

Ties that Bind?

Family Income Dynamics and Children's Post-Secondary Enrollment and Persistence

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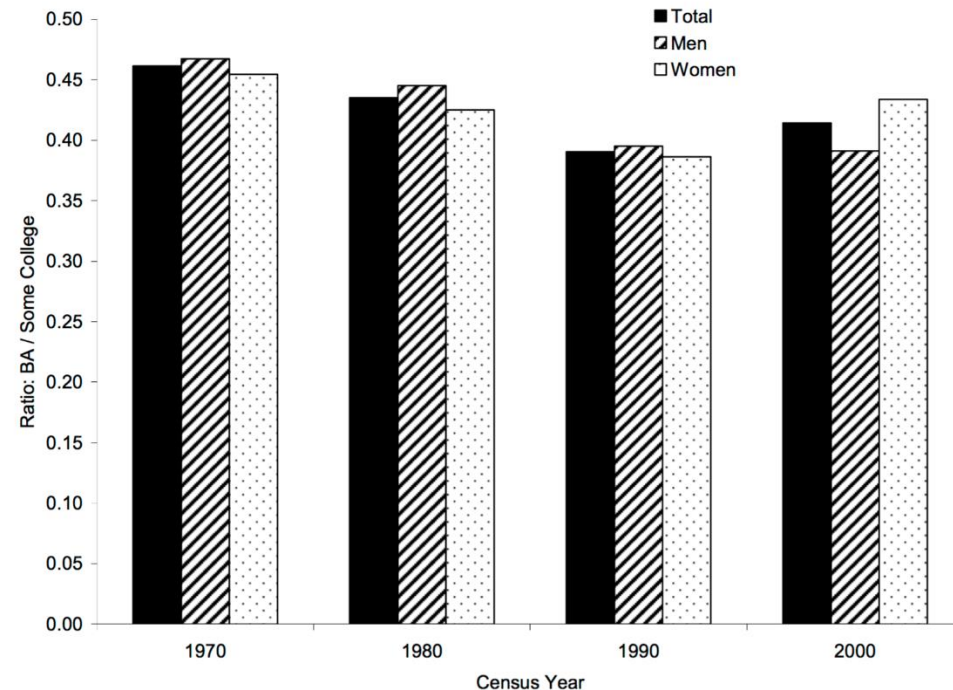
Overview

- The role of higher education in economic mobility is well established. But worries arise because:
 - Costs of college keep rising (Hemelt and Marcotte, 2016)
 - SES gaps in college graduation are startling (Bailey and Dynarski, 2011)
- Overlay on this the rise in income inequality & income volatility
 - Rising over the 1970s, 1980s (e.g. Autor et al. 2008; Dynan et al. 2012; Ziliak et al. 2011)
 - Higher for low income families (Hardy 2016)
 - Higher for less educated families
- We examine whether poverty, low income, and/or income volatility plays an additional role in shaping SES gaps via educational attainment

Motivation

- While more HS grads are going to college, that doesn't mean more are graduating

Figure 1. Trends in the Ratio of BA Recipients to Those with Some College or More among 25-Year-Olds



(Bound, Lovenheim & Turner).

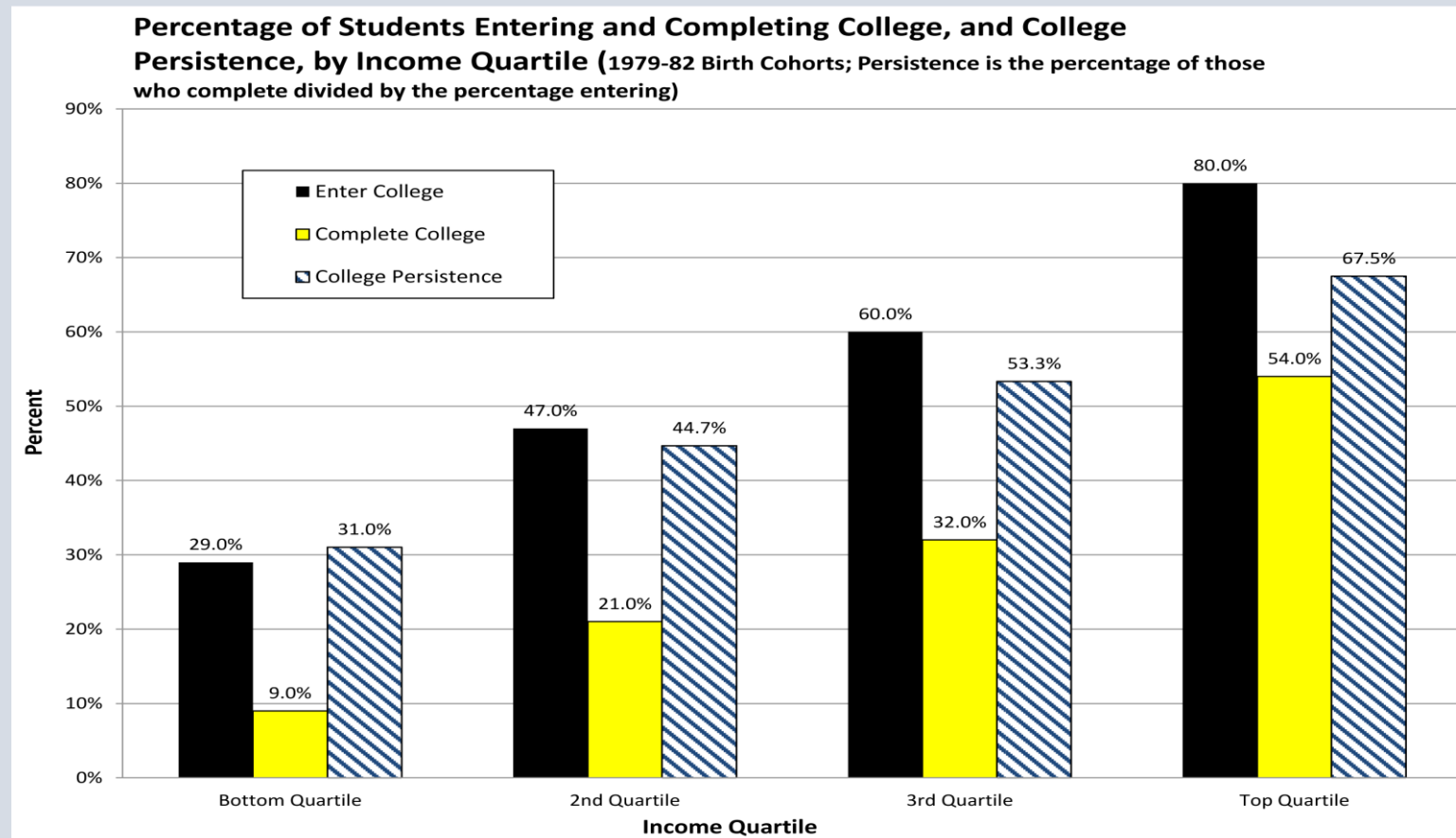
Motivation

- This is especially true at low-cost, non-selective colleges
 - such as 2-year Public 3-yr grad rate



Background: Persistence & SES

RSF Russell Sage Foundation - Chartbook of Social Inequality



Source: Bailey, M., S. Dynarski. 2012. Inequality in Postsecondary Education. In G. Duncan and R. Murnane (eds.), *Whither Opportunity? Rising Inequality, Schools, and Children's Life Chances*. RSF (see Figures 6.2, 6.3, 6.4).

(Bailey & Dynarski 2012).

What are the roles of poverty & income volatility

...as drivers of mobility via educational attainment?

What we do?

- Estimate relationship between high school graduation, college matriculation, & dropout as a function of
 - poverty (number of years in poverty during adolescence)
 - average income, income volatility

$$C_i = \alpha + \beta \bar{I}_i + \gamma V_i + \mathbf{X}\delta + \varepsilon_i$$

$$C_i = \alpha + \beta \sum_{t=1}^{t=5} P_{i,t} + \mathbf{X}\delta + \varepsilon_i$$

- We control for race, gender, marital status, residential moves, SAT/ACT, secular trends

Data: Panel Study of Income Dynamics

- PSID Transition to adulthood (TA) files: 2005, 2007, 2009, 2011, 2013, 2015
- PSID Family files: income & family demographics for 5 years
 - 5 data points prior to transition into adulthood
- We link family files to TA files
 - Estimate the link between parental income (Family Files) & young adult educational outcomes (TA Files)

Data: Point in time + a lookback

- HS Grad, College attendance, dropout (two years after transition) in 2005
 - As a function of 1995, 1997, 1999, 2001, & 2003 income
- HS Grad, College attendance, dropout in 2007
 - As a function of 1997, 1999, 2001, 2003, & 2005 income
- HS Grad, College attendance, dropout in 2009
 - As a function of 1999, 2001, 2003, 2005, & 2007 income
- HS Grad, College attendance, dropout in 2011
 - As a function of 2001, 2003, 2005, 2007, & 2009 income
- HS Grad, College attendance, dropout in 2013
 - As a function of 2003, 2005, 2007, 2009, & 2011 income

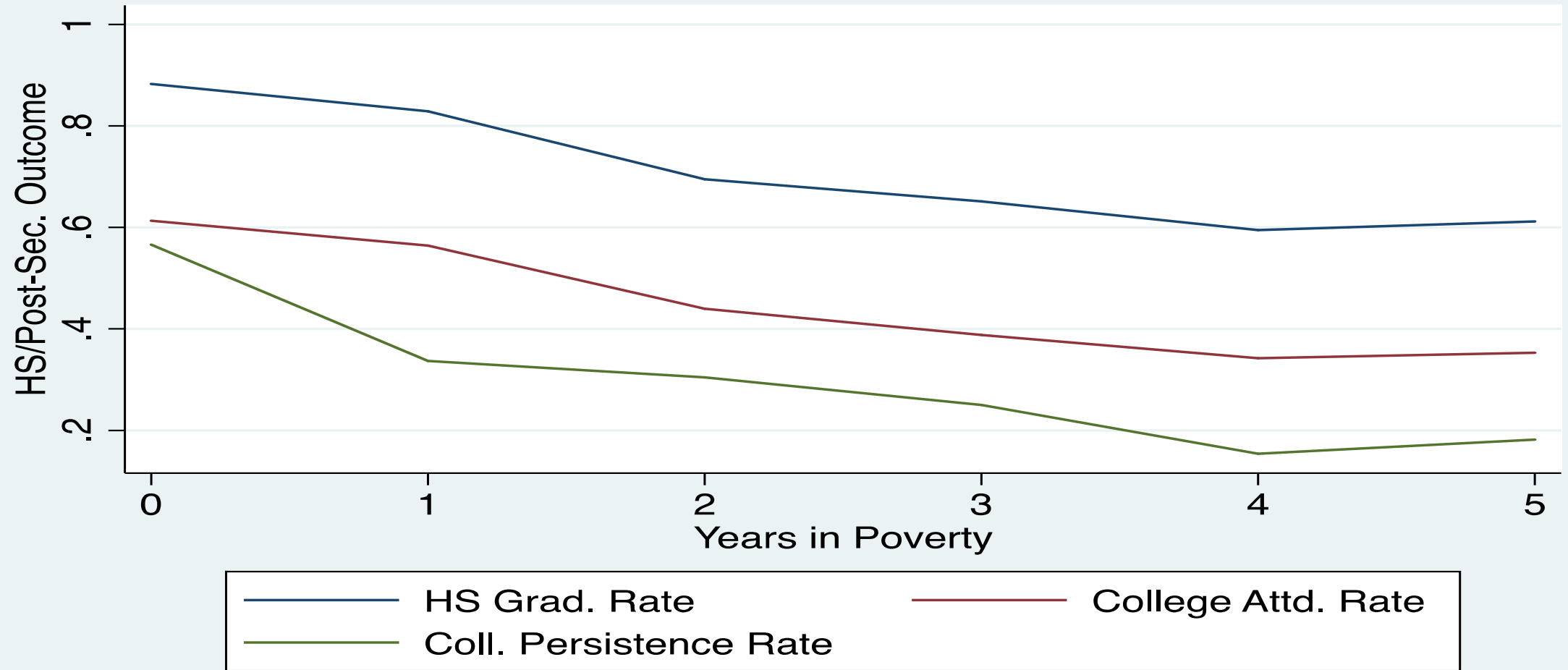
Descriptive Statistics		
	Mean	SD
High School Graduation	0.855	0.352
College within 2 Years	0.693	0.461
College Persistence	0.551	0.498
No.Years in Poverty	0.554	1.166
Poverty Prior to Grade 11/12	0.113	0.317
Ln Permanent Income	11.132	0.799
Transitory Volatility	0.395	0.334
Black	0.171	0.376
Female	0.483	0.500
Prop. Moves	0.240	0.303
Prop.Time Married	0.682	0.419

Results

1. Trends in poverty & educational attainment
2. Adolescent poverty near H.S. graduation & educational outcomes
3. Persistent adolescent poverty & educational outcomes
4. Measures of family stability
5. Income volatility

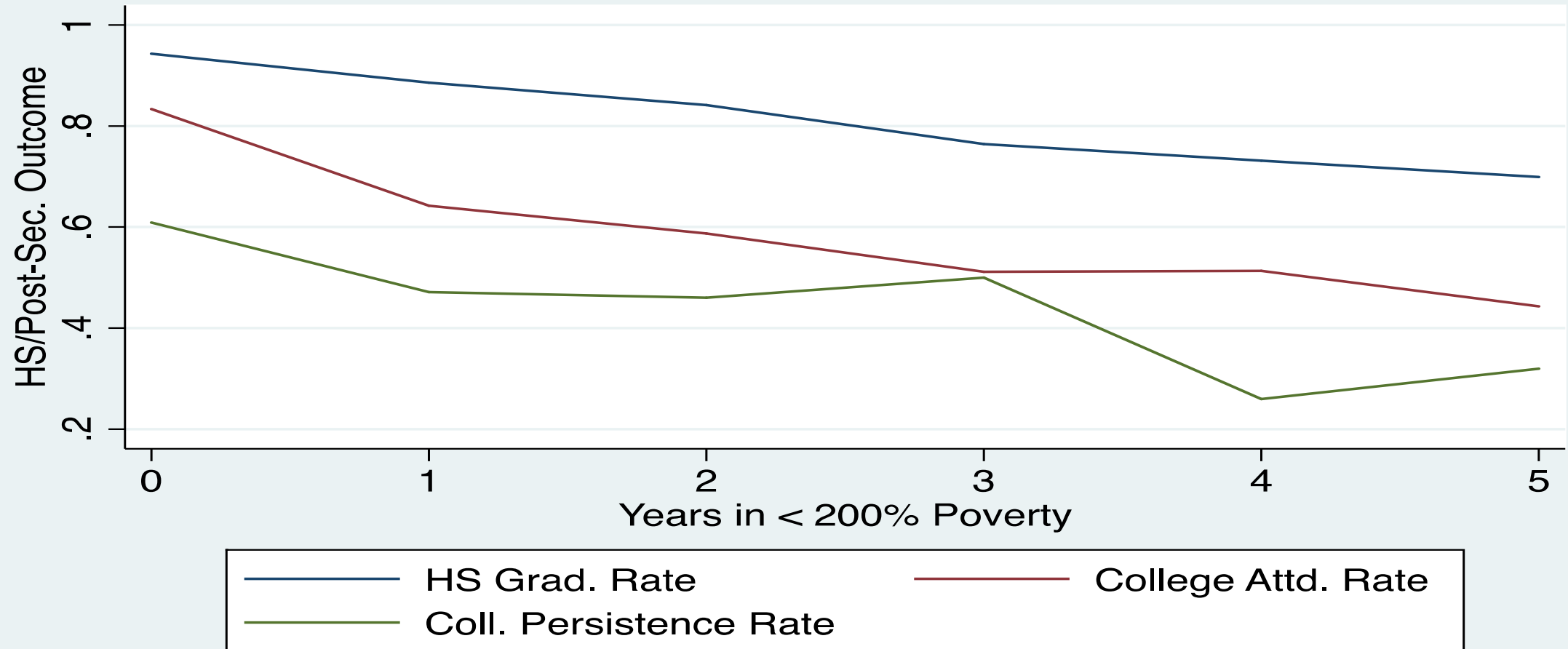
Trends in Poverty & Education

HS Graduation and College Attendance/Persistence by Time in Poverty



Authors' calculations from PSID-TA files

HS Graduation and College Attendance/Persistence by Time in Near Poverty

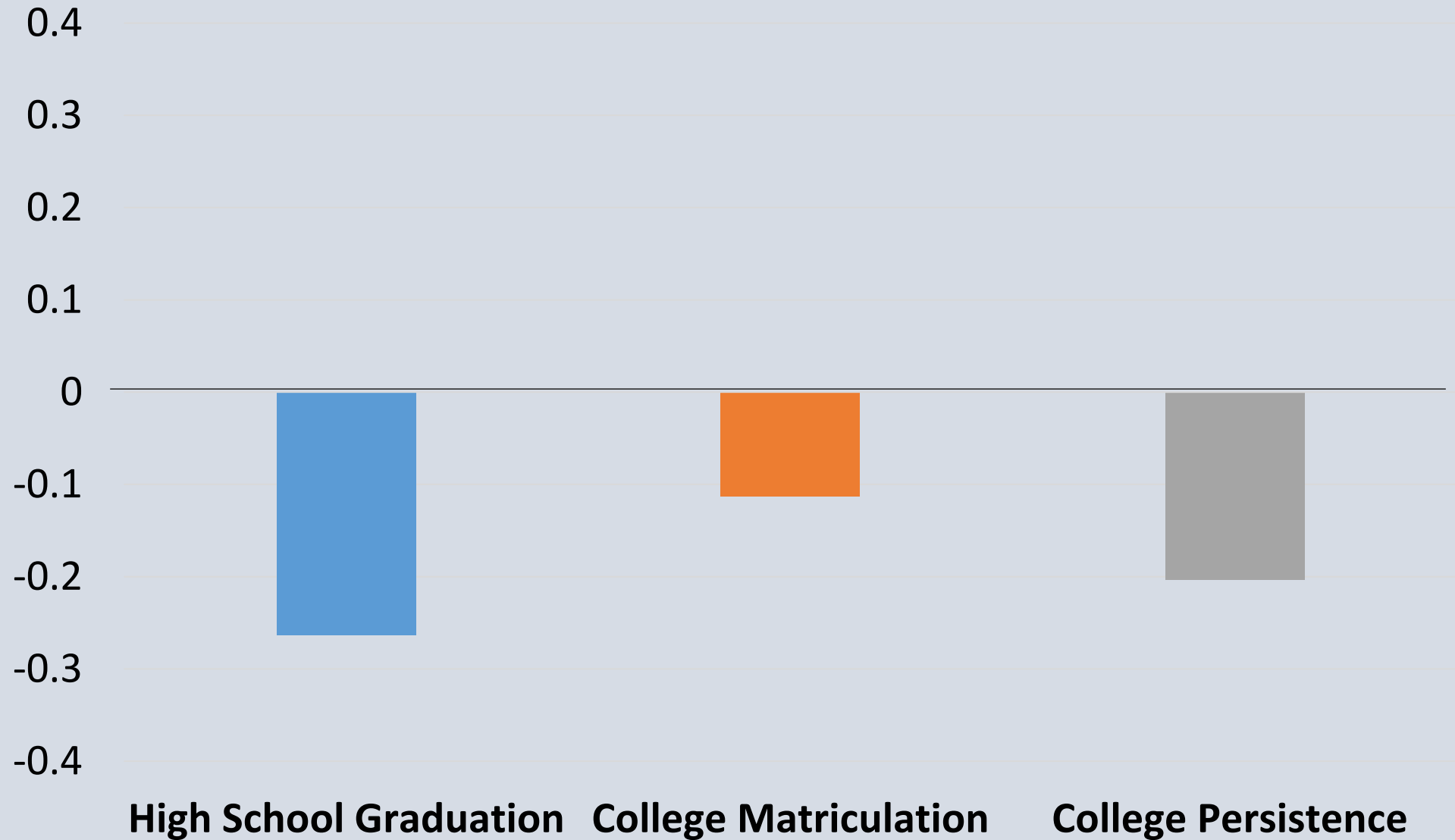


Near poverty defined as income < 200% FPL
Authors' calculations from PSID-TA files

Educational Attainment & Poverty Spells Near Graduation

- Poverty in the year near graduation associated with lowered likelihood of
 - high school graduation
 - college matriculation
 - college persistence

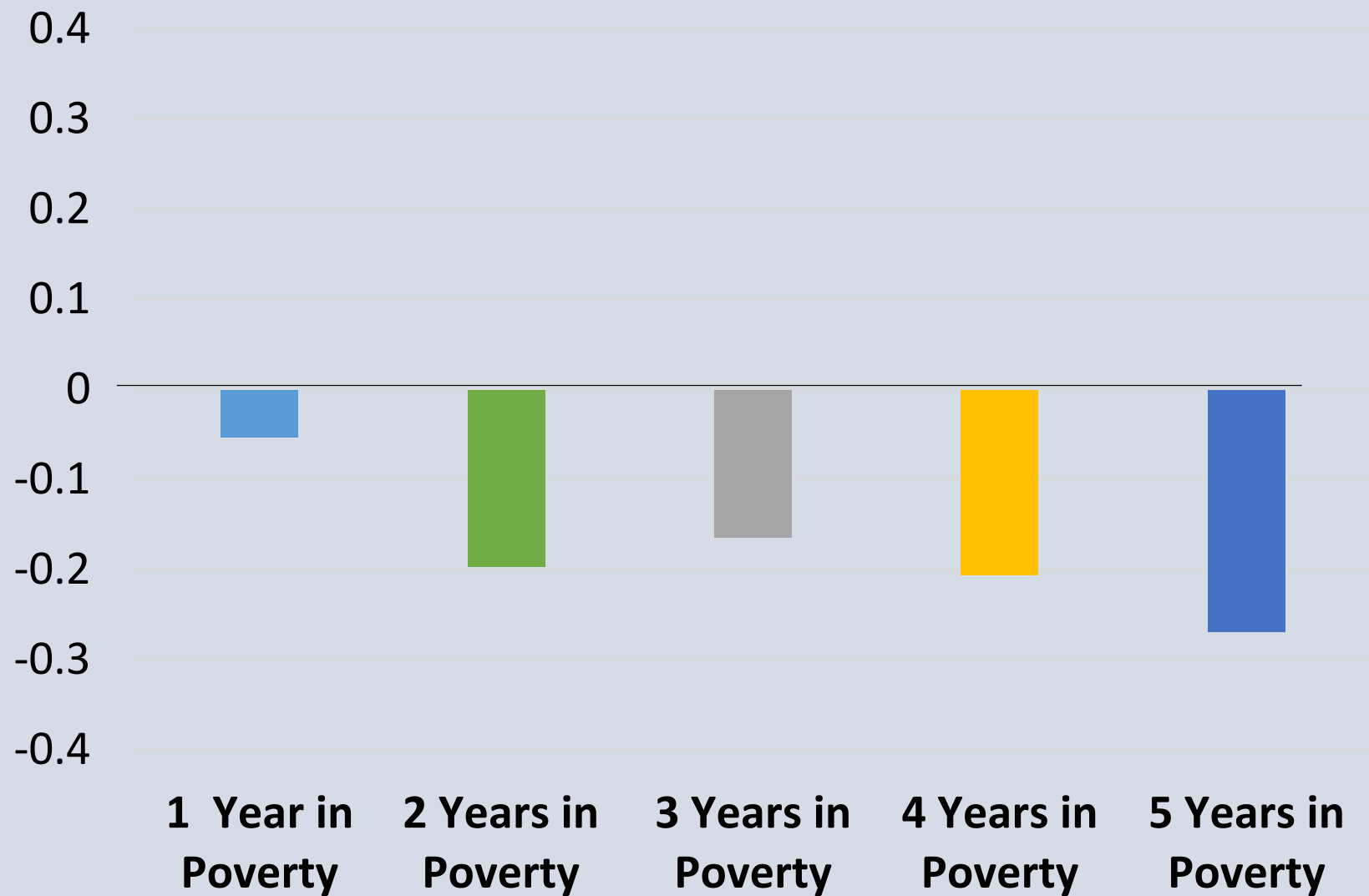
High School, College Attendance, & College Persistence Likelihoods: Poverty Near High School Graduation



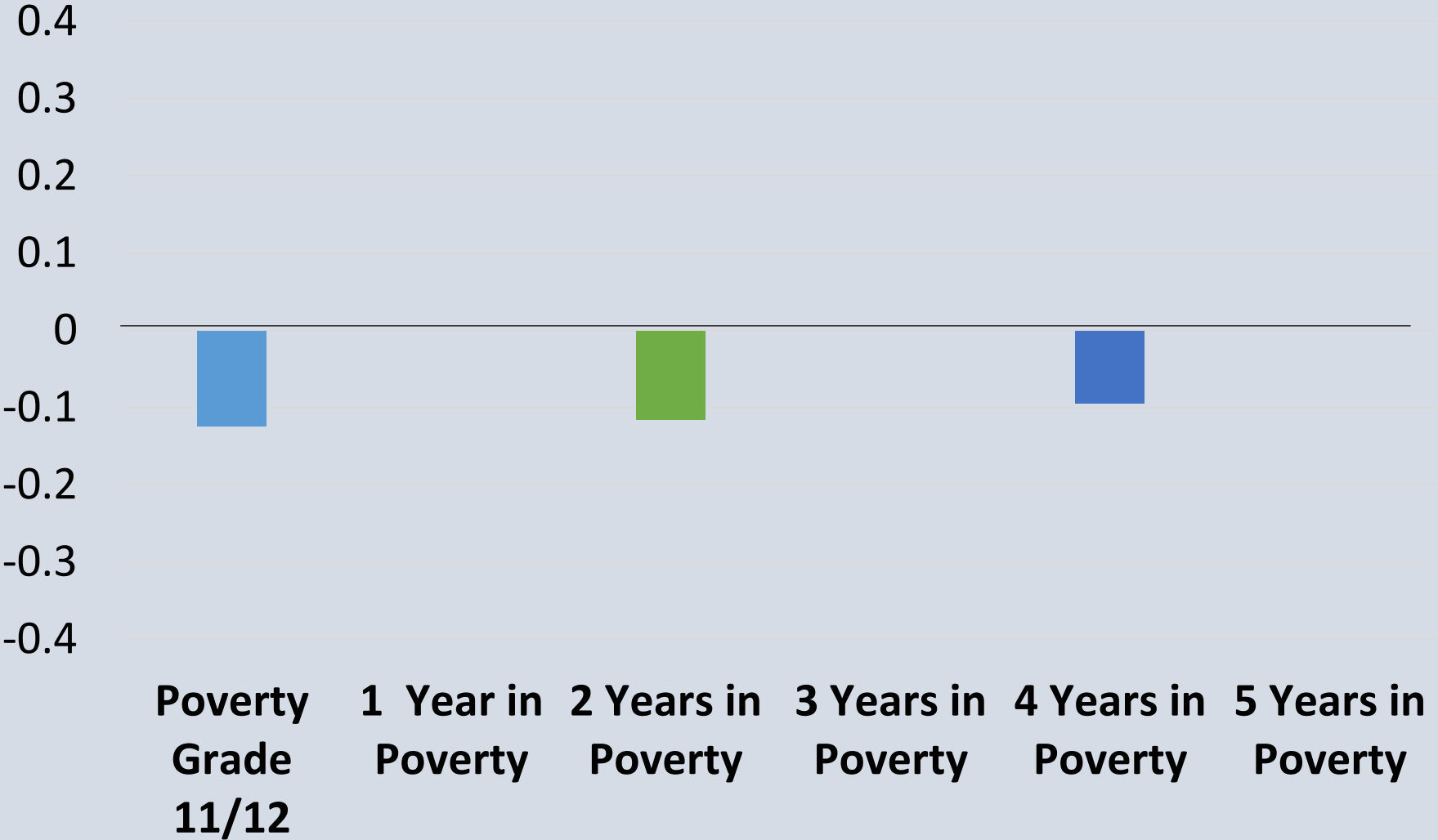
High School Graduation & Persistence of Adolescent Poverty

- How does anywhere from 1 to 5 years in poverty during adolescence relate to outcomes?

High School Graduation Likelihoods: Persistence of Poverty



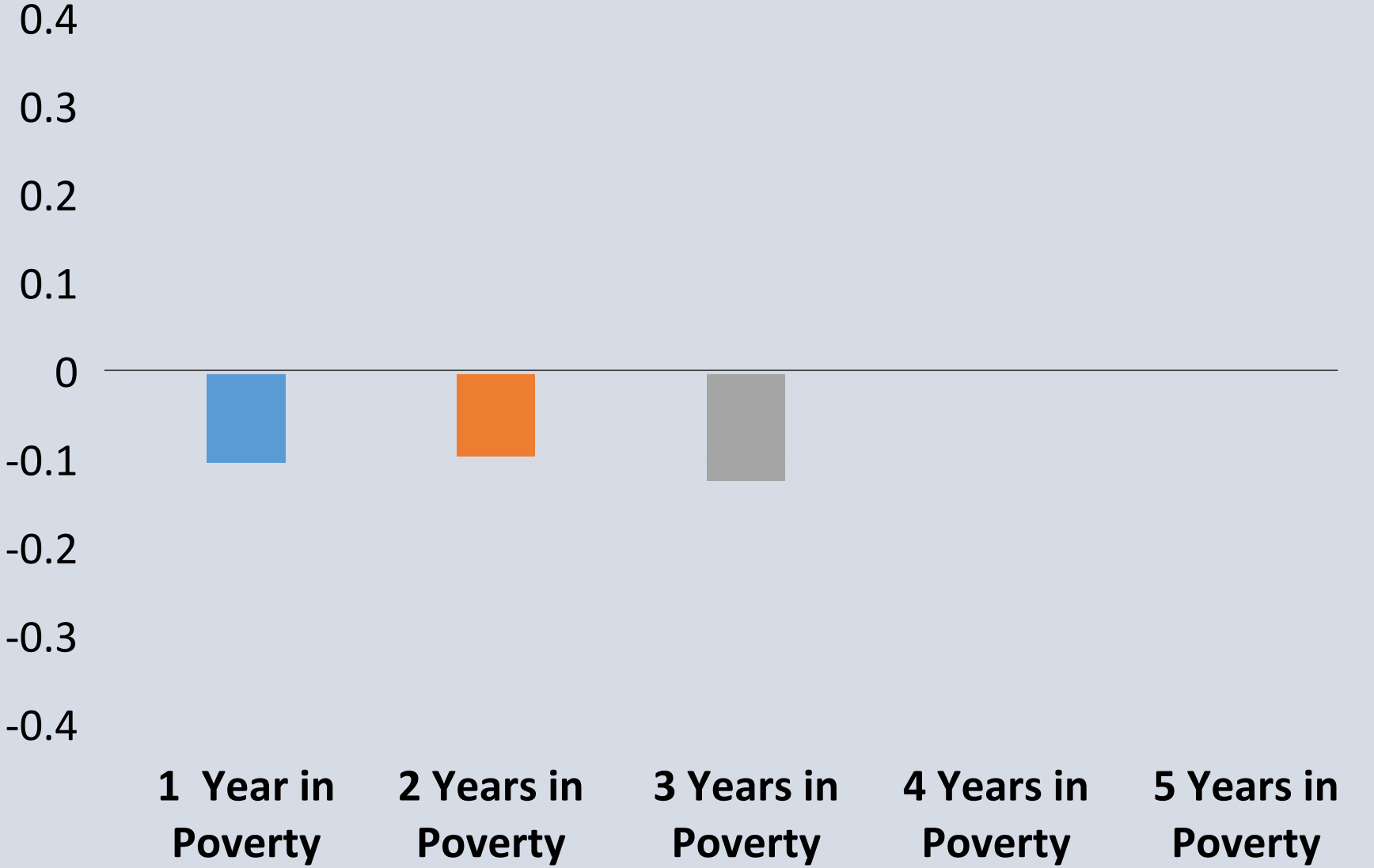
High School Graduation Likelihoods: Full Set of Controls



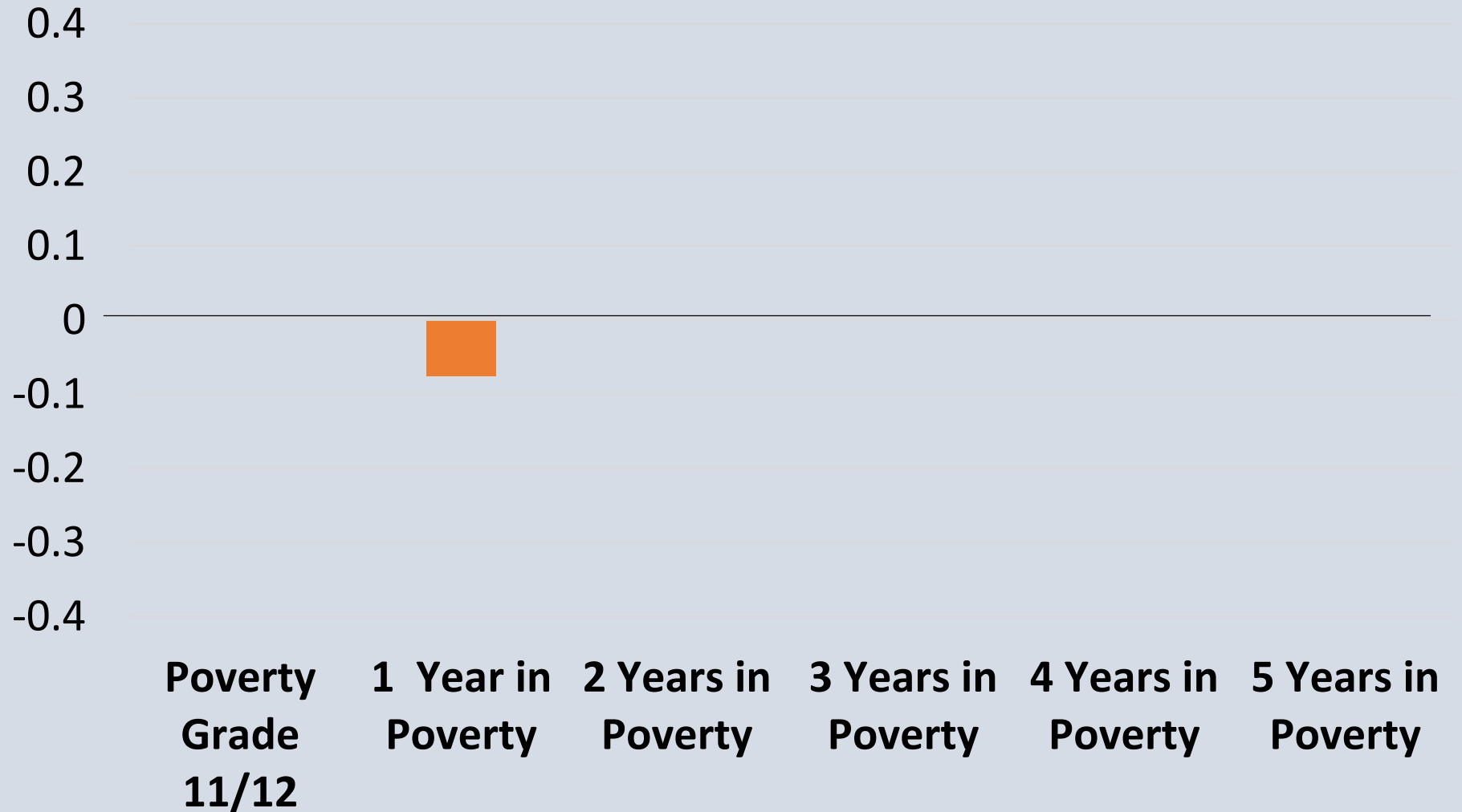
College Matriculation & Persistence of Adolescent Poverty

- A consistent negative association emerges, though not as strong as for high school graduation

College Matriculation Likelihoods: Persistence of Poverty



College Matriculation Likelihoods: Full Set of Controls



College Persistence (2 year dropout) & Persistence of Adolescent Poverty

- Weaker overall association here

College Persistence (2 Year Dropout) Likelihoods: Persistence of Poverty



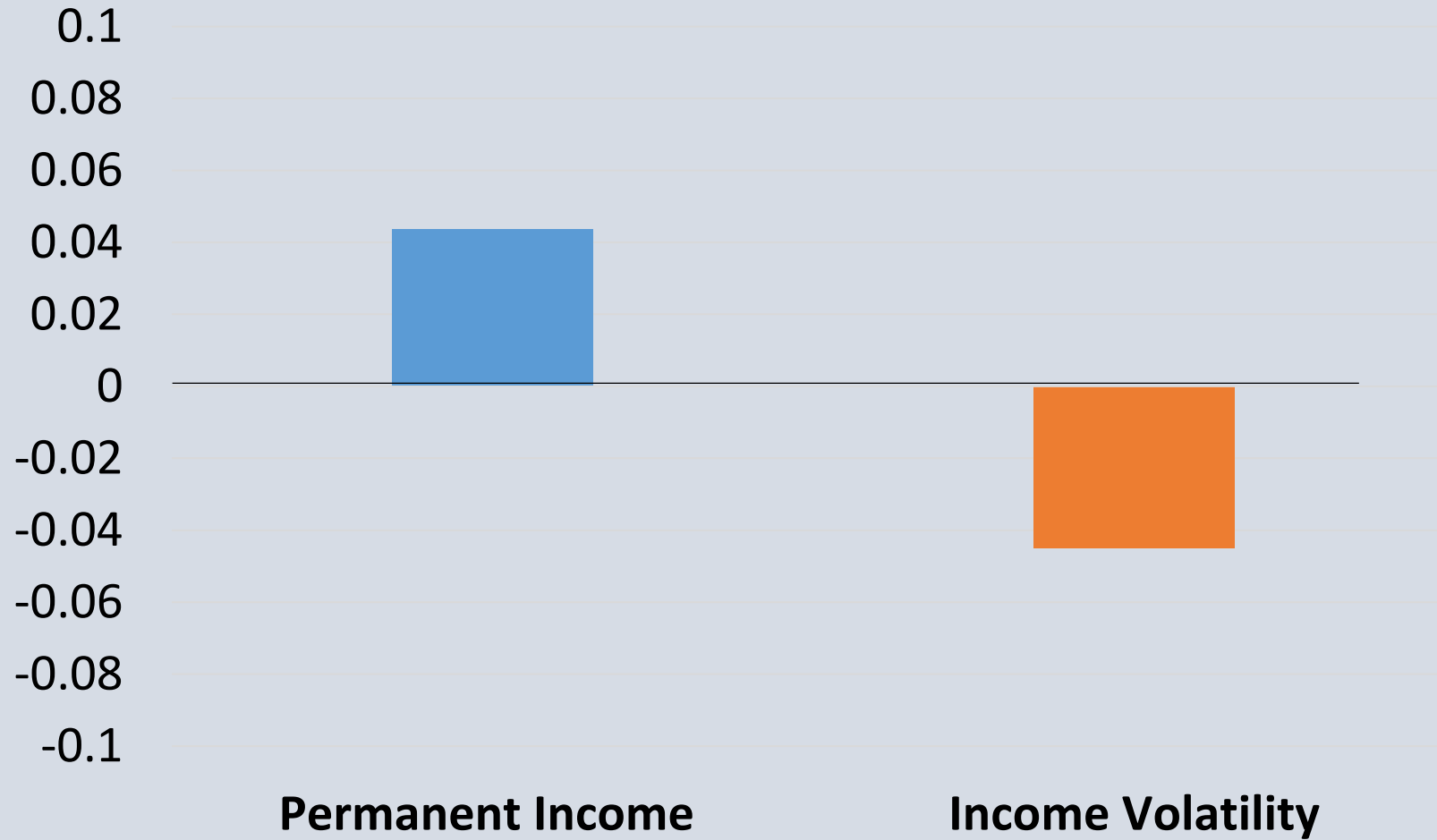
**College Persistence (2 Year Dropout) Likelihoods:
Full Set of Controls**



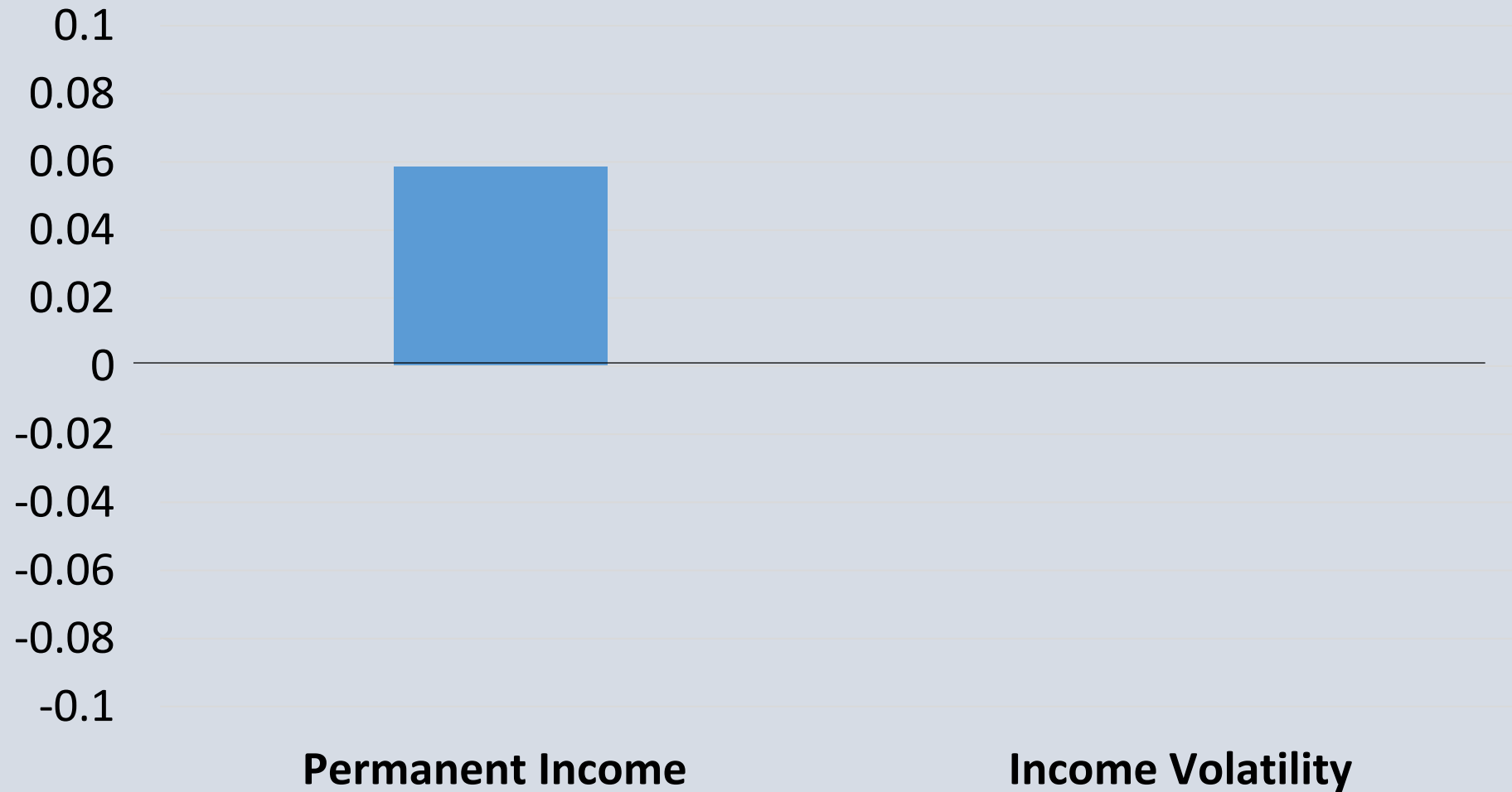
Income Volatility, Permanent Income, & Educational Attainment

- Volatility of income (variance) is negatively associated with high school graduation; no link to college persistence
- Higher levels of average income during adolescence are positively associated with high school graduation & college persistence

High School Graduation Likelihood: Permanent Income & Income Volatility

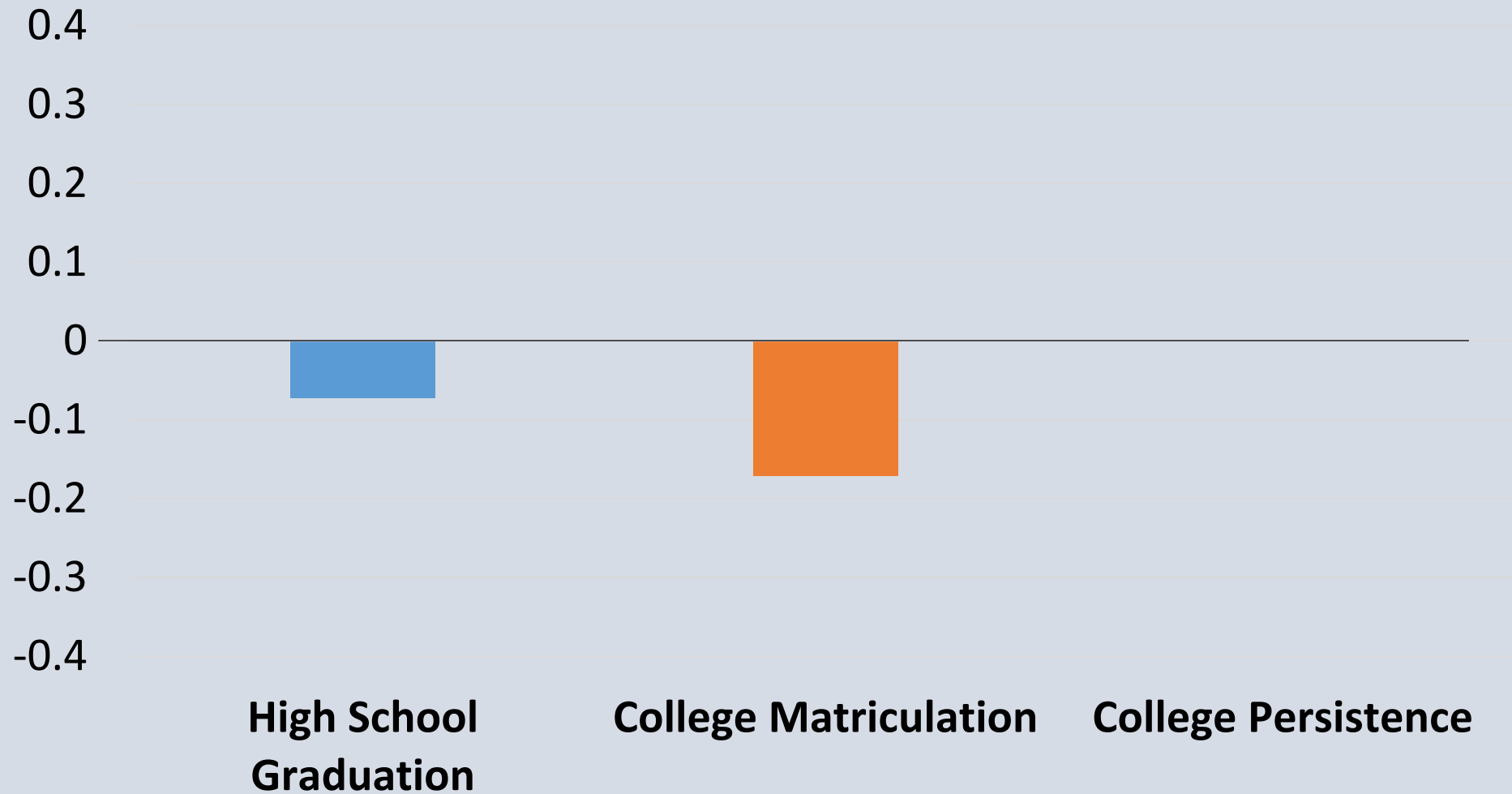


College Persistence Likelihood: Permanent Income & Income Volatility

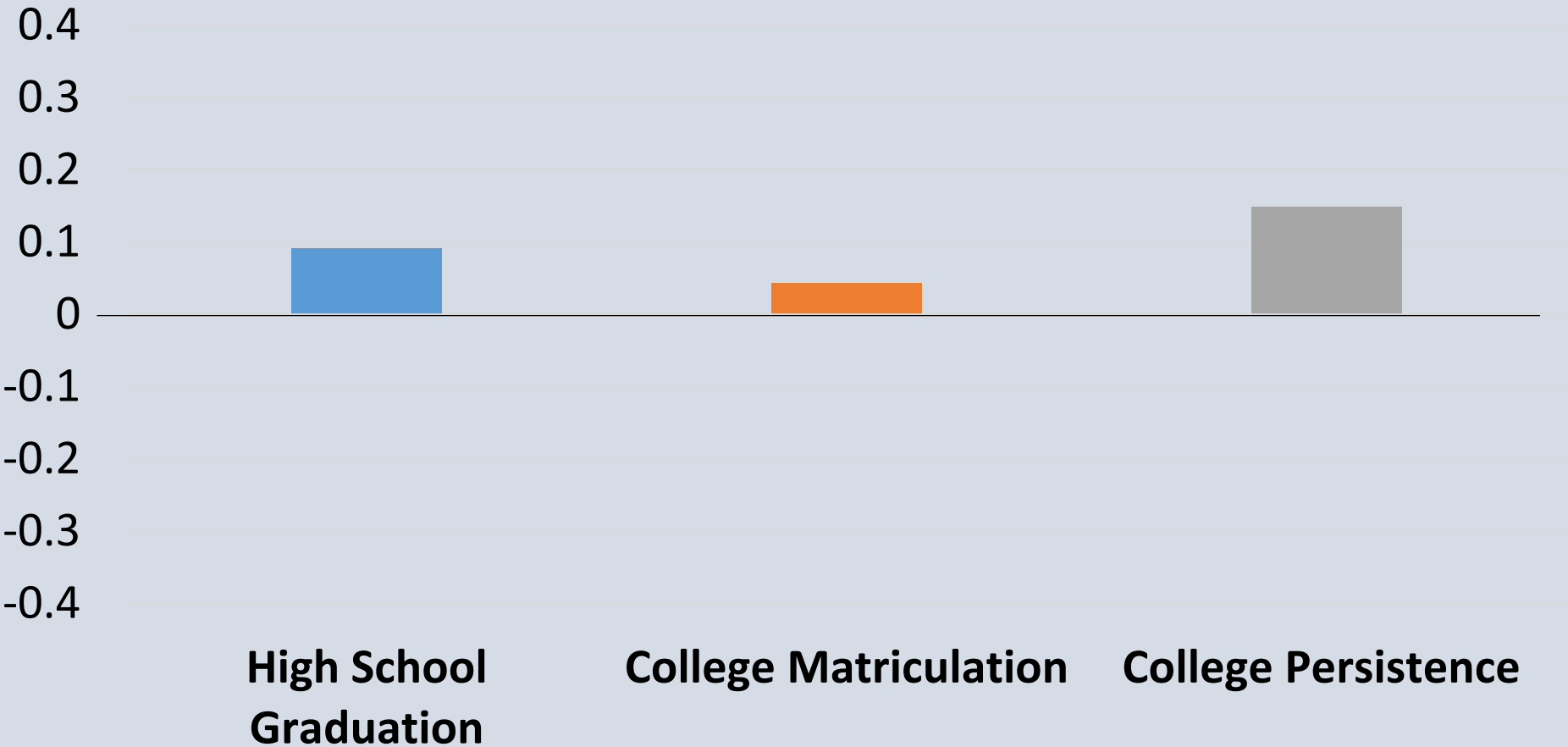


Family Stability: Residential Moves & Marriage

Proportion of Residential Moves on High School, College Attendance, & College Persistence Likelihoods



**Proportion of Adolescent Years Residing in Married Family on
High School, College Attendance, & College Persistence
Likelihoods**



Discussion & Policy Implications

- Poverty as adolescents approach end of H.S. associated with lowered educational outcomes initially
 - High school graduation, college matriculation, college persistence likelihoods
- Persistence of poverty (multiple years) linked to lowered H.S. graduation, college matriculation
 - Weaker link once family stability, SAT-ACT scores accounted for
 - Somewhat weaker link between multiple years in poverty & college persistence
- Income volatility is associated with lower high school graduation & lower college persistence likelihoods

Policy Implications

- Financial aid policies to address needs of students from HHs with low income &/or large income swings
- Policies to address household economic and financial stability could have important mobility & educational attainment consequences

Next Steps & Questions

- Additional controls
- Look at college choice
 - Do the students return to school?
- Causal modeling approaches
- Test sensitivity of results to students (a) in states with varying financial aid policies (b) who are Pell eligible, and (c) in different types of colleges

Thank you

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Measures of volatility

$$\textit{Transitory Volatility} = \text{var}(v_i) = V_i = \left(\frac{1}{T_i - 1}\right) \sum_{t=1}^{T_i=m} (y_{it} - \bar{y}_i)^2$$

- Squared deviations around family-specific mean income