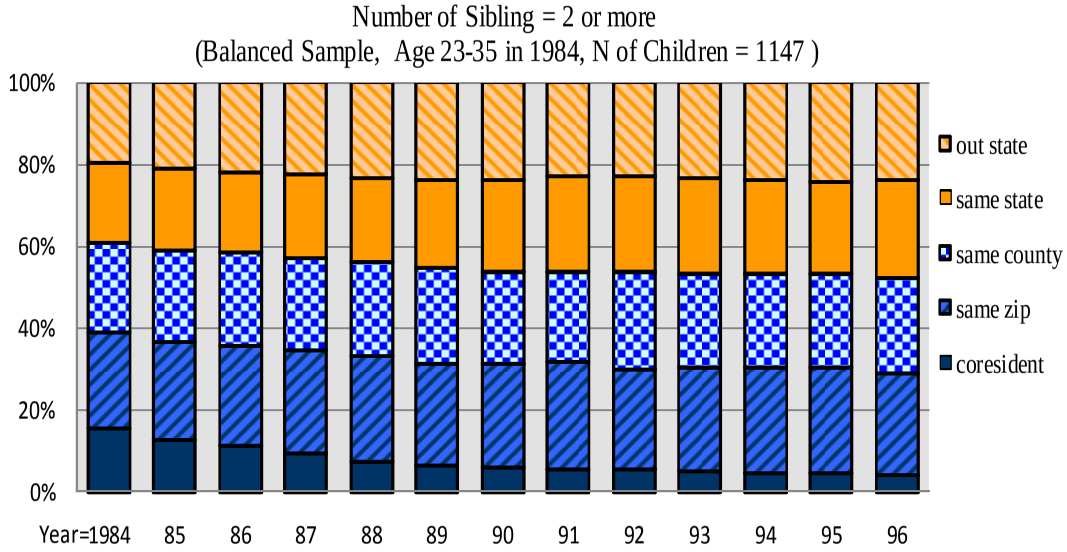
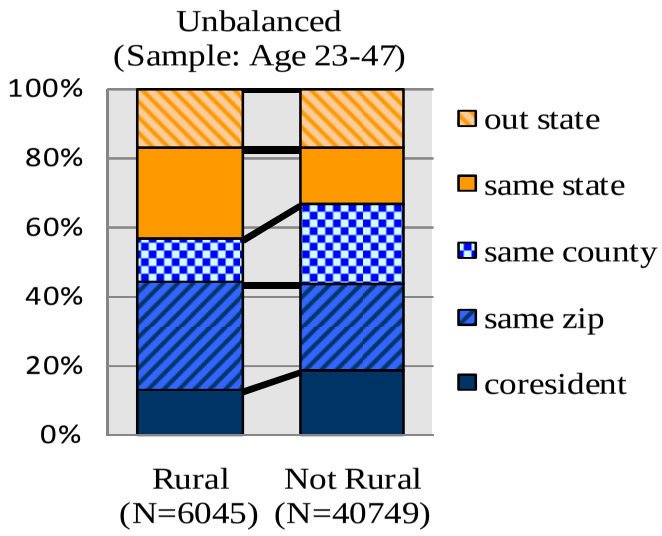
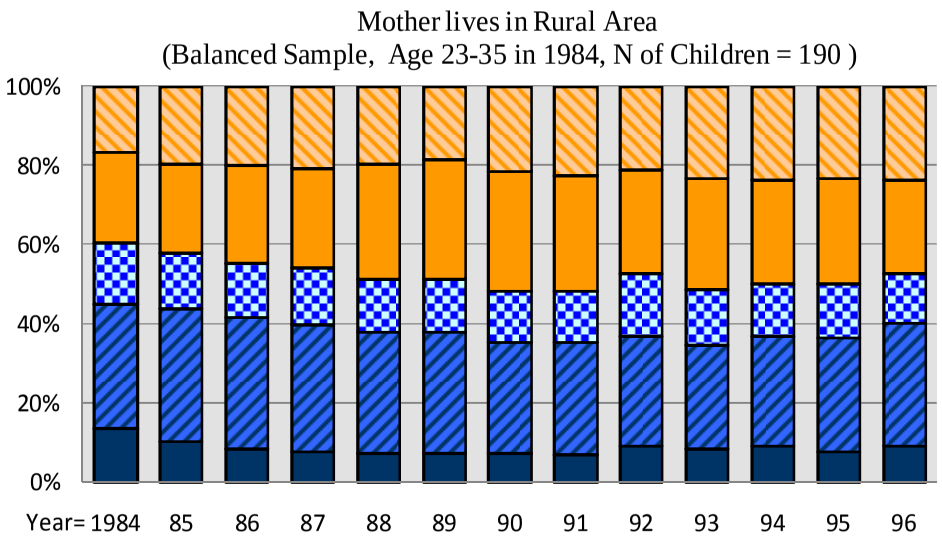


Figure 6: Proximity to Mother: **Mother in Rural or Not**
(Sample: PSID Core)





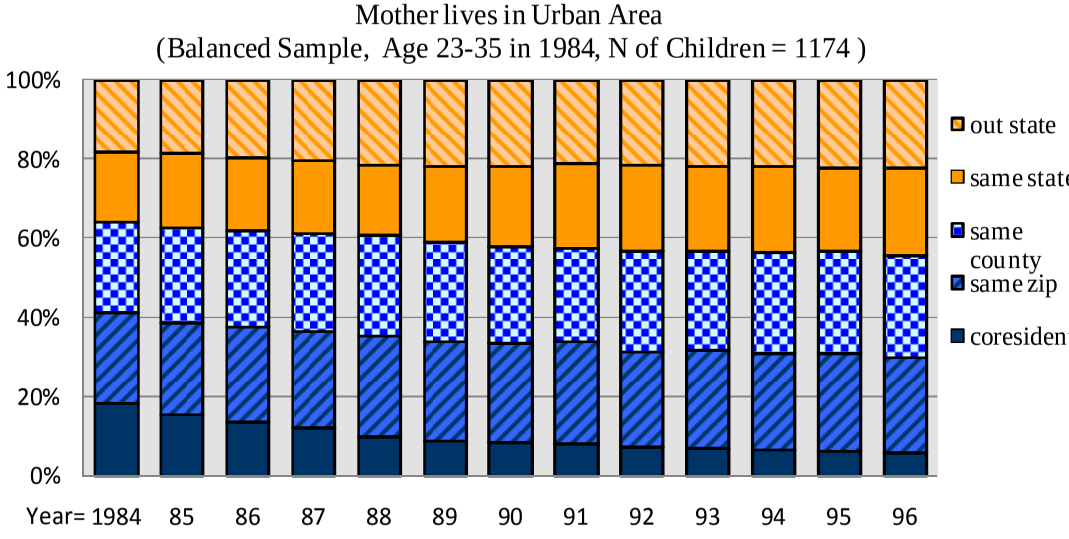
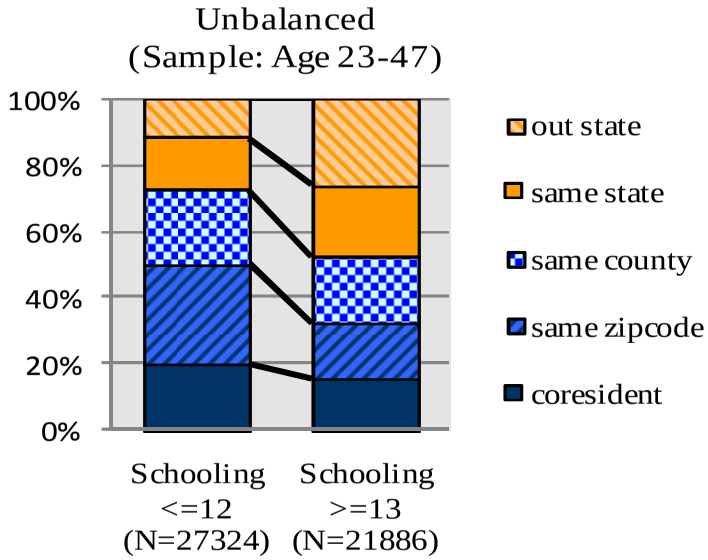


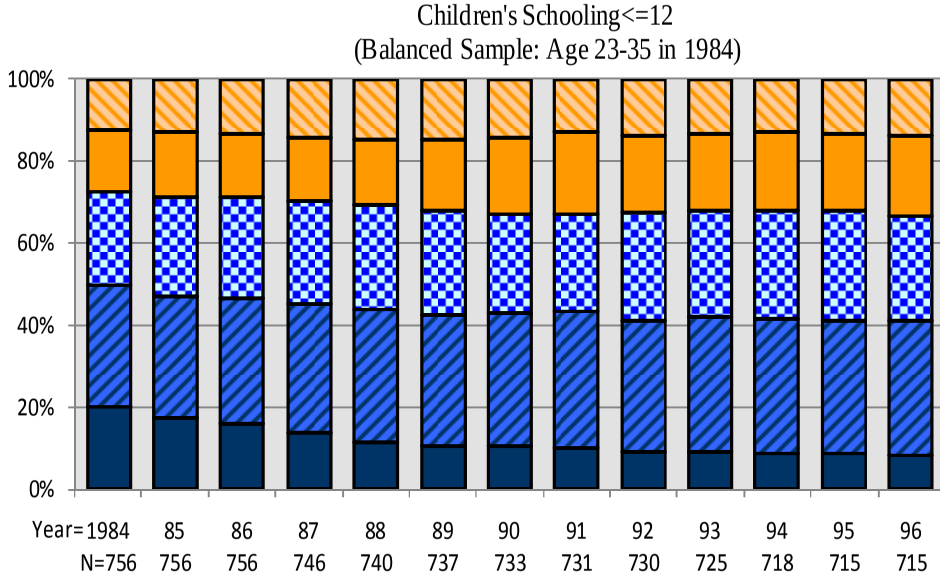
Table 2: Marginal Effects of Demographic and Family Background
- Time Invariant Factors -
(Sample: PSID Core 1984-1996, Age 23-35 in 1984, Balanced)
- Logit Regression -

	Outcome Variable (Cumulative): Proximity to Mother			
	(1) Coresident	(2) Same Zipcode	(3) Same County	(4) Same State
Age in 1984	-0.003***	-0.014***	-0.016***	-0.012***
	(0.001)	(0.003)	(0.003)	(0.003)
Year	-0.006**	-0.008***	-0.008***	-0.003***
	(0.001)	(0.001)	(0.001)	(0.001)
Male=1	0.025***	0.040*	-0.009	-0.041**
	(0.008)	(0.022)	(0.025)	(0.020)
White=1	-0.024**	-0.128***	-0.197***	-0.098***
	(0.010)	(0.024)	(0.025)	(0.020)
Mother's scholing>=13	-0.003	-0.085***	-0.120***	-0.078***
	(0.009)	(0.024)	(0.029)	(0.025)
Num. of sibling>=2	-0.071***	-0.064**	-0.070**	-0.049**
	(0.018)	(0.029)	(0.031)	(0.023)
Mother in rural area=1	-0.020**	0.038	-0.077**	-0.007
	(0.008)	(0.034)	(0.038)	(0.029)

Standard errors in parentheses. *** p<0.01, ** p<0.05, * p<0.1

Figure 6: Proximity to Mother by **Children's Schooling**
(Sample: PSID Core)





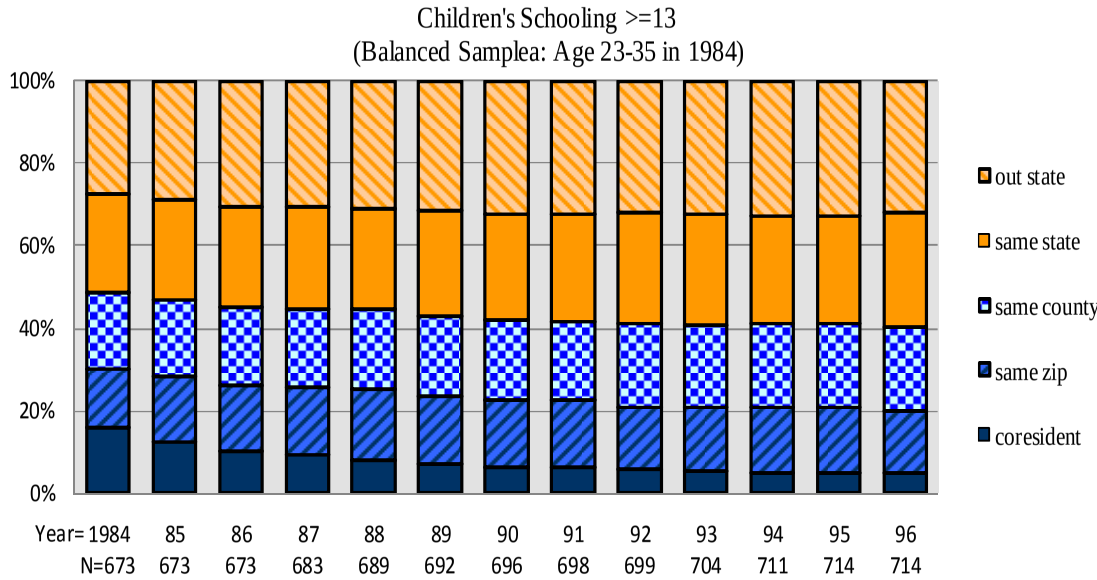


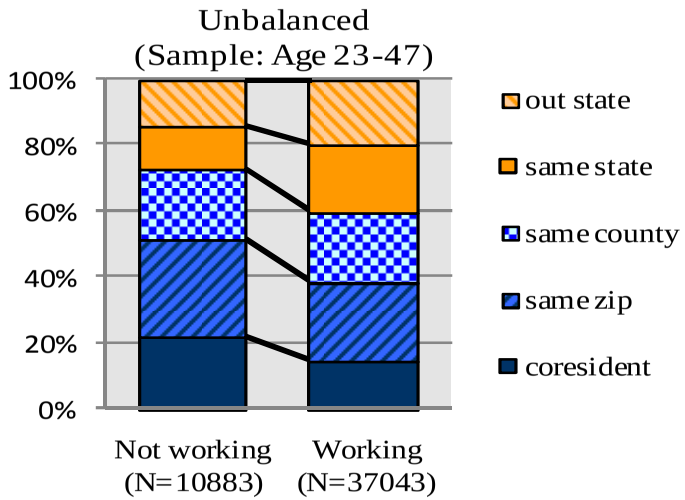
Table3: **Adult Children's Schooling**
(Sample: PSID Core 1984-1996, Age 23-35 in 1984, Balanced)

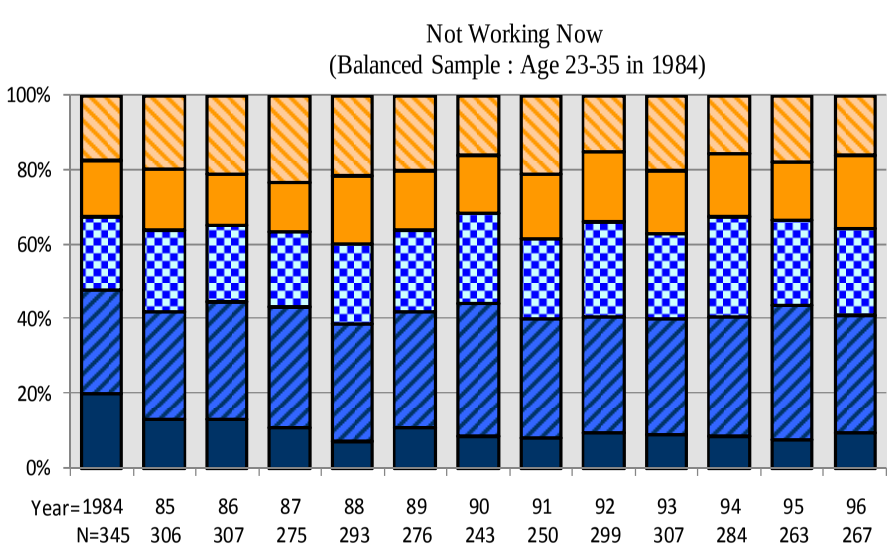
	- Logit Regression -			
	Outcome Variable =			
	(1)	(2)	(3)	(4)
	Coresident	Same Zipcode	Same County	Same State
Coefficients: With Control I	-0.214*	-0.493***	-0.635***	-0.584***
	(0.111)	(0.056)	(0.059)	(0.073)
Predicted probability:				
Schooling==12	5.2%	49.1%	78.7%	91.4%
Schooling>=16	2.8%	18.0%	35.5%	64.7%
Coefficients: With Control I+II	0.059	-0.252*	-0.295**	-0.364**
	(0.482)	(0.140)	(0.130)	(0.156)

Standard errors in parentheses, *** p<0.01, ** p<0.05, * p<0.1

Control I = Age, year, gender, mother's schooling, number of siblings, mother's residential area (rural or not)
Control II = Years of schooling (categorical) in the prior year

Figure 7: Proximity to Mother by **Children's Working Status**
(Sample: PSID Core)





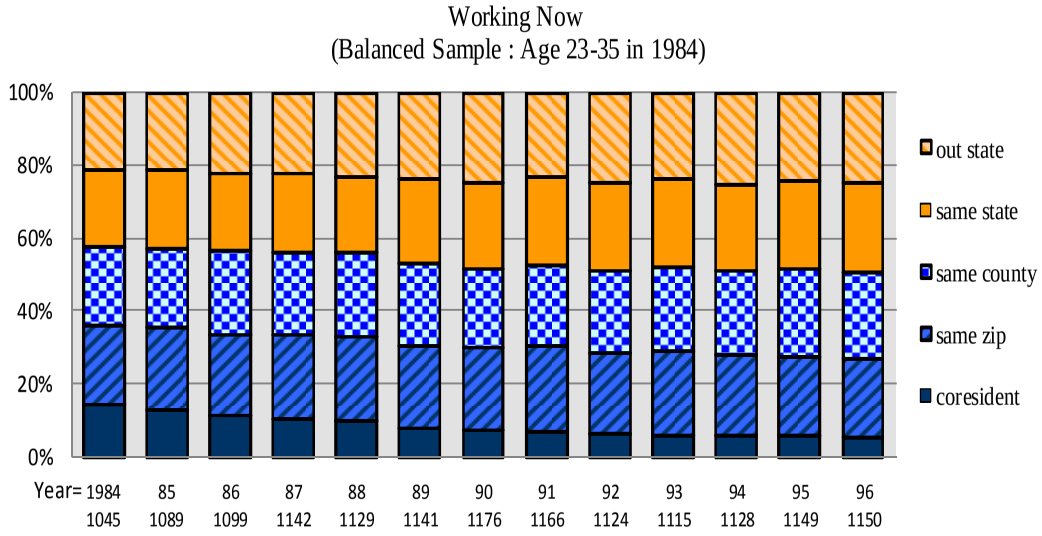


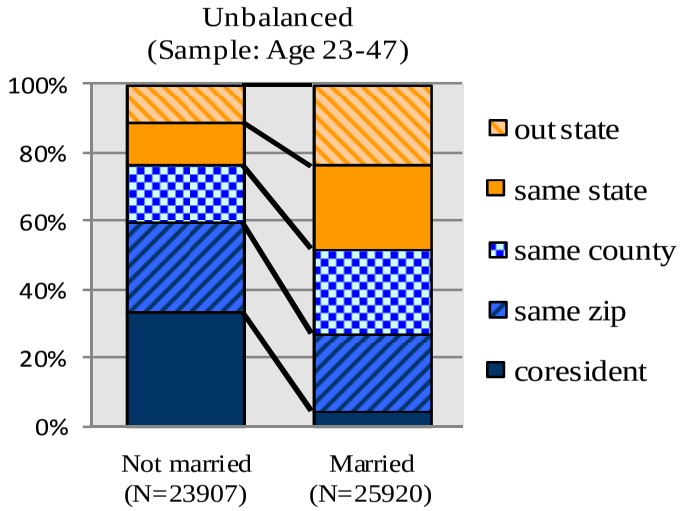
Table 4: **Adult Children's Working Status**
(Sample: PSID Core 1984-1996, Age 23-35 in 1984, Balanced)
- Logit Regression -

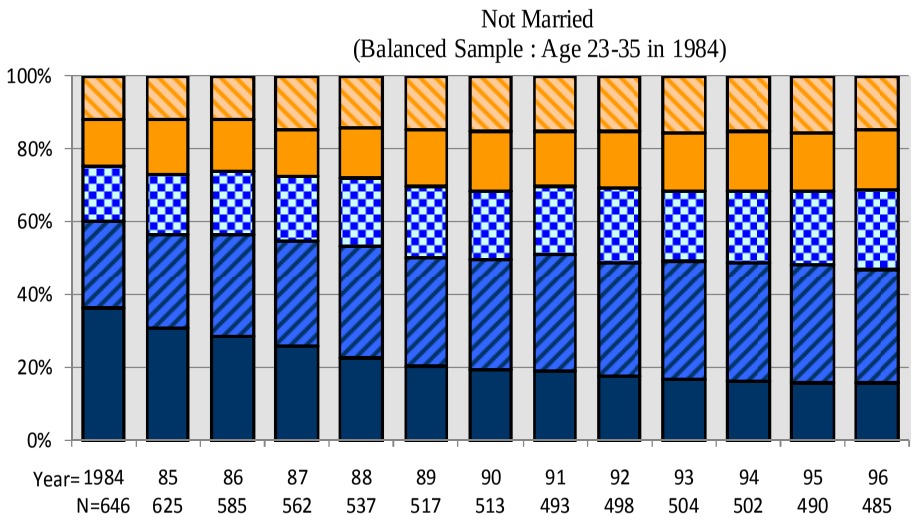
	Outcome Variable =			
	(1) Coresident	(2) Same Zipcode	(3) Same County	(4) Same State
Coefficients: With Control I	0.256 (0.180)	-0.380*** (0.088)	-0.224** (0.088)	-0.019 (0.108)
Predicted probability:				
Not working now	3.0%	37.6%	60.9%	79.4%
Working now	3.8%	29.2%	55.5%	79.1%
Coefficients: With Control I+II	0.452*** (0.163)	-0.239*** (0.064)	-0.149** (0.064)	-0.036 (0.077)

Standard errors in parentheses, *** p<0.01, ** p<0.05, * p<0.1

Control I = Age, year, gender, mother's schooling, number of siblings, mother's residential area (rural or not)
Control II = Working status (categorical) in the prior year

Figure 8: Proximity to Mother by **Children's Marital Status**





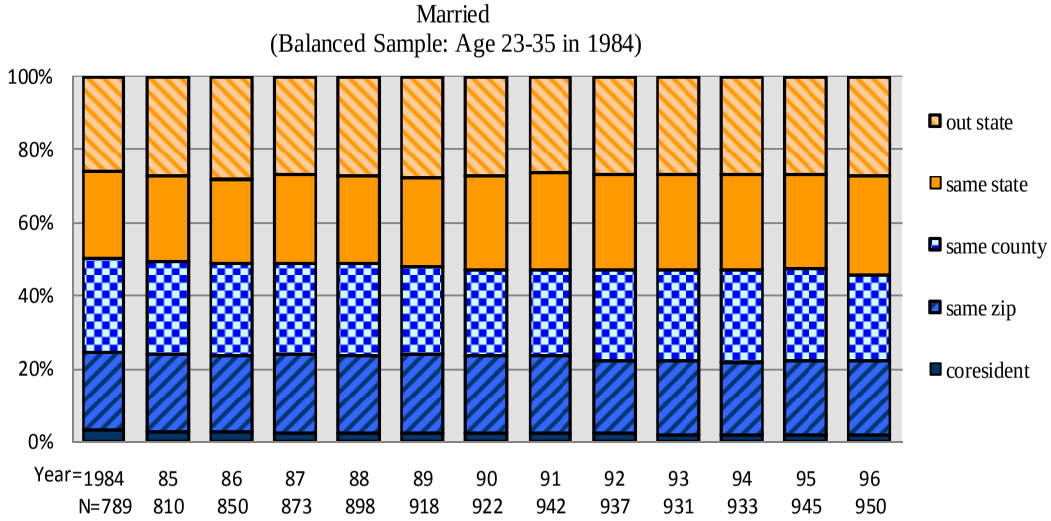


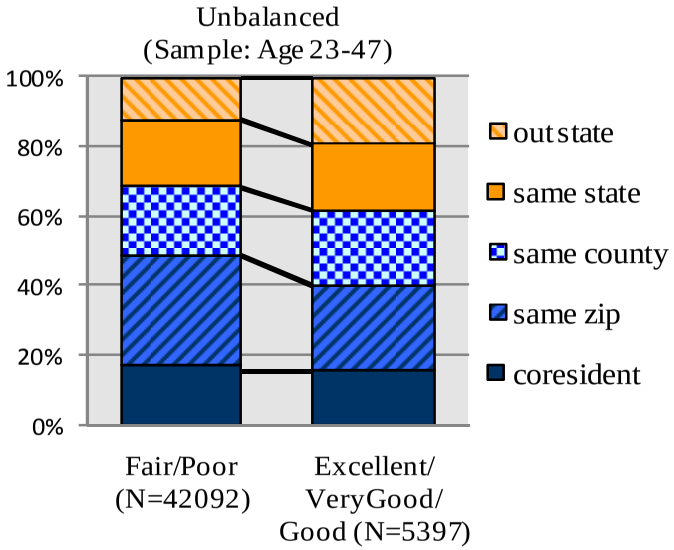
Table 5: **Children's Marital Status**
(Sample: PSID Core 1984-1996, Age 23-35 in 1984, Balanced)
- Logit Regression -

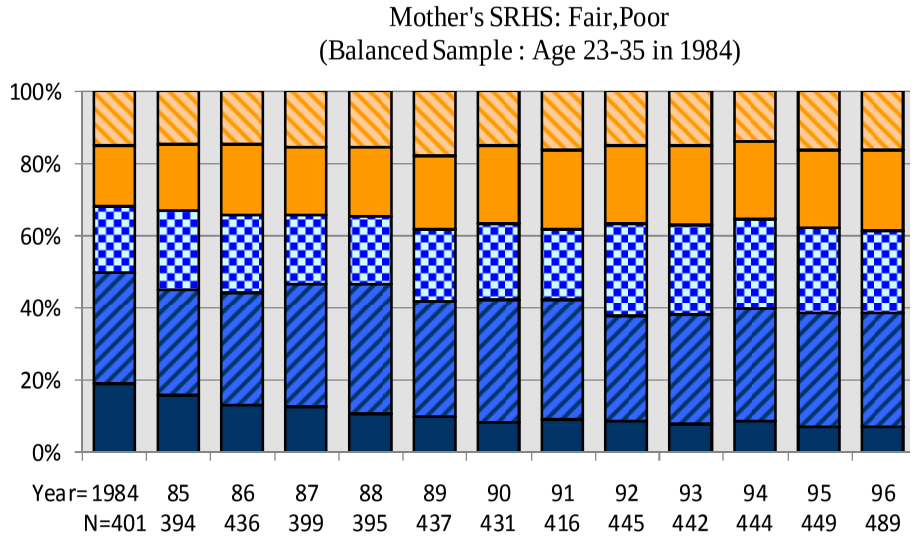
	Outcome Variable =			
	(1) Coresident	(2) Same Zipcode	(3) Same County	(4) Same State
Coefficients: With Control I	-1.977***	-0.979***	-0.613***	-0.497***
	(0.258)	(0.093)	(0.092)	(0.114)
Predicted probability:				
Not married	9.0%	45.5%	66.4%	84.4%
Married	1.4%	23.9%	51.7%	76.7%
Coefficients: With Control I+II	-1.210***	-0.866***	-0.561***	-0.370***
	(0.161)	(0.081)	(0.079)	(0.097)

Standard errors in parentheses , *** p<0.01, ** p<0.05, * p<0.1

Control I = Age, year, gender, mother's schooling, number of siblings, mother's residential area (rural or not)
Control II = Marital status (categorical) in the prior year

Figure 9: Proximity to Mother by **Mother's Health Status**





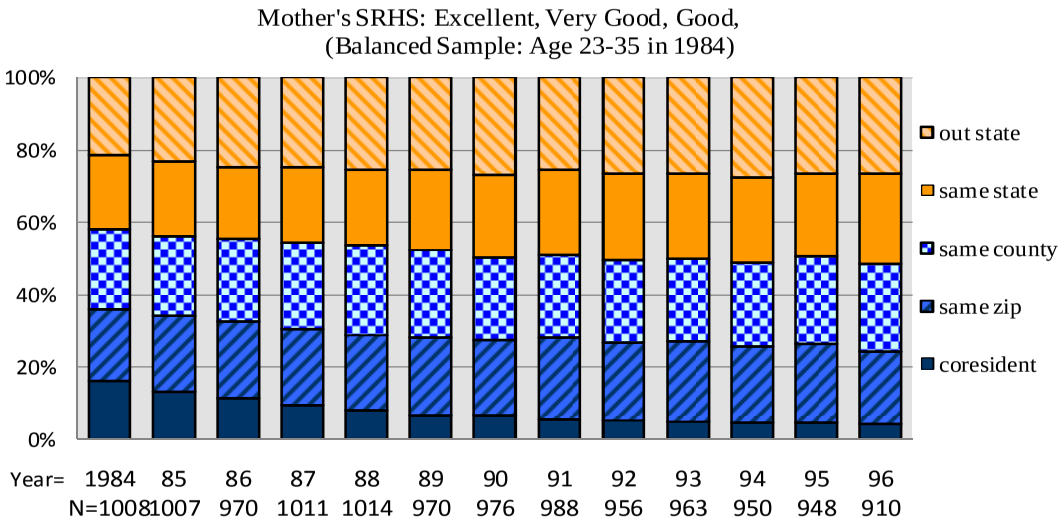


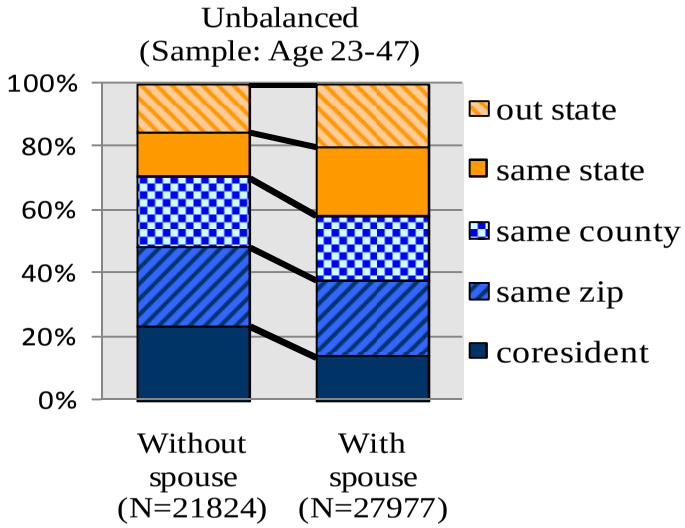
Table 6: **Mother's Health Status**
(Sample: PSID Core 1984-1996, Age 23-35 in 1984, Balanced)
- Logit Regression -

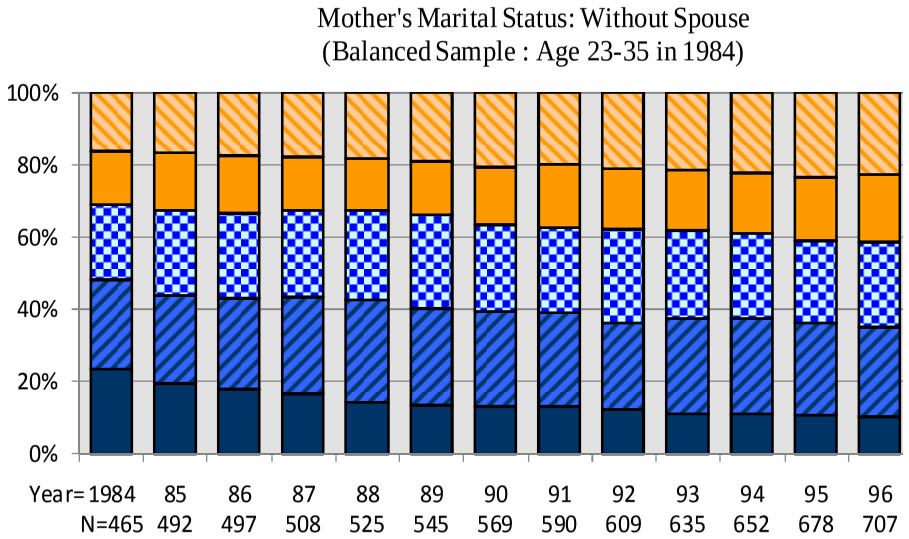
	Outcome Variable =			
	(1) Coresident	(2) Same Zipcode	(3) Same County	(4) Same State
Coefficients: With Control I	0.181	0.453***	0.253***	0.453***
	(0.211)	(0.090)	(0.095)	(0.117)
Predicted probability:				
Mother's Poorer Health=1	2.3%	36.9%	60.4%	83.9%
Mother's Poorer Health=0	1.9%	27.1%	54.2%	76.9%
Coefficients: With Control I+II	0.104	0.304***	0.180***	0.301***
	(0.150)	(0.062)	(0.063)	(0.077)

Standard errors in parentheses, *** p<0.01, ** p<0.05, * p<0.1

Control I = Age, year, gender, mother's schooling, number of siblings, mother's residential area (rural or not)
Control II = Mother's health (categorical) in the prior year

Figure 10: Proximity to Mother by **Mother's Marital Status**





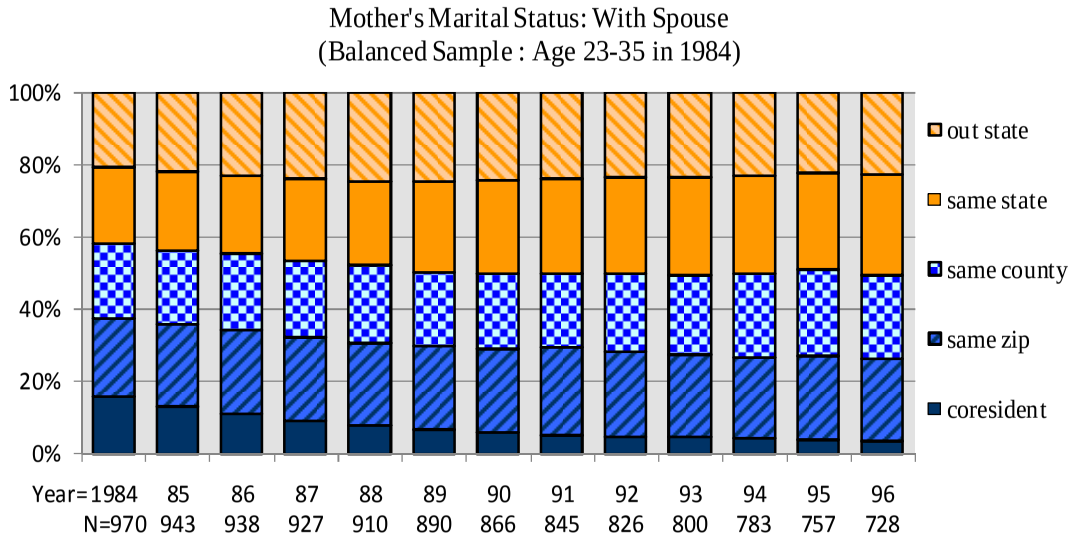


Table 7: **Mother's Marital Status**
(Sample: PSID Core 1984-1996, Age 23-35 in 1984, Balanced)
- Logit Regression -

	Outcome Variable =			
	(1) Coresident	(2) Same Zipcode	(3) Same County	(4) Same State
Coefficients: With Control I	-0.855*** (0.209)	-0.269*** (0.098)	-0.265*** (0.100)	-0.013 (0.119)
Predicted probability:				
Mother without spouse	5.8%	34.7%	60.7%	79.5%
Mother with spouse	2.5%	28.9%	54.2%	79.3%
Coefficients: With Control I+II	-0.501** (0.219)	-0.238** (0.105)	-0.208** (0.105)	0.133 (0.120)

Standard errors in parentheses, *** p<0.01, ** p<0.05, * p<0.1

Control I = Age, year, gender, mother's schooling, number of siblings, mother's residential area (rural or not)
Control II = Mother's marital status (categorical) in the prior year

Table 8: Marginal Probabilities of Individual Life-course Events
(Sample: PSID Core 1984-1996, Age 23-35 in 1984, Balanced)

	Balanced (N=16860)	
	Outcome Variable = Same Zip code	
	(1)	(2)
	Control I	Control I+II
Child's		
Schooling	-0.096***	-0.064**
	(0.012)	(0.029)
Working	-0.045**	-0.030**
	(0.019)	(0.014)
Married	-0.216***	-0.178***
	(0.021)	(0.019)
Mother's		
Health	0.072***	0.048***
	(0.020)	(0.014)
with spouse	0.017	-0.010
	(0.021)	(0.023)

Standard errors in parentheses, *** p<0.01, ** p<0.05, * p<0.1

Control I = Age, year, gender, mother's schooling, number of siblings, mother's residential area (rural or not)
Control II = Lagged (prior year) life-course variables (child's schooling, working, married, mother's health and marital status