

# Presentation for the December 2007 Meeting of the Transition to Fatherhood Group

## Project II

# Work to Date

- Paper submissions

- *Journal of Family and Economic Issue* - longitudinal tobit analysis on NLSY79 data for men who eventually become fathers.
- *Journal of Marriage and Family* - longitudinal examination of men's ECFS intentions and men's relationship patterns & sexual risk taking behaviors using NSAM data.
- *Perspectives on Sexual and Reproductive Health* - using cluster analysis this paper examines the stability and transitions of men's sexual behaviors over time and how these behaviors relate to outcomes including STDs.

- Papers in progress

- Sequencing of Work, Marriage & Fatherhood Paper (*Demography*)
- How Fatherhood Affects Men's Work Lives?

- NSAM survey

- Currently pretesting; January 2008 data collection

# The Role of Fatherhood in the Transition to Adulthood: A Latent Class Growth Analysis

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# Men's Role Trajectories

- We propose to use latent class growth analysis to answer two research questions.
  - What trajectories emerge with respect to the interplay of fatherhood, marital, and work behavior patterns?
    - Expectation: multiple trajectories to capture heterogeneity among men.
  - What specific characteristics of men are associated with these trajectories?
    - Can we describe men in these different trajectories with characteristics other than their roles?

# Men's Role Trajectories

- Data from the NLSY79
- Exploratory Analysis
  - Use latent class analysis methods to identify how men's work, fatherhood, and marital trajectories vary by age

# Overview of Latent Class Methods

- Why Latent Class methods?
  - Hypothesis that subgroups of people exist (known as classes)
- Akin to factor analysis, but with categorical variables
  - Classes ~ factors
- Estimates measurement error
- Types: LCA, LTA, LCGA

# Latent Class Analysis (LCA)

- Let  $i=1,2,\dots,I$  represent variables forming a contingency table
  - Questionnaire items
  - Performance tasks
  - Behavioral observations
  - etc.
- According to LCA, the relations among the  $I$  variables in this contingency table can be attributed to a latent variable made up of  $C$  discrete latent classes

Source: Collins, Flaherty, Tang. (2004). Presented at SMABS 2004, Jena, Germany 7

# LCA

$$P(W = w) = \sum_{c=1}^C \gamma_c \prod_{i=1}^I \rho_{ir_i|c}$$

$$\gamma_c =$$

probability of membership in latent class  $c$

$$\rho_{ir_i|c} =$$

probability of response  $r_i$  to item  $i$ , conditional on membership in latent class  $C$  (similar to factor loading in FA)

Source: Collins, Flaherty, Tang. (2004). Presented at SMABS 2004, Jena, Germany 8

# Latent Transition Analysis (LTA)

- One way for fitting of models involving change over time along a single stage-sequence
- Change over time is manifested as switching latent class membership
- A latent transition probability matrix is estimated

Source: Collins, Flaherty, Tang. (2004). Presented at SMABS 2004, Jena, Germany 9

# LTA

$$P(W = w) = \sum_{c_1=1}^{C_1} \sum_{c_2=1}^{C_2} \dots \sum_{c_T=1}^{C_T} \delta_{c_1} \tau_{c_2|c_1} \dots \tau_{c_T|c_{T-1}} \prod_{i=1}^I \prod_{t=1}^T \rho_{itr_{it}|c_t}$$

$$\delta_{c_1} =$$

probability of membership in latent class  $c_1$  at Time 1

$$\tau_{c_2|c_1} =$$

probability of membership in latent class  $c_2$  at Time 2, conditional on membership in latent class  $c_1$  at Time 1

Source: Collins, Flaherty, Tang. (2004). Presented at SMABS 2004, Jena, Germany 10

# Latent class model for men's roles

- For Latent Transition Analysis
- Eight "Statuses" at each time:
  - No transitions
  - Worked fulltime only
  - Fatherhood only
  - Marriage only
  - Worked Fulltime + Fatherhood
  - Worked Fulltime + Marriage
  - Marriage + Fatherhood
  - All three transitions
- Individuals can move between latent classes across time (from no roles to various combinations of roles)

# Latent Class Growth Analysis (LCGA)

- LCA for repeated measures
  - Each class represents a pattern of behaviors across the times of measurement specified in the model.
- Our model
  - 10 points of measurement – ages 18, 20, 22, 24, 26, 28, 30, 32, 35, 37
  - Variables: dichotomous
    - Became a father
    - Became a husband
    - Working fulltime (time varying)

# Sample

- National Longitudinal Survey of Youth, 1979 Cohort
  - Eliminate the poverty sub-sample
  - Cross-sectional sample
  - 10 measurement points (ages 18-37)
  - Listwise deletion on the three variables of interest over time (N reduced from 2800 to 2752)

# Variables Used to Define Classes

- **Fatherhood status**
  - 0/1 from age 18 to 37
  - 1 begins with first transition
- **Marital status**
  - 0/1 from age 18 to 37
  - 1 begins with first transition
- **Fulltime work status**
  - 0/1 from age 18 to 37
  - Time varying

# Covariates

- Highest year of education
- AFQT
- Race/ Ethnicity
- Childhood poverty
- Living arrangements at age 14

# Keeping Role Transition in Perspective

- Average ages\* for this cohort:
  - 22.8 for first marriage
  - 26 for first fatherhood
  - 20 for first job

\* Based on national estimates

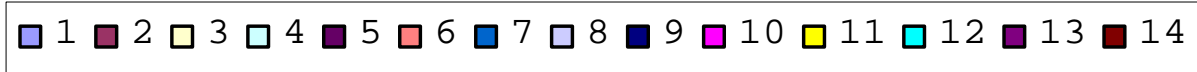
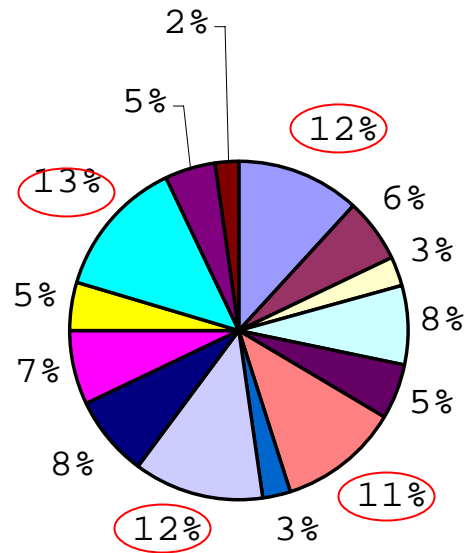
# Results

# The Best Fitting Model

Number of Classes	Likelihood-Ratio $G^2$	AIC	BIC
11	14158.6	14838.6	16851.4
12	13834.7	14576.7	16773.1
13	13797.5	14601.5	16981.4
<b>14</b>	12699.6	13565.6	<b>16129.0</b>
15	12523.8	13451.8	16198.8

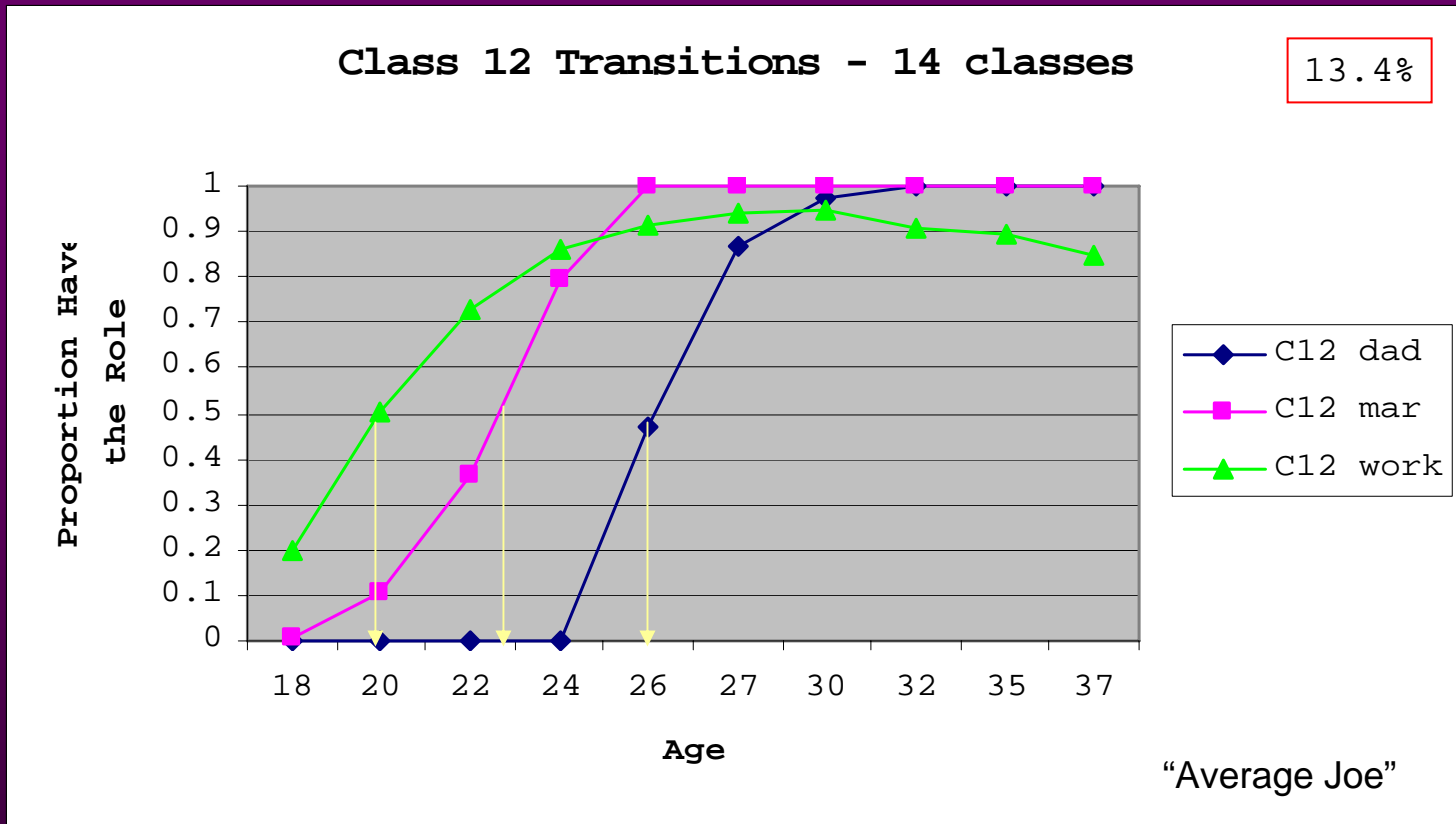
# Distribution of Classes

Proportion in each class



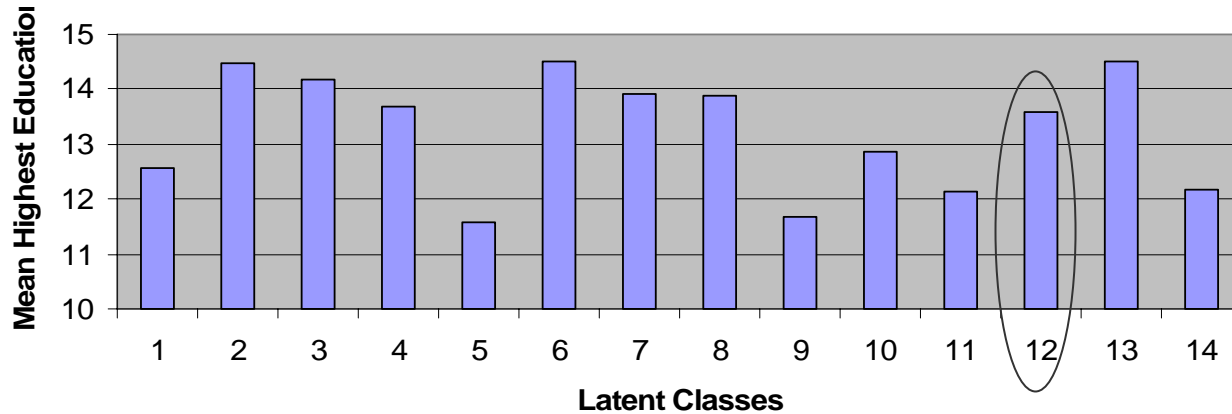
- 60% of the sample defined by 4 classes

# On-timers: 1 Class



# Covariates- On-timers

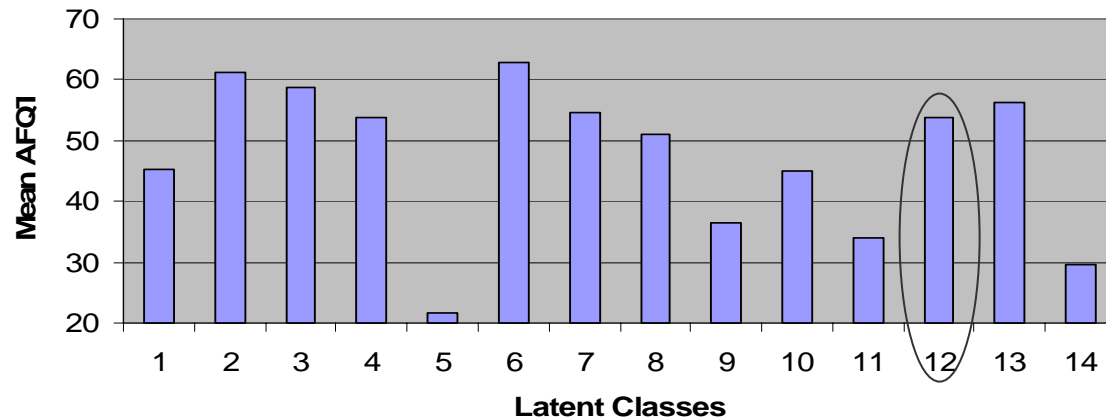
Latent Classes by Covariates



Average Highest Edu for sample = 13.3

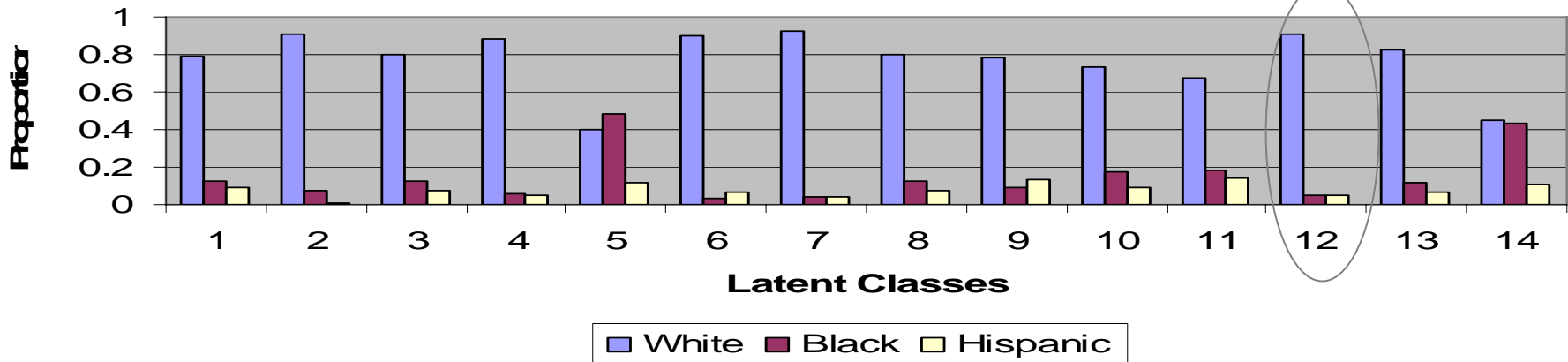
Average AFQT for the sample = 49.3

Latent Classes by Covariates



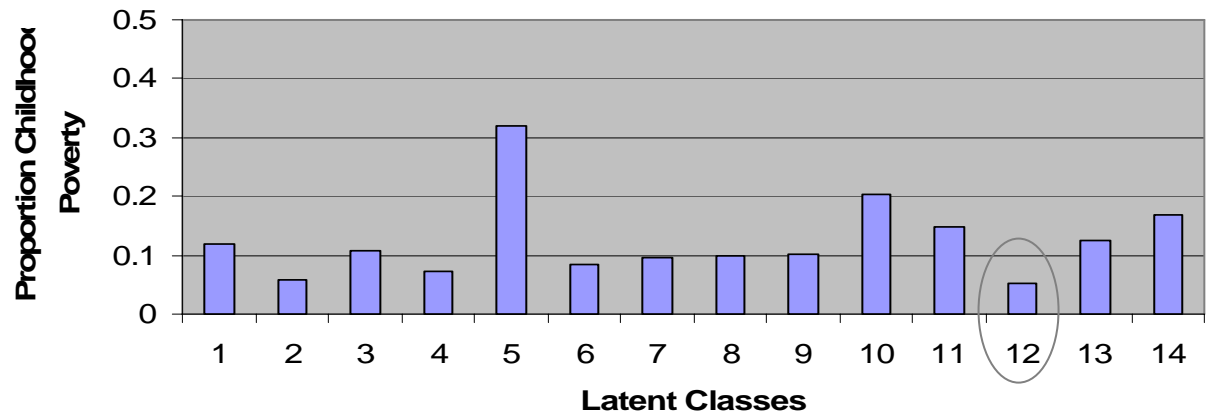
# Covariates- On-timers

Latent Classes by Covariates

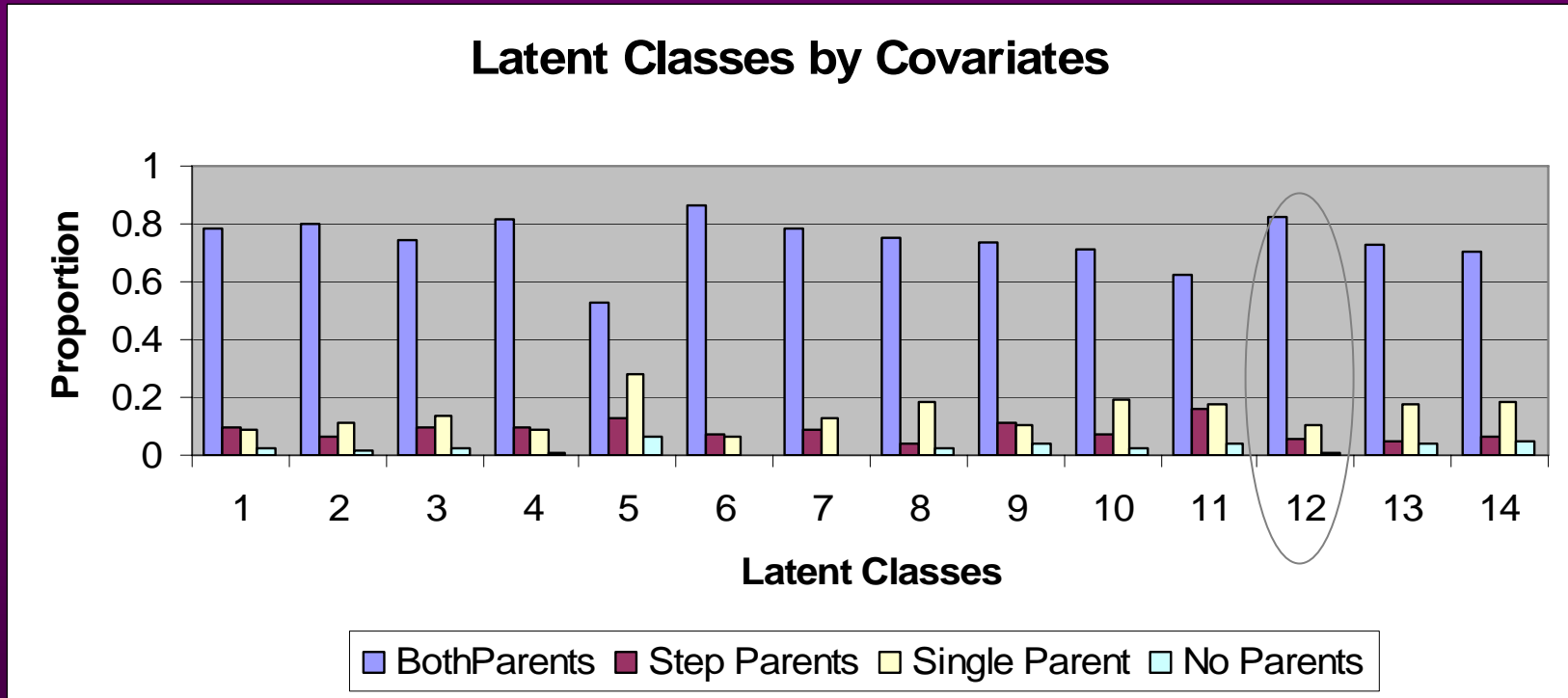


On-timers are predominately white and experience one of the lowest levels of poverty of all the classes.

Latent Classes by Covariates



# Covariates- On-timers

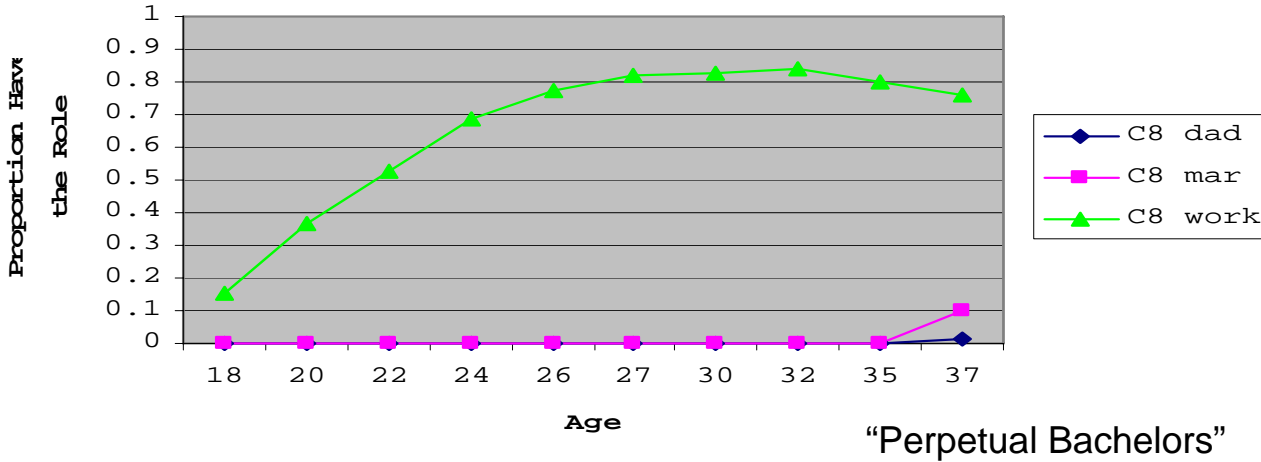


Men who experience all three transitions on-time report the second highest proportion living with both biological parents at age 14 and very low levels of living with no parents at all.

# Men Who Never Become Fathers: 2 Classes

Class 8 Transitions - 14 classes

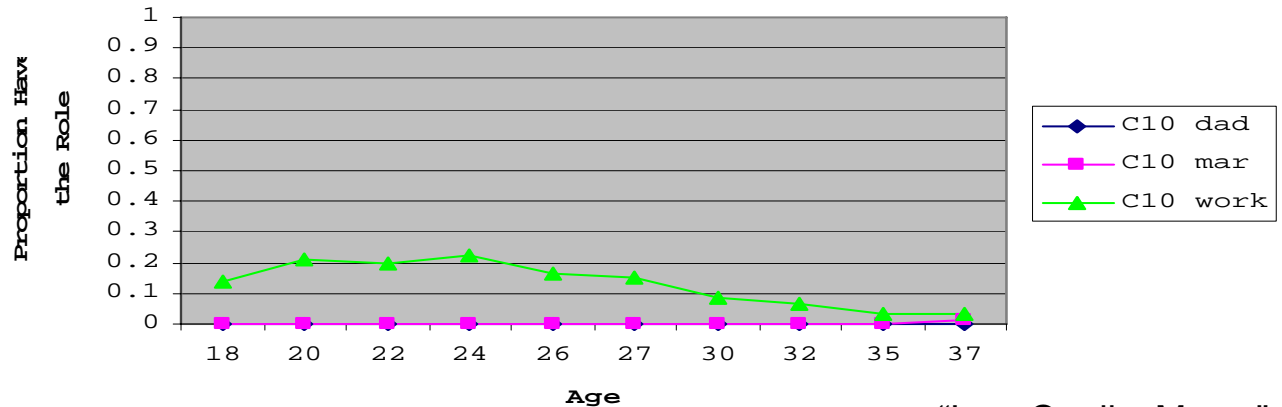
12.5%



Note, men in both classes tend not to marry... perhaps an active decision or a selection-out effect.

Class 10 Transitions - 14 classes

7.3%

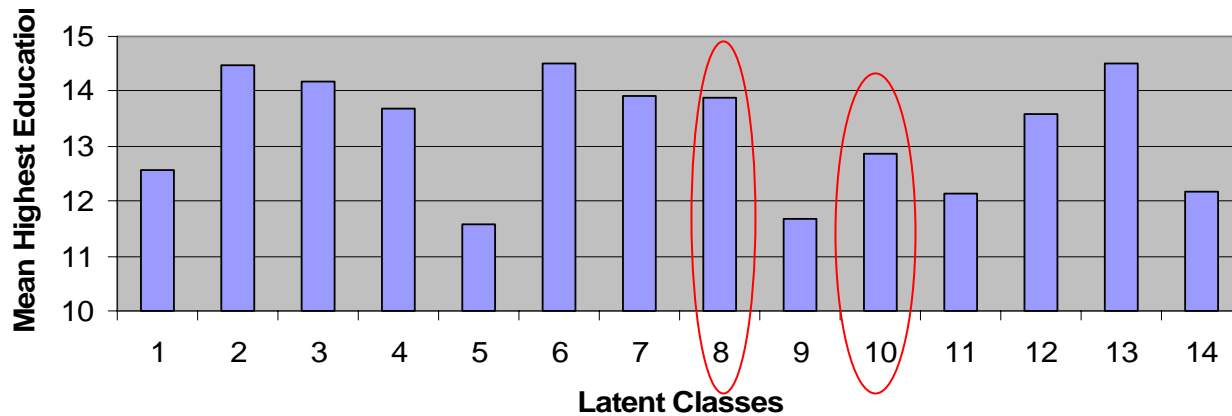


Low Quality Mates:  
Incarcerated? Disabled?  
"Unmarriageable and  
Unmateable"

"Low Quality Mates" 24

# Covariates—Men Never a Dad

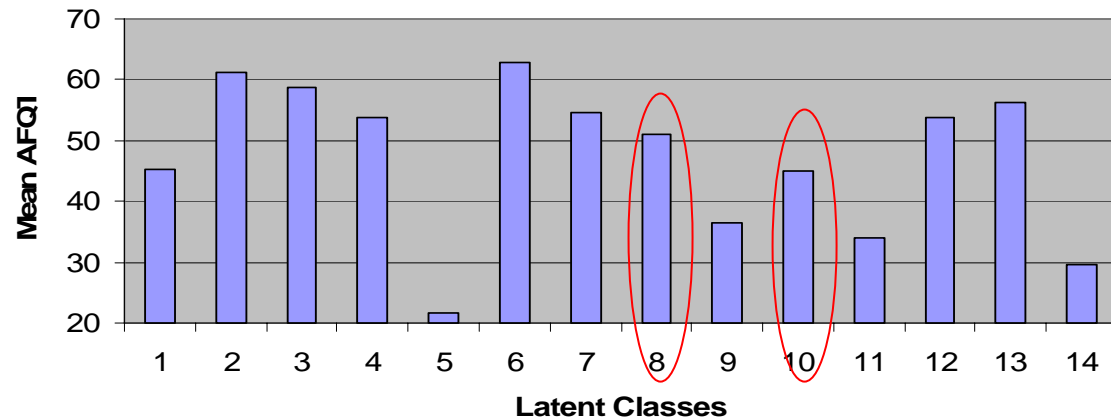
Latent Classes by Covariates



Most Work (8) – high education & above average AFQT scores

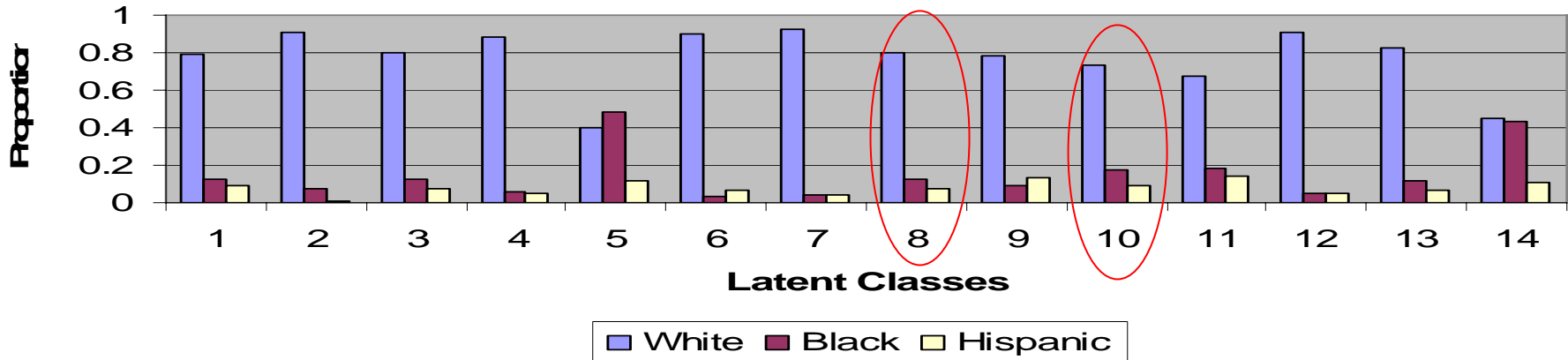
Least Work (10) – lowest education & below average AFQT scores

Latent Classes by Covariates

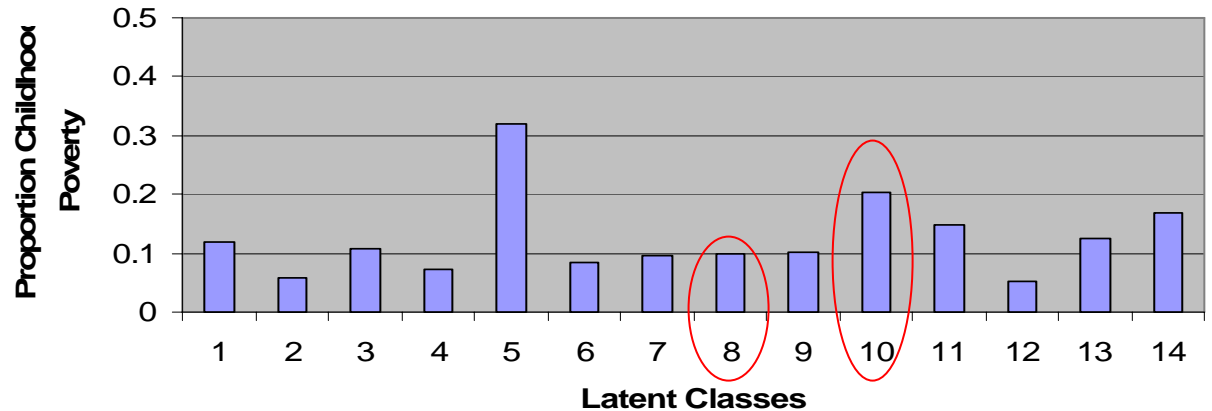


# Covariates—Men Never a Dad

Latent Classes by Covariates

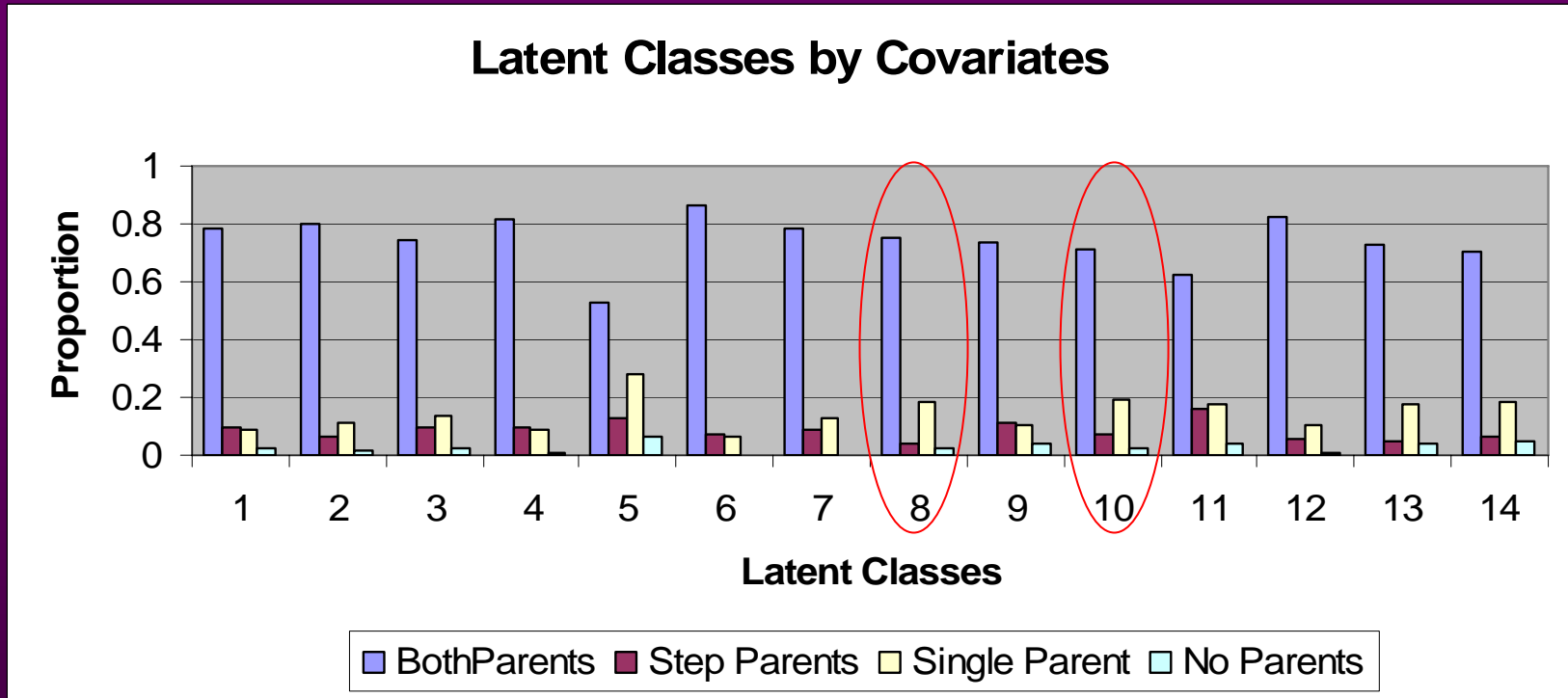


Latent Classes by Covariates



Men who do not become fathers and tend not to work fulltime (class 10) experience high proportions of poverty (2<sup>nd</sup> highest of all classes).

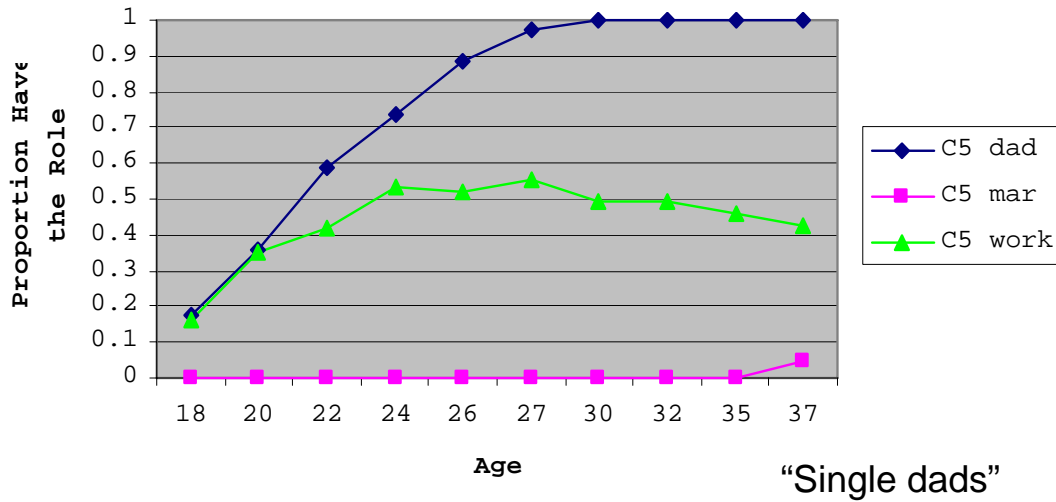
# Covariates—Men Never a Dad



# Men Who Never Marry: 3 Classes

Class 5 Transitions - 14 classes

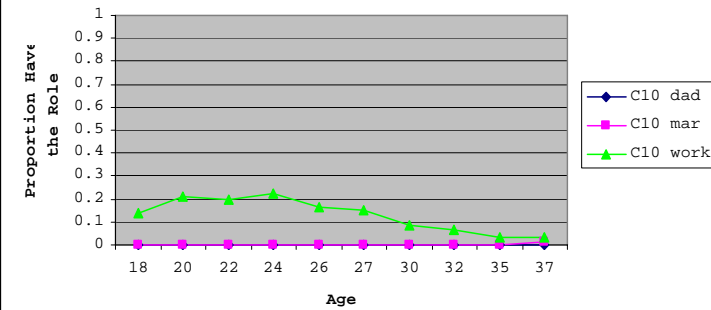
2.4%



Of the three classes of men who never marry, only one group has children. All three groups differ on the degree to which they work fulltime with none of the groups reaching 1.0 for the class.

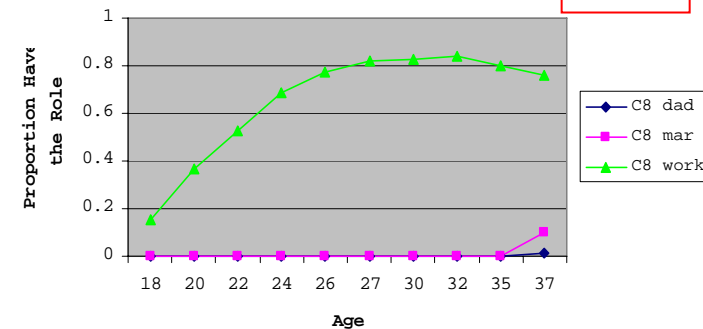
Class 10 Transitions - 14 classes

7.3%



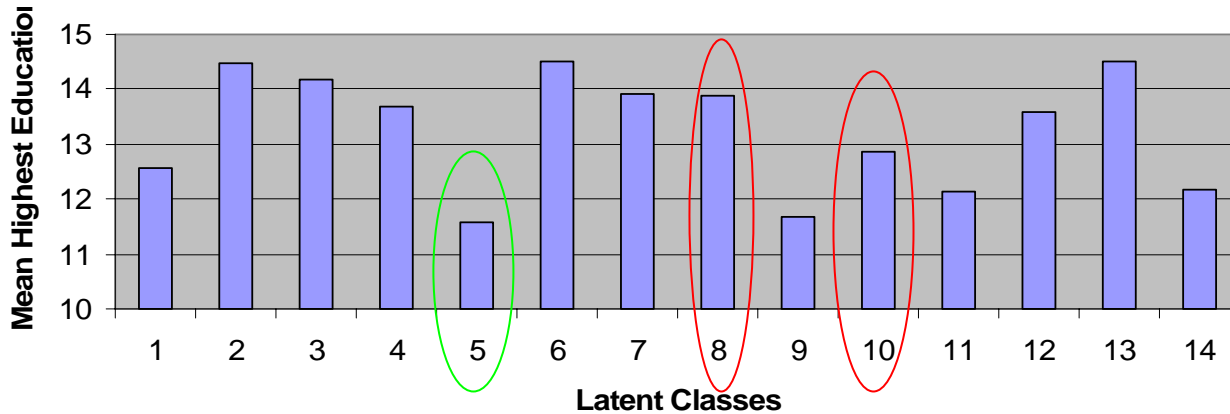
Class 8 Transitions - 14 classes

12.5%



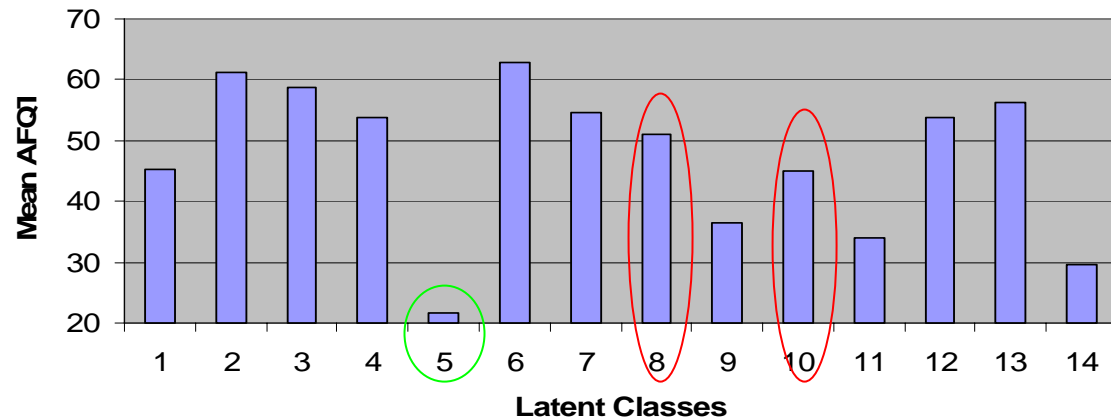
# Covariates—Men Who Never Wed

Latent Classes by Covariates



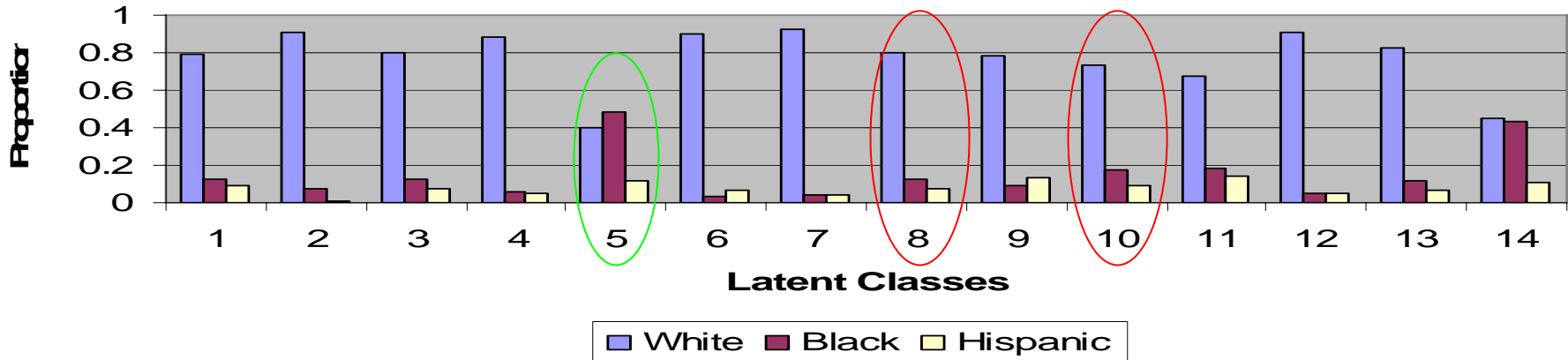
Men who become fathers without ever marrying tend to have less than HS education and lowest AFQT scores of all classes.

Latent Classes by Covariates

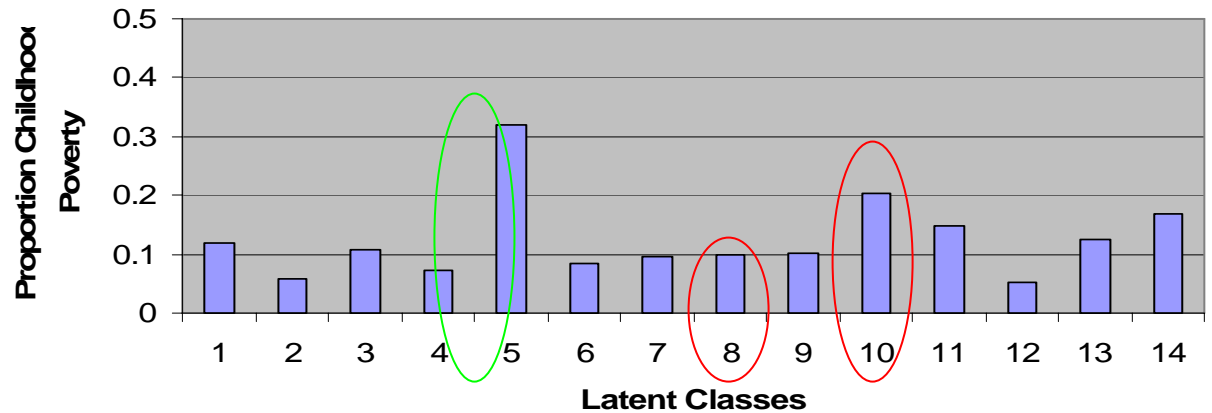


# Covariates—Men Who Never Wed

## Latent Classes by Covariates

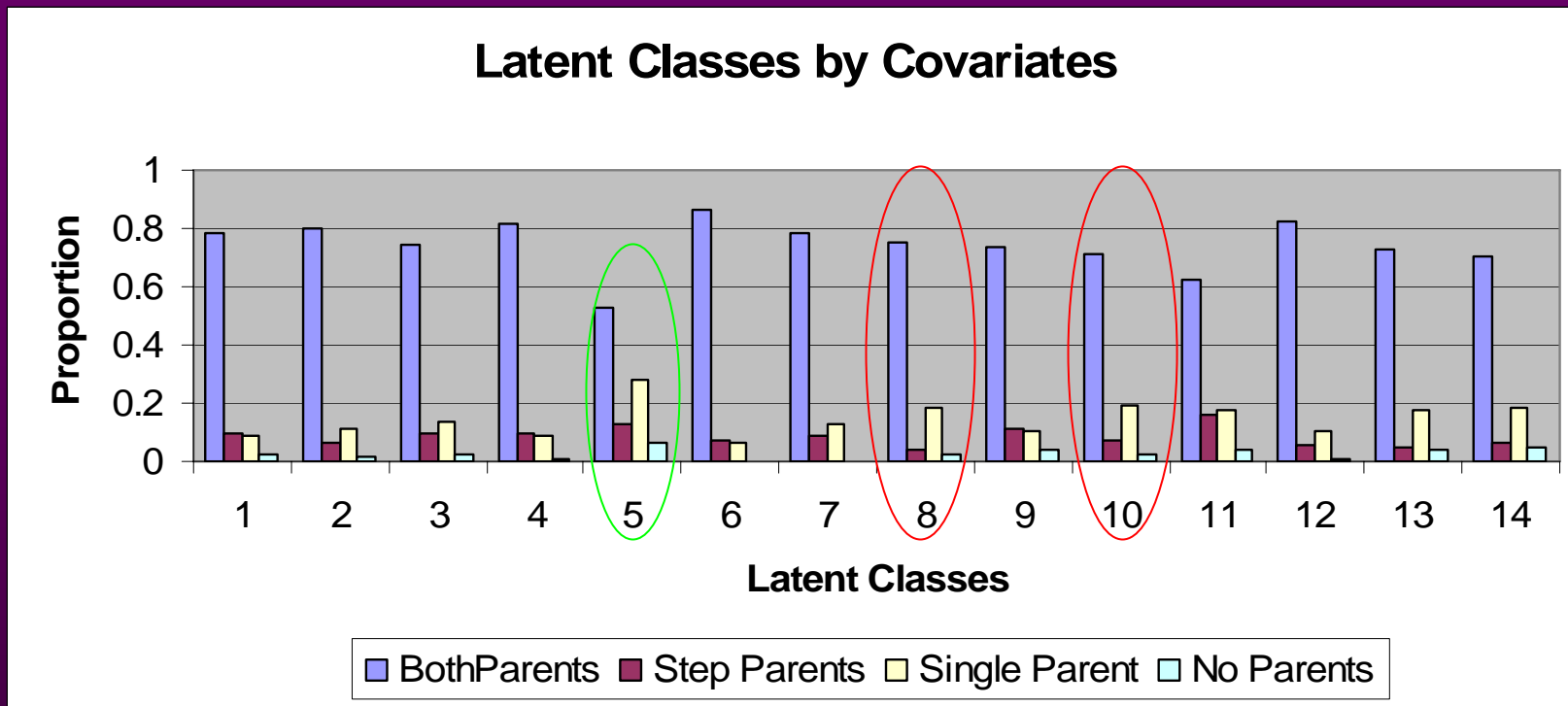


## Latent Classes by Covariates



Men who become fathers and never marry are disproportionately of minority status and are afflicted with the most by childhood poverty of all the 13 remaining classes.

# Covariates—Men Who Never Wed

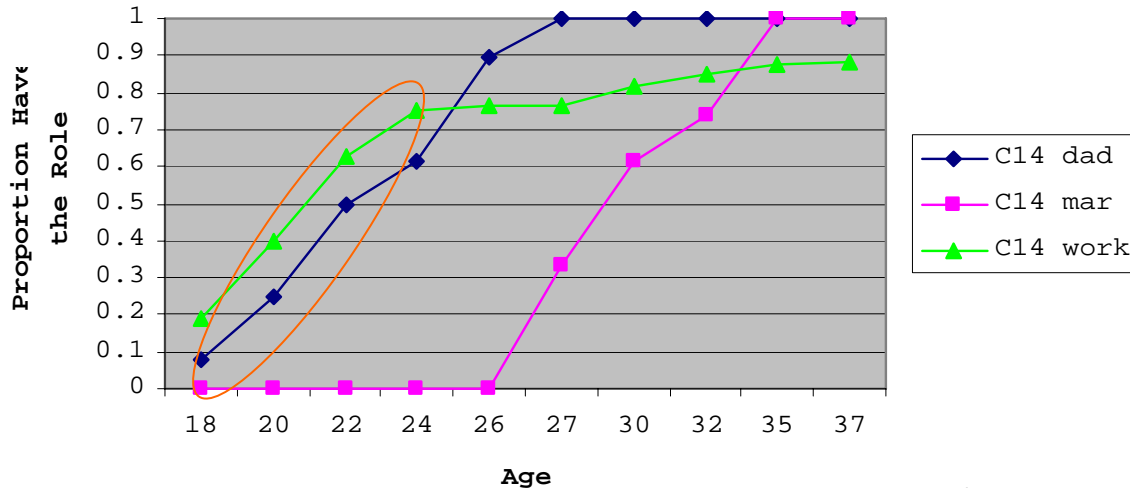


Men who become fathers and never marry are most likely to be reared in homes with one or fewer parents. These men are least likely to have been reared with both biological parents.

# Men Who Become a Father before Marrying: 2 Classes

Class 14 Transitions - 14 classes

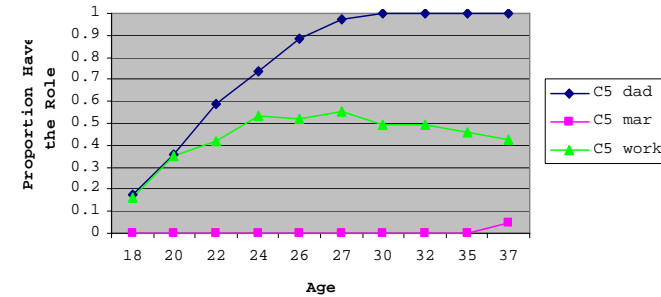
2.4%



“Dad before Wed”

Class 5 Transitions - 14 classes

2.4%

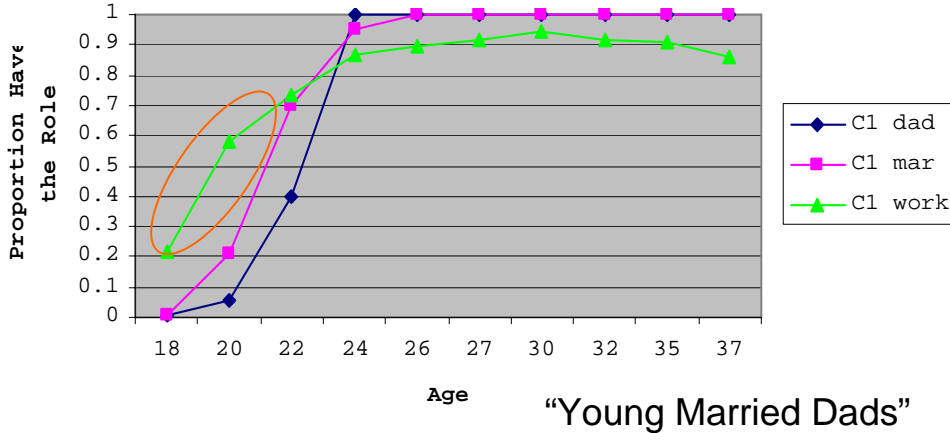


Compared to men who become fathers and never marry, men who become fathers but eventually marry experience greater and consistently increasing fulltime employment over time and these men achieved a higher level of fulltime work before becoming a father.

# Young Married Fathers: 3 Classes

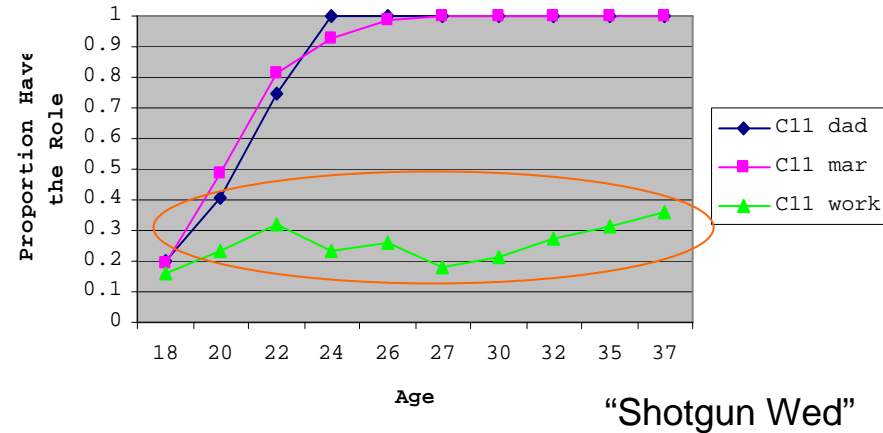
Class 1 Transitions - 14 classes

11.7%



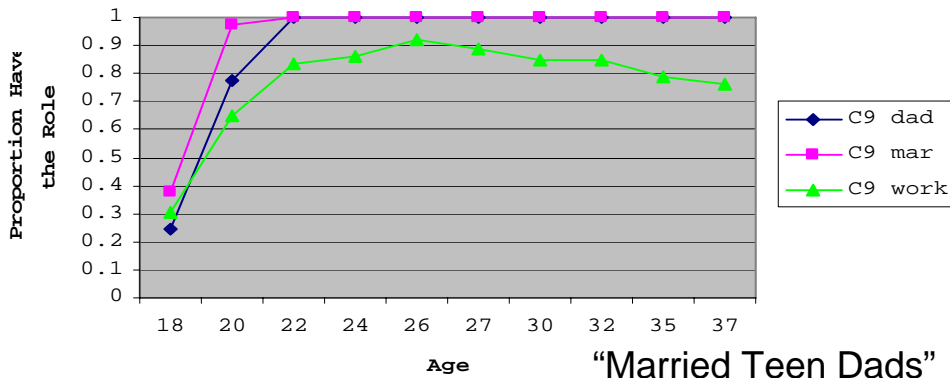
Class 11 Transitions - 14 classes

4.6%



Class 9 Transitions - 14 classes

7.6%

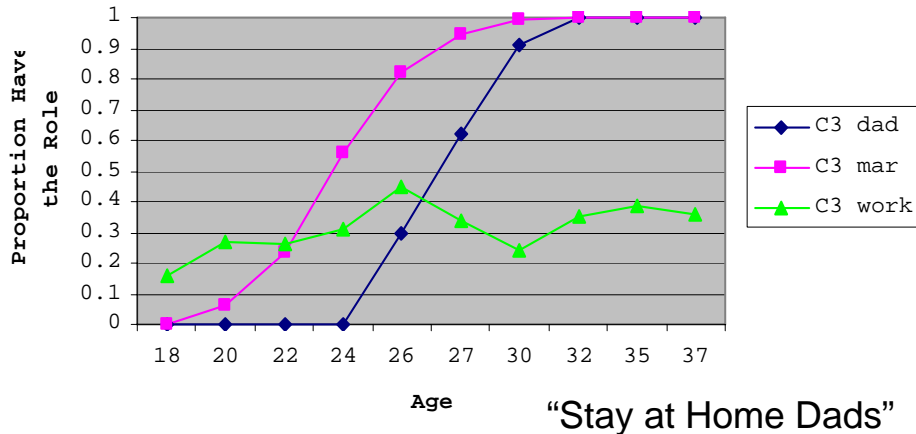


Three classes of young married fathers are differentiated by fulltime work **onset & status**. Class 1: fulltime work prior to other roles and relatively high proportions of men working fulltime consistently over time. Class 11: low proportions of men working fulltime across time. Class 9: teenage marriage and fatherhood followed by high proportions of men working fulltime.

# Older Married Fathers: 2 Classes

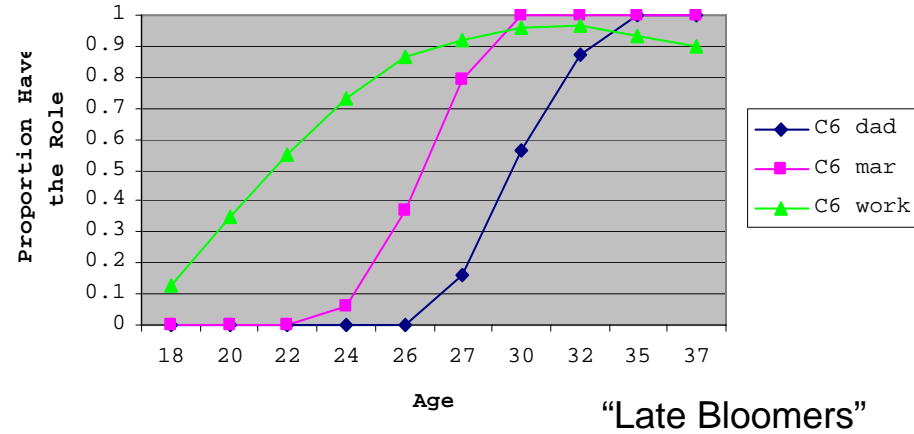
Class 3 Transitions - 14 classes

3.1%



Class 6 Transitions - 14 classes

11.2%

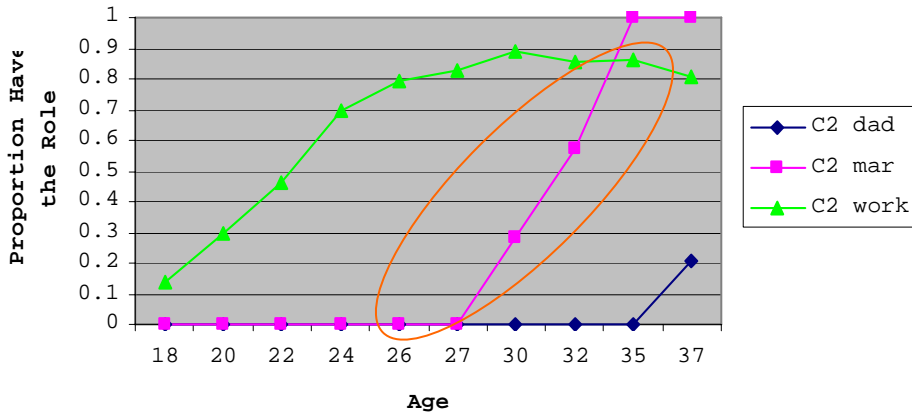


Two classes of older married fathers are differentiated by the timing of these transitions as well as the proportion of fulltime work status whereby one group is characterized by markedly low proportion of men working fulltime.

# Married, Very Late Fathers if Ever Become a Father: 3 Classes

Class 2 Transitions - 14 classes

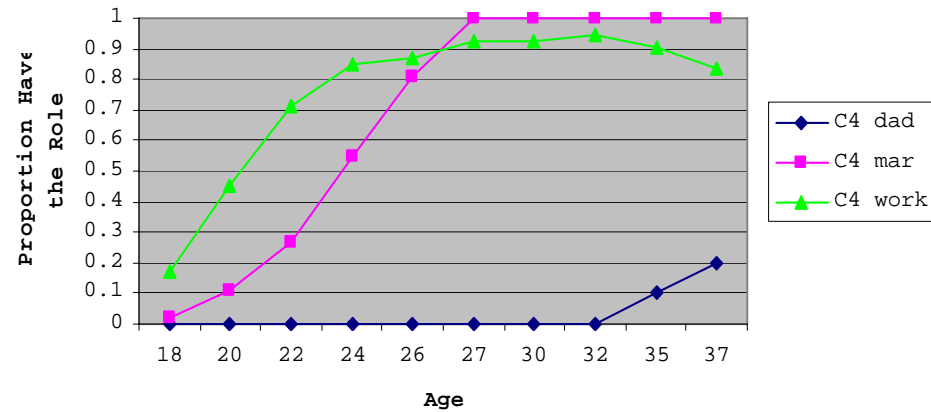
6.0%



"Late Marriage, Few Dads"

Class 4 Transitions - 14 classes

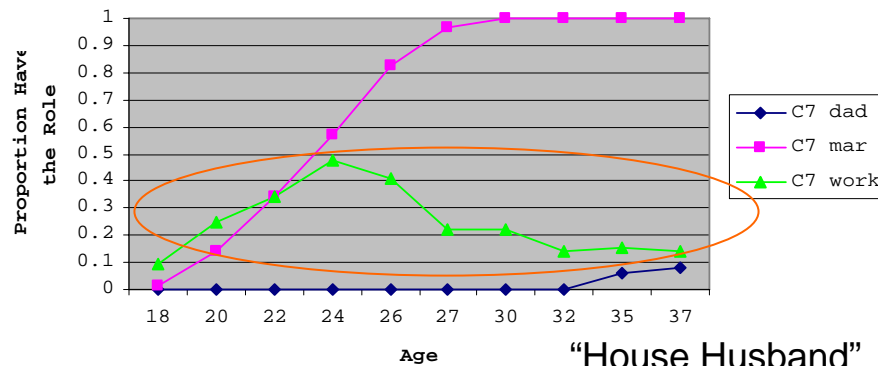
7.6%



"On-Time Marriage, Few Dads"

Class 7 Transitions - 14 classes

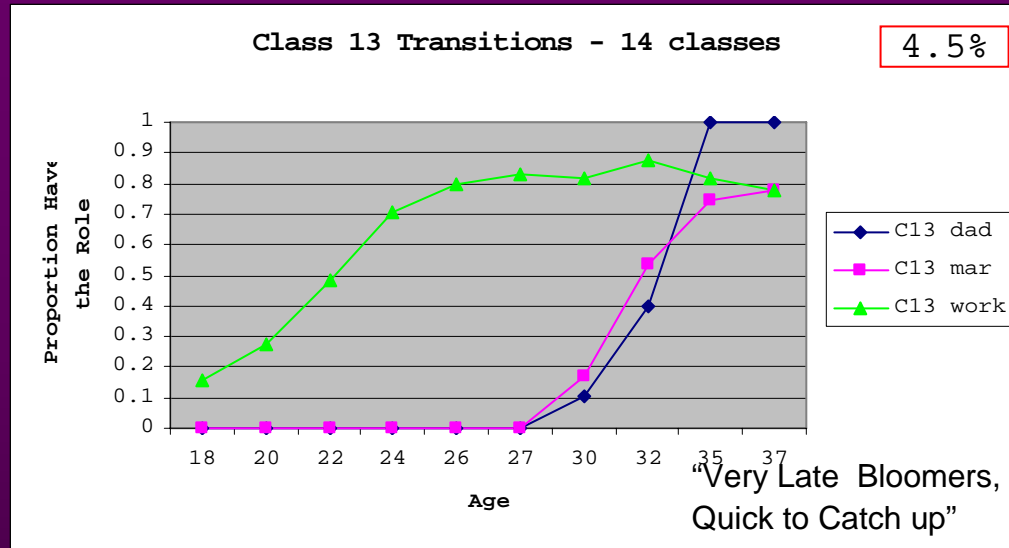
2.9%



"House Husband"

Still in school?

# Late Fathers, Mostly Married



# Summary

Class %	Title	EDU	AFQT	Race	C.Pov	HH
1 (11.7)	Young Married Dads (w,M,F)					
2 (6.0)	Late Marriage, Few Dads (W,M,~f)	VHi	VHi	W	VLo	Both
3 (3.1)	Stay-at-Home Dads (M,F,~w)		VHi			
4 (7.6)	On-time Marriage, Few Dads (W, M, ~f)			W	Lo	
5 (5.2)	Single Dad (F, ~w)	<HS	VLo	B>W	VHi	1/ 0
6 (11.2)	Late Bloomers (W, M, F)	VHi	VHi	W		Both
7 (2.9)	House-Husband (M, ~w, ~f)			W		
8 (12.5)	Bachelors (W, no m or f)					1
9 (7.6)	Married Teen-dads (M&F, W)	<HS		W>H		
10 (7.3)	Low Quality (no w, m, f)				VHi	1
11 (4.6)	Shotgun Wed (M&F, ~w)	HS		B=H	Hi	1/Step
12 (13.4)	Average Joe (W, M, F)			W	VLo	Both
13 (4.5)	Catch-up (W, F & M)	VHi				1
14 (2.4)	Dad before Wed (W, F, M)	HS	VLo	W=B	Hi	1/0 37

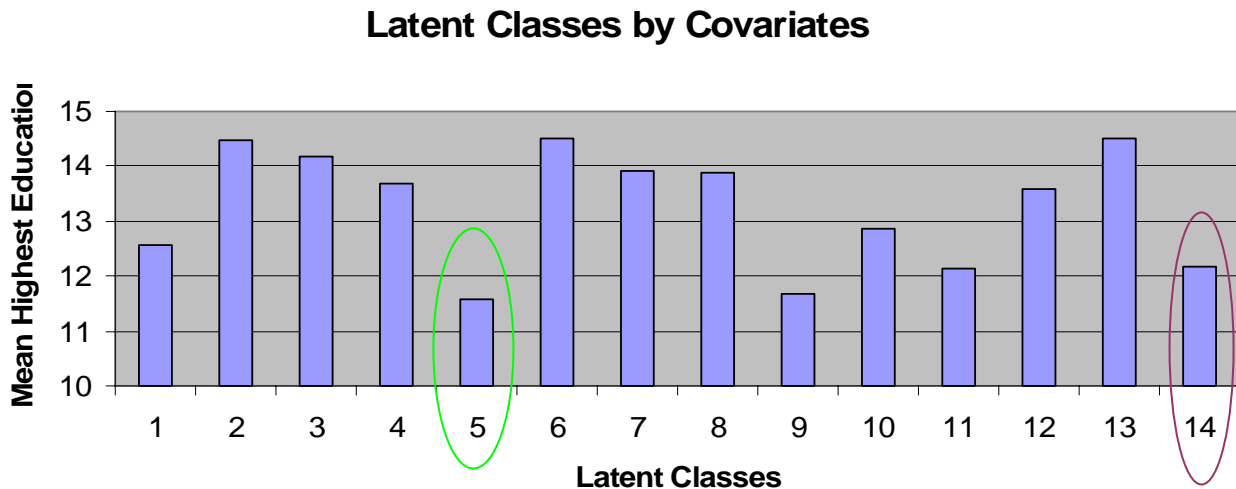
# Next Steps

- Add on to these analyses
  - Model variables as time-varying
    - Relationship status (out of marriage, higher-order marriages)
    - Number of children
    - Education status
- Compare to other modeling techniques
- Run LTA for 5 time points

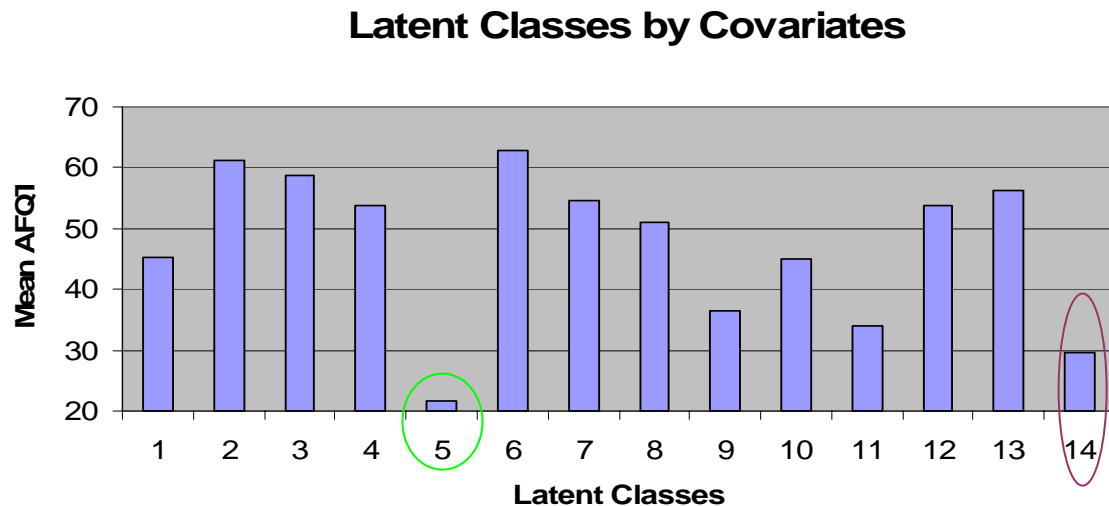
Now... time to discuss!

# Extra Slides

# Covariates—Dad before Wed

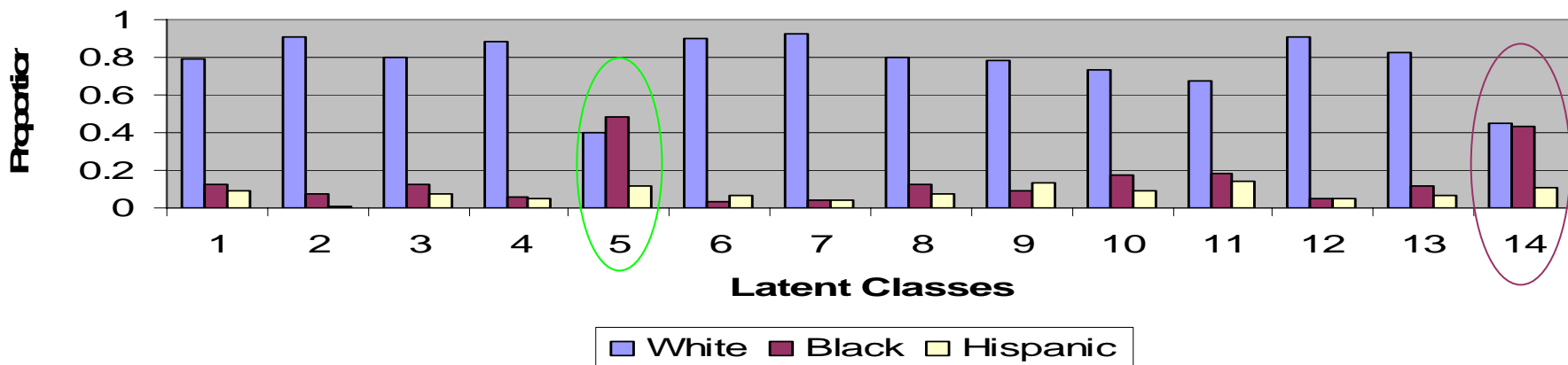


Men who marry quite some time after they become fathers tend to have a HS education and higher AFQT scores compared to their never marrying counterparts.



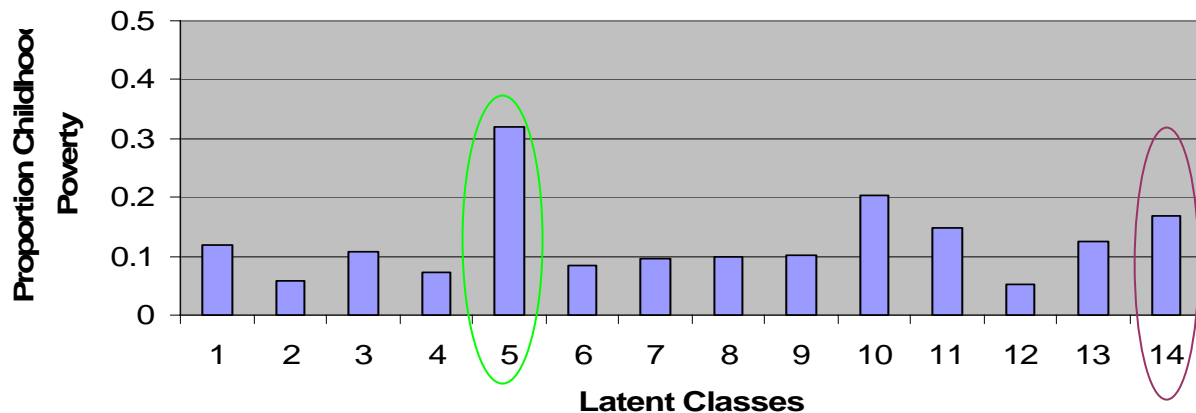
# Covariates-Dad before Wed

## Latent Classes by Covariates

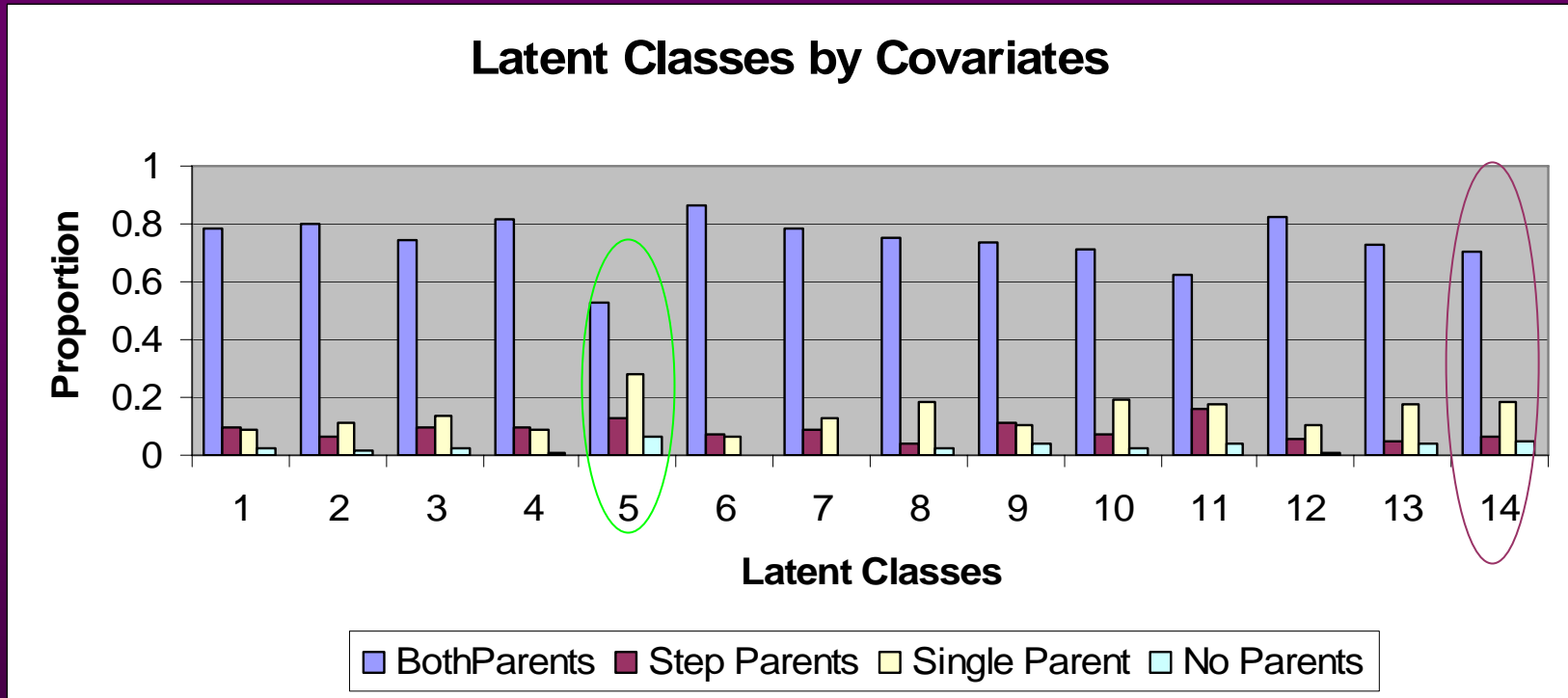


Similar to their never marrying counterparts, men who become fathers before marrying are disproportionately of minority status and a relatively high proportion were afflicted by childhood poverty.

## Latent Classes by Covariates



# Covariates-Dad before Wed

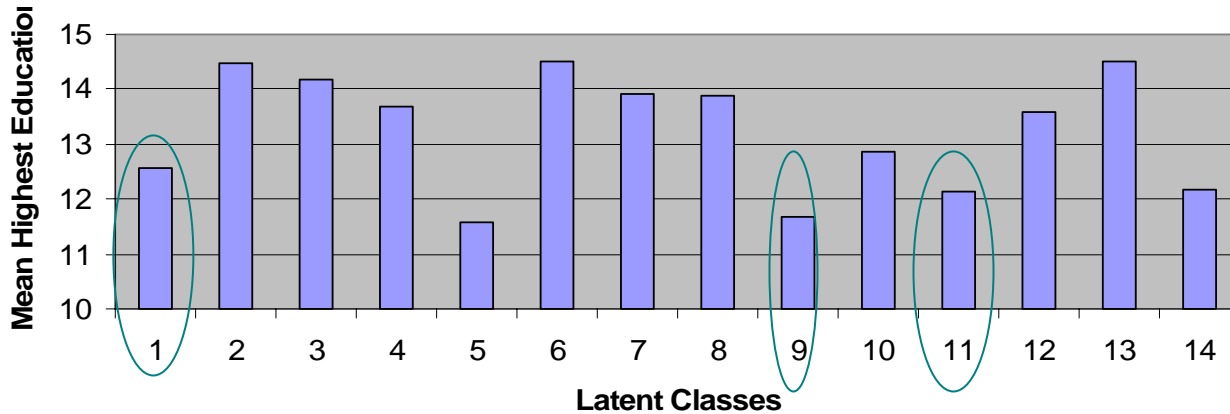


Men who become fathers and eventually marry were more likely to be reared by both biological parents relative to their never marrying counterparts.

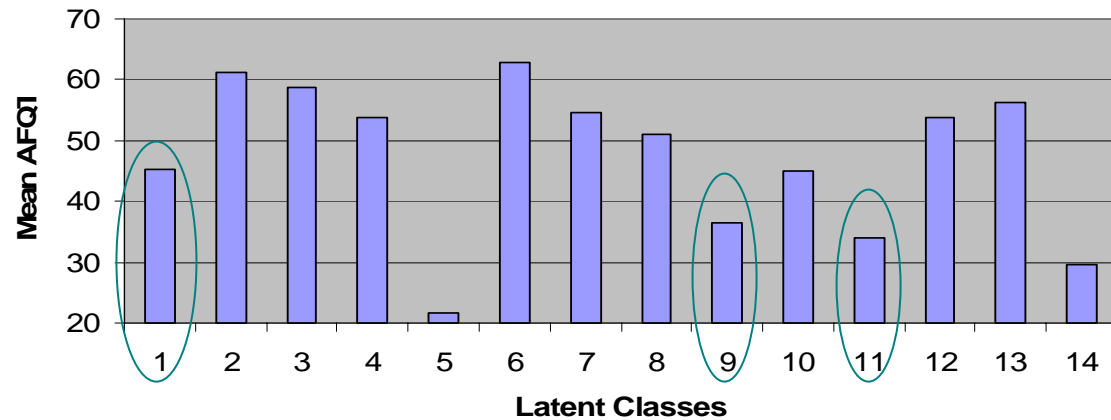
# Covariates-Young Married Fathers

Men who work first, then marry, and last have children (early) attain greater than HS education and have higher AFQT scores relative to teenage fathers (Class 9) who attain the lowest levels of education of the three classes and men who have difficulty with fulltime work (class 11).

### Latent Classes by Covariates

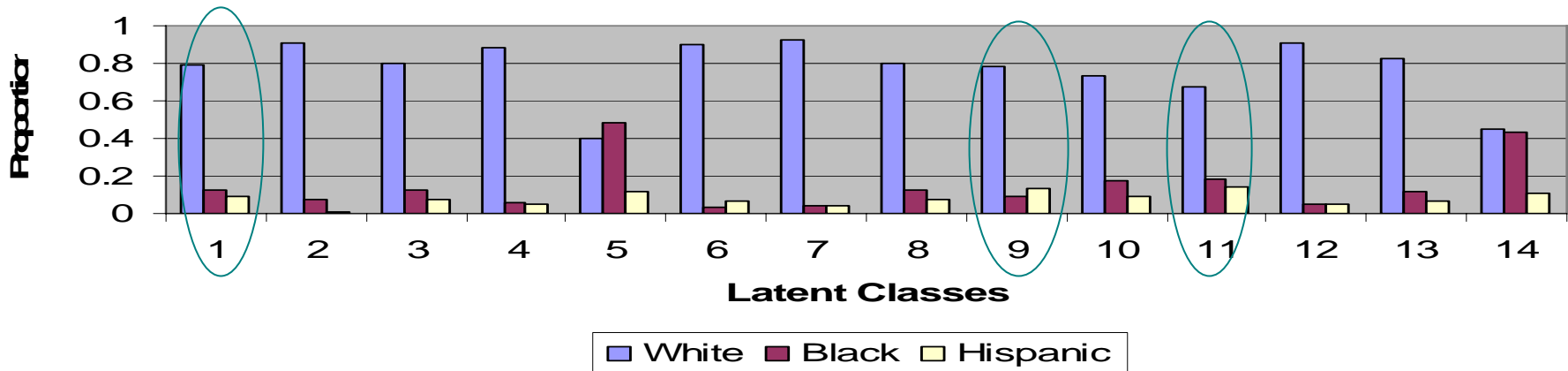


### Latent Classes by Covariates



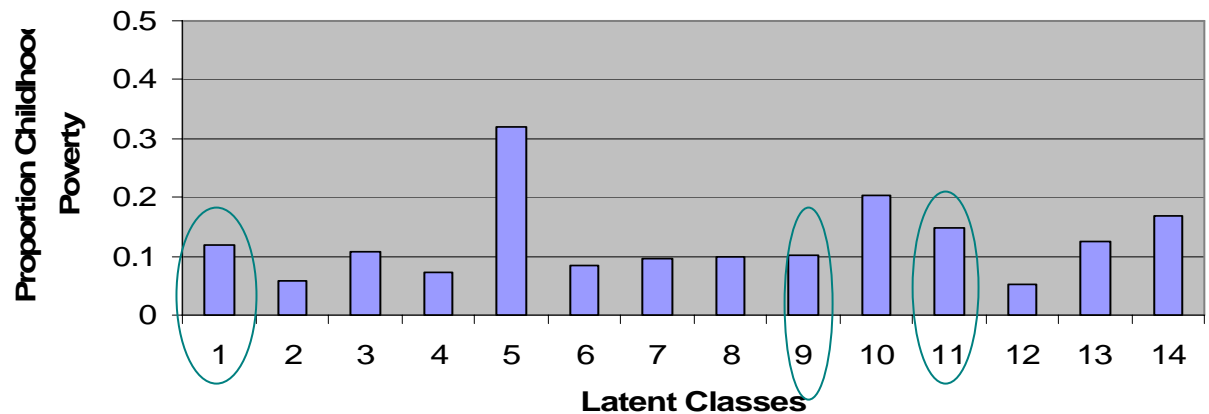
# Covariates-Young Married Fathers

## Latent Classes by Covariates

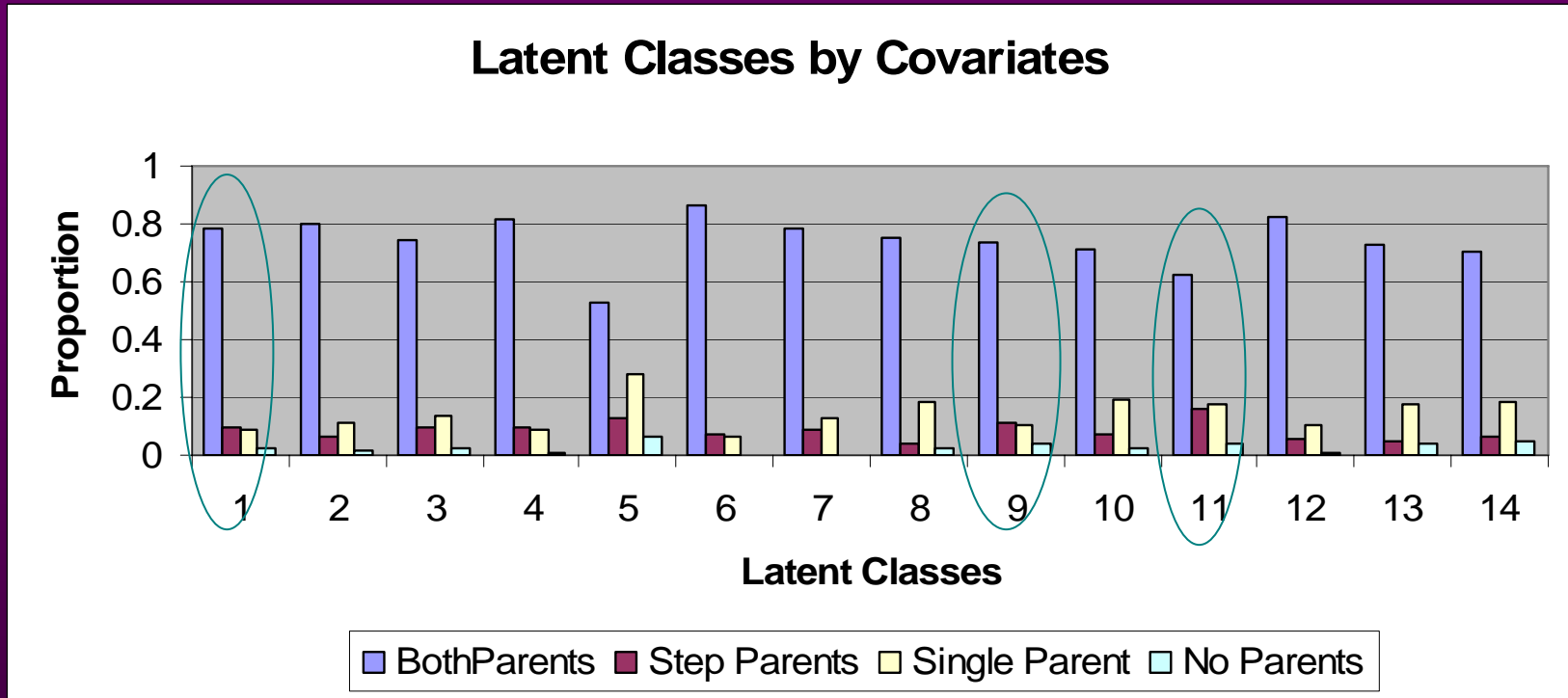


Men who marry and become fathers are disproportionately Hispanic, especially the two classes marked by lower levels of education. Furthermore, the one class with the least proportion working fulltime reports the largest minority status of the three classes and greatest proportion experiencing childhood poverty.

## Latent Classes by Covariates



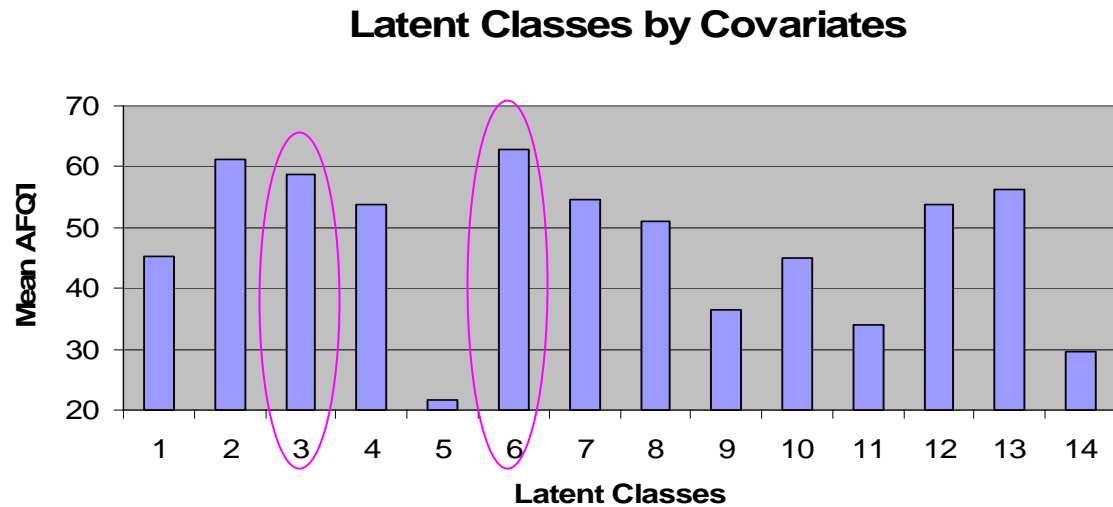
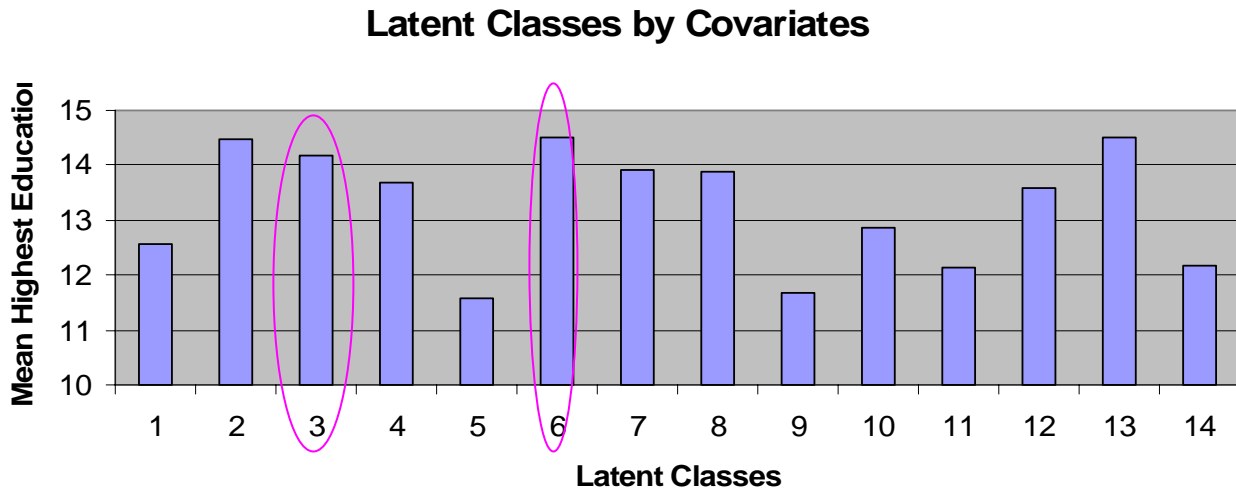
# Covariates-Young Married Fathers



Men who become young husbands and fathers and have the lowest proportion of working fulltime report the least experience of living with both parents at age 14 of the three classes.

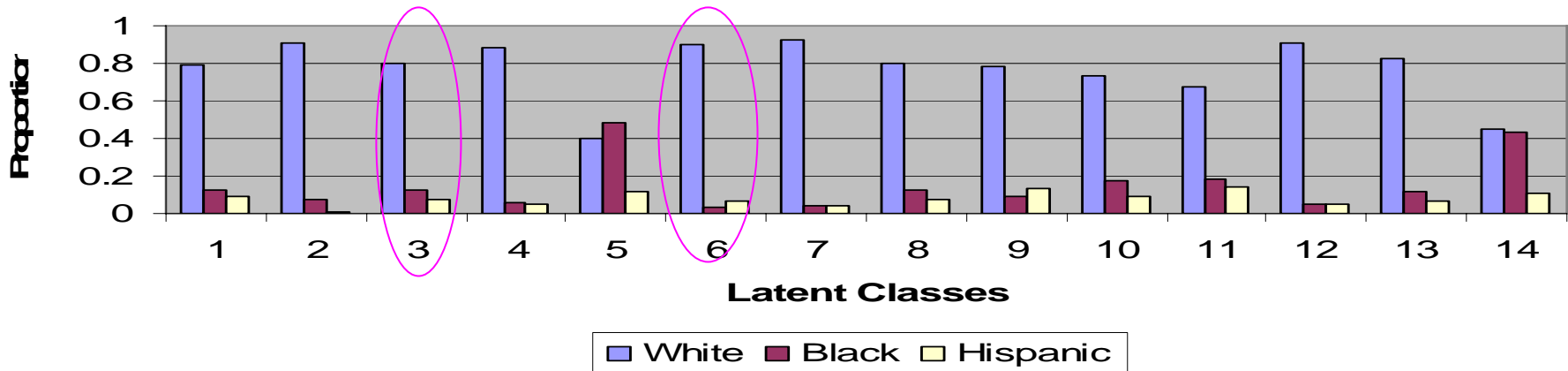
# Covariates—Older Married Fathers

Both classes have similarly high education levels and AFQT scores with those becoming fathers later scoring higher on both measures. Perhaps older fathers finished their education before marriage and fatherhood while the other group struggled with education and roles, making it more difficult to work fulltime.

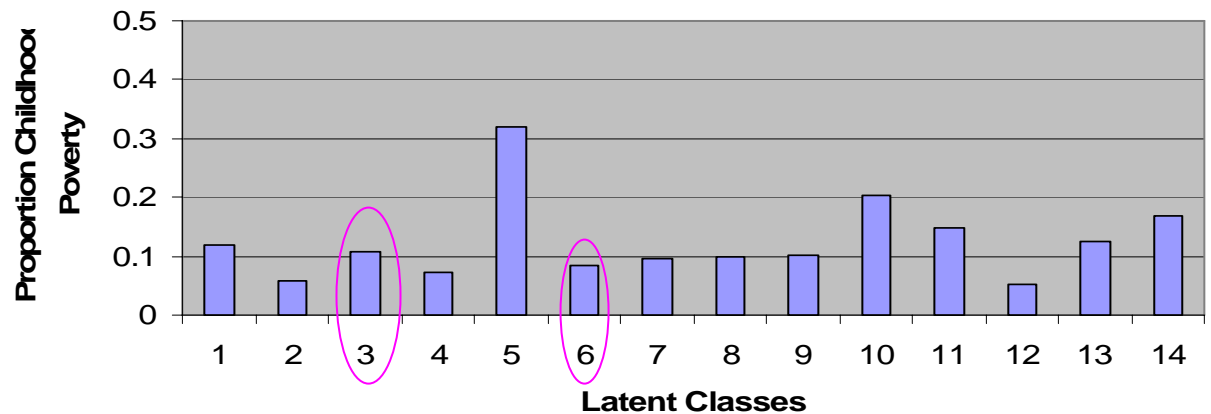


# Covariates-Older Married Fathers

## Latent Classes by Covariates

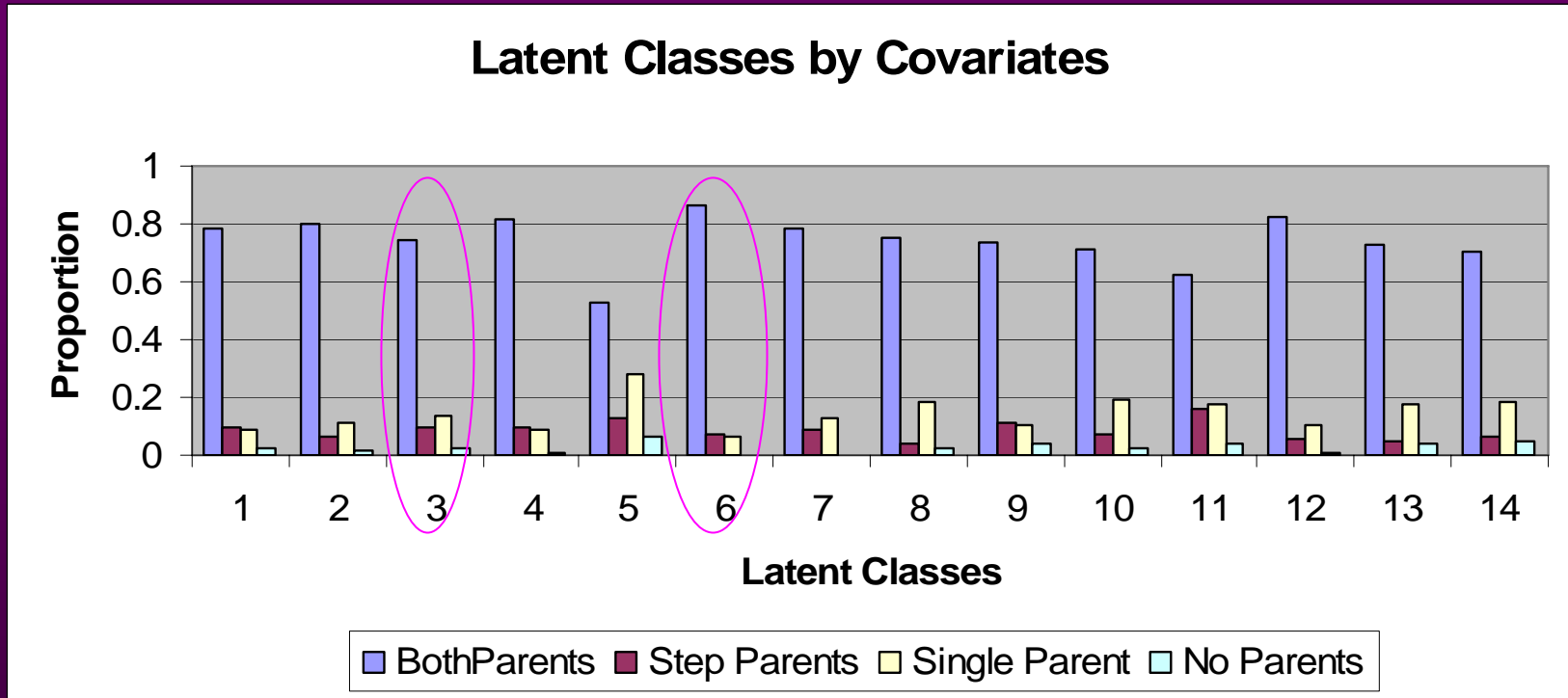


## Latent Classes by Covariates



Of the two classes of older married fathers, men characterized by less fulltime work are also characterized by more minority status and slightly more childhood poverty than their fulltime, later married father counterparts.

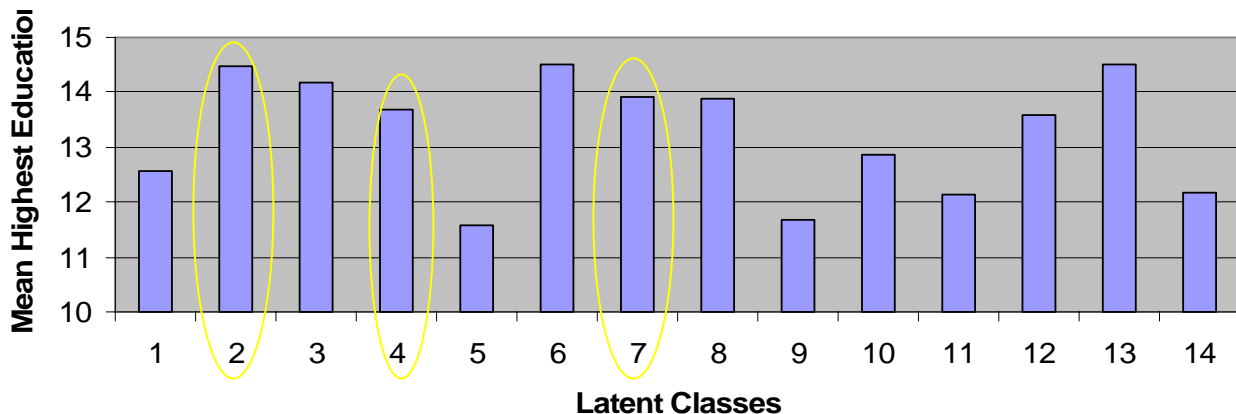
# Covariates—Older Married Fathers



Men who become husbands and fathers at older ages and work fulltime report the highest experience of being reared by both biological parents of any of the classes. Their older married father counterparts who do not work as much report higher single-parent and step-parent HH arrangements in their youth.

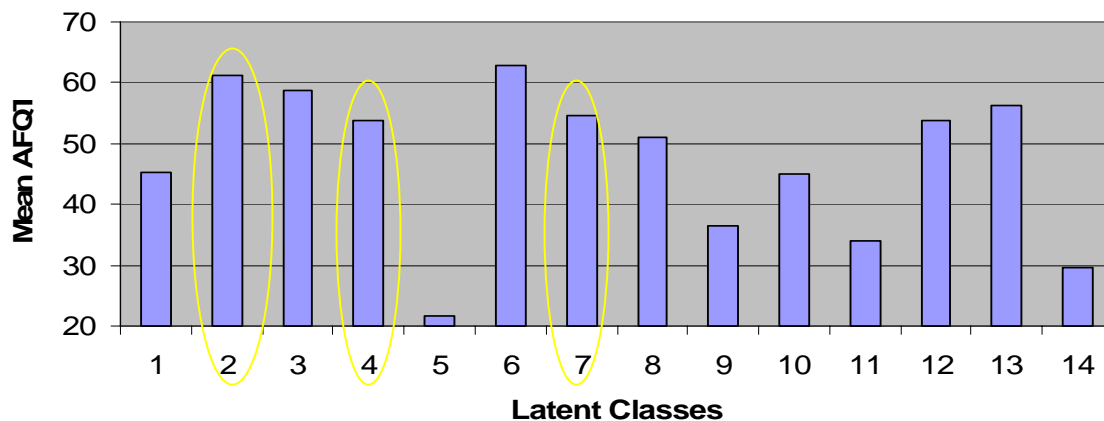
# Covariates- Married, Maybe Dad

### Latent Classes by Covariates



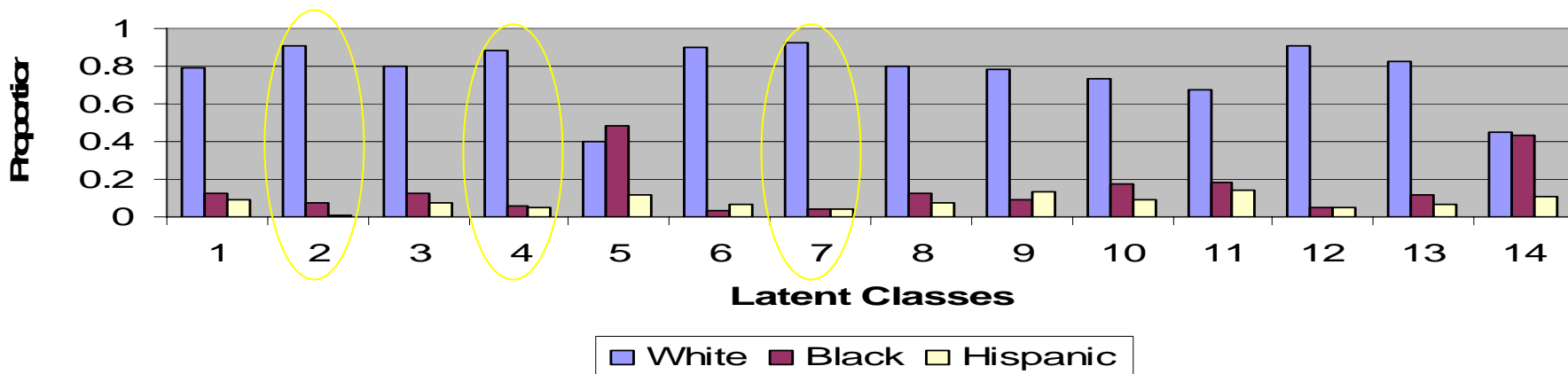
Class 2: marries later; Class 4: marries earlier; Class 7: works less. Men who marry and begin fatherhood much later (2) report higher levels of education and AFQT scores relative to their counterparts. Men who work less (7) may be finishing schooling late.

### Latent Classes by Covariates



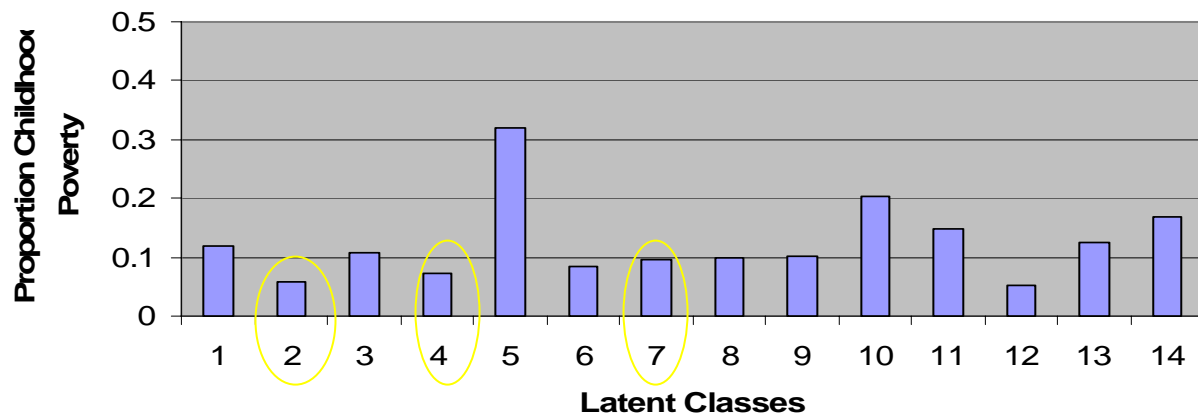
# Covariates- Married, Maybe Dad

## Latent Classes by Covariates

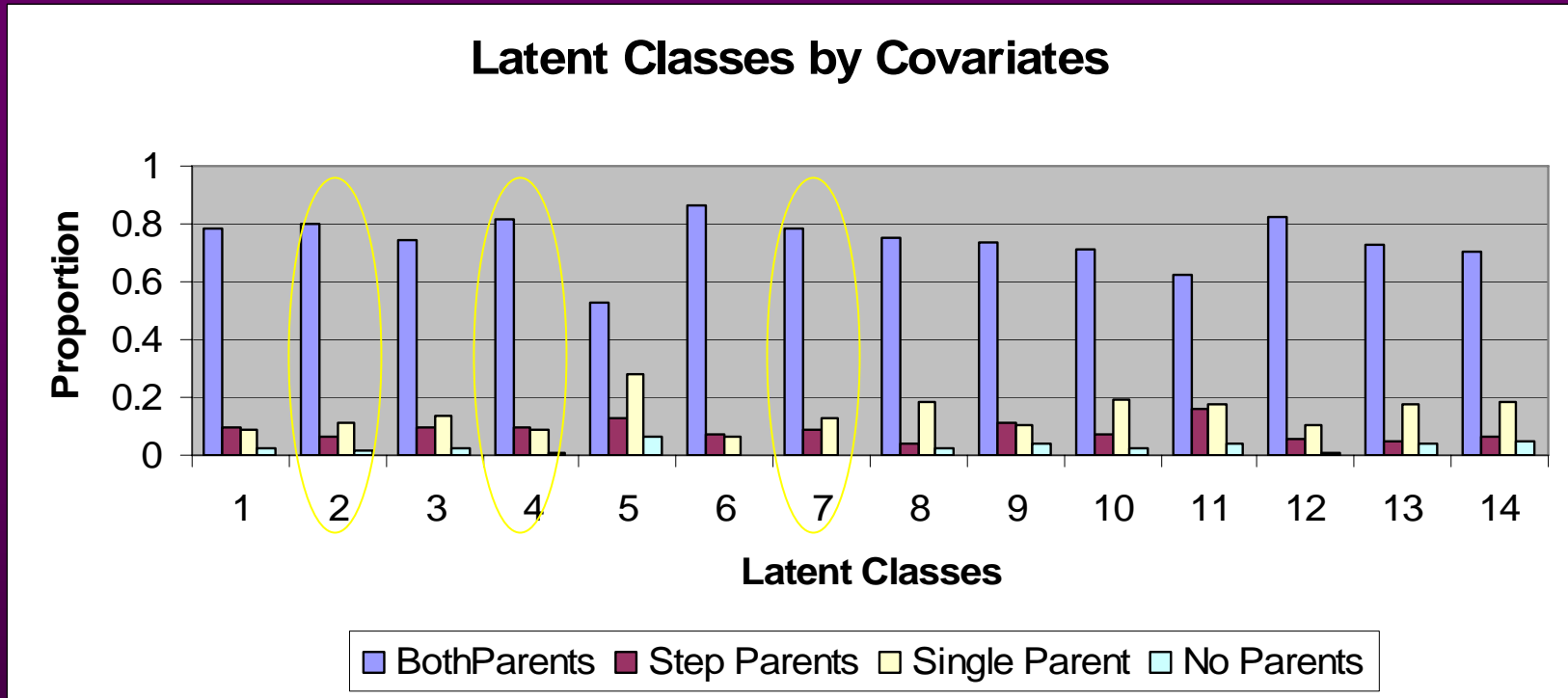


Men in all three classes are predominately white. Of the three classes, men who married and begin fatherhood last report the least childhood poverty of all classes. Men in the class with the lowest fulltime work report the most childhood poverty of the three classes.

## Latent Classes by Covariates



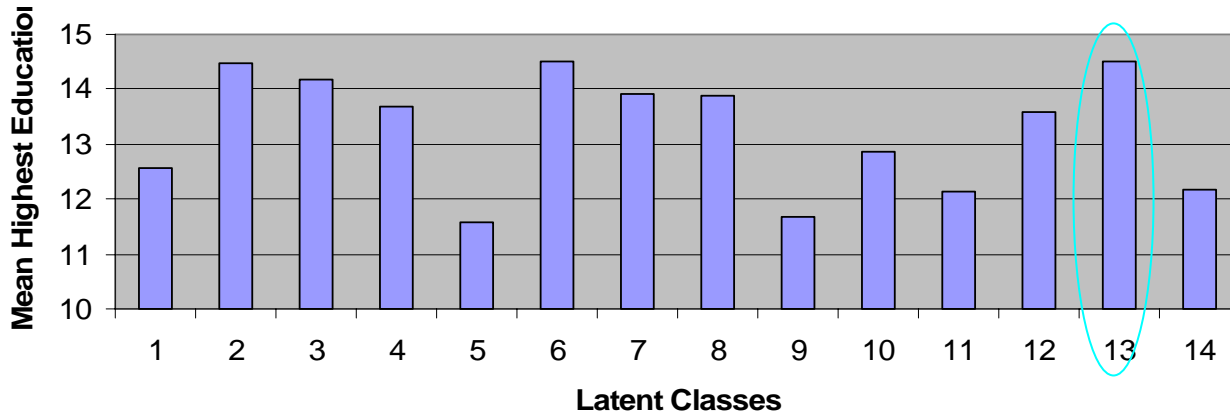
# Covariates- Married, Maybe Dad



Men in all three classes report fairly high experiences of being reared by both biological parents.

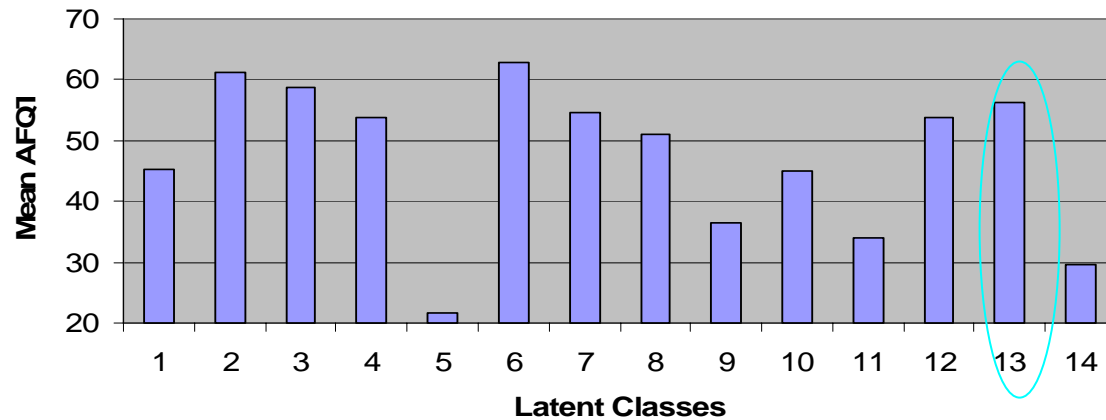
# Covariates—"Late Bloomers, Catch-up"

Latent Classes by Covariates



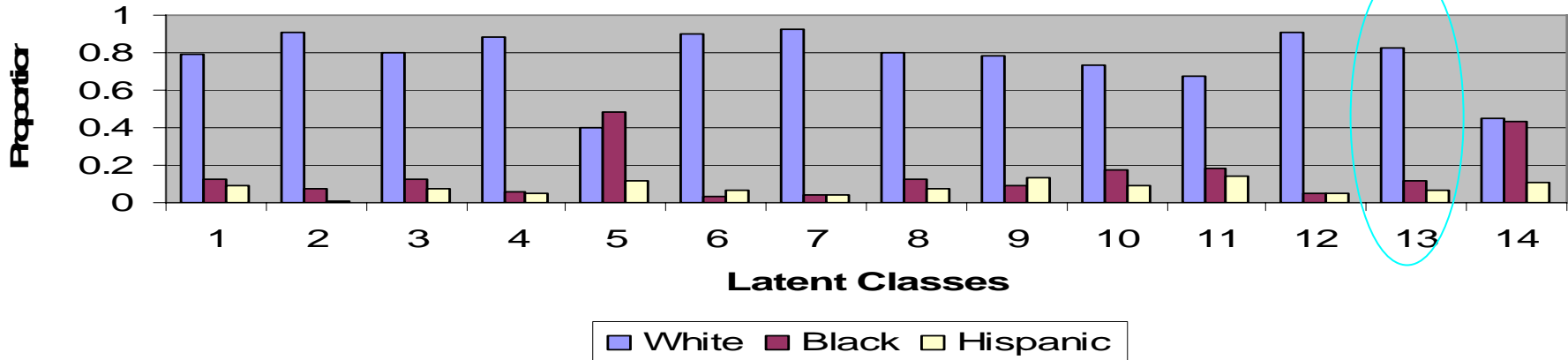
High educational achievers;  
relatively high AFQT scores

Latent Classes by Covariates



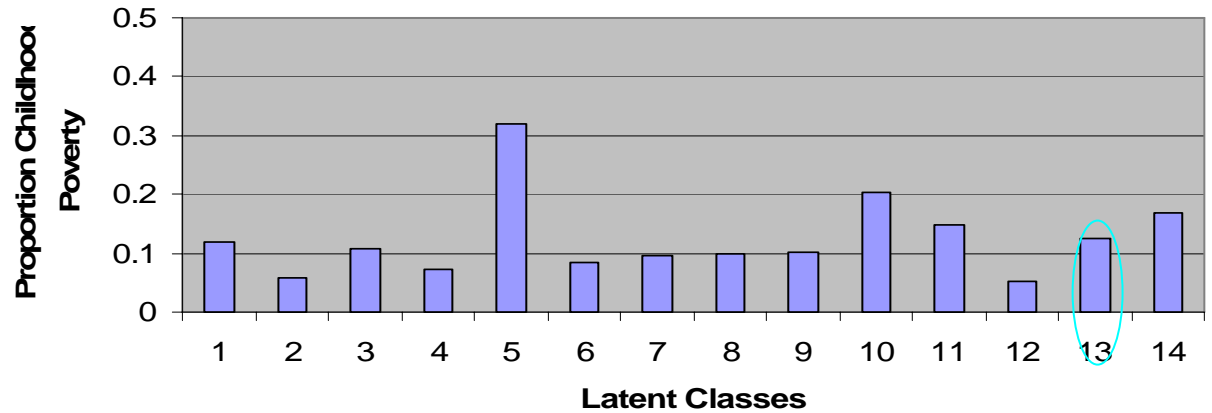
# Covariates—"Late Bloomers, Catch-up"

## Latent Classes by Covariates

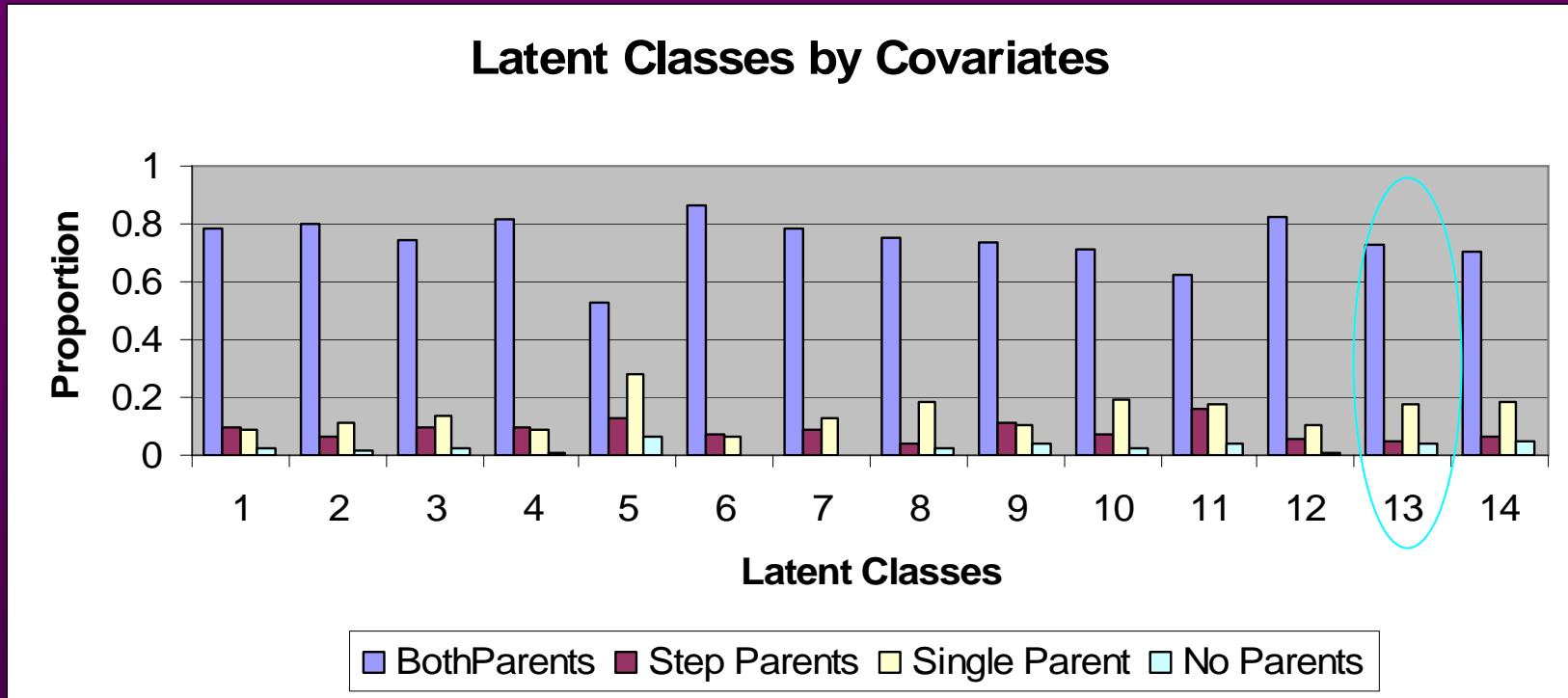


These men are predominately white and experience moderate levels of childhood poverty.

## Latent Classes by Covariates



# Covariates—"Late Bloomers, Catch-up"



Men who delay marriage and fatherhood, but who seem to make up for lost time report moderate experience of living in single-parent homes as youth.