Examining the Benefits of Dual Enrollment in Communities, Sectors and Institutions

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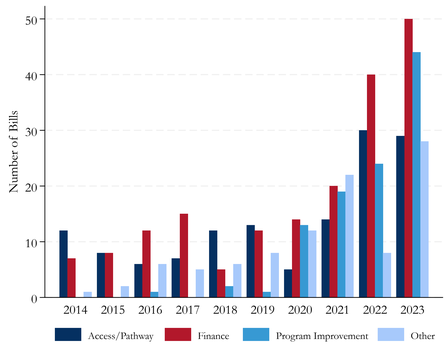
Motivation

Disparities in access to and success in higher education based on race, gender, and socioeconomic status **perpetuate inequities** (Chetty et al., 2014).

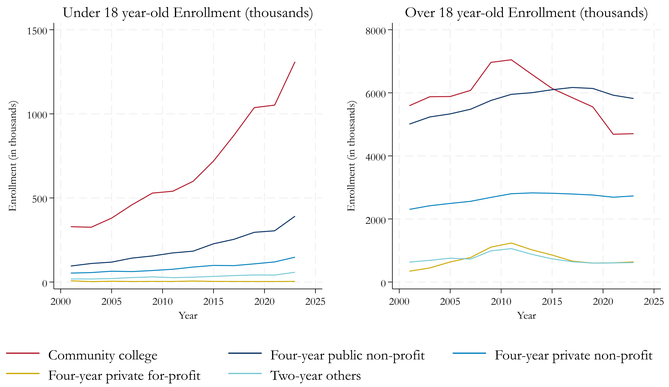
Dual enrollment (DE) — high school students that take college-level courses and earn college credit— has been positioned as a **central policy to broaden equitable access** to and attainment of higher education degrees in the last decade, with $\approx 80\%$ **of states passing financial aid-related policies** between 2014 and 2023 to support DE.

Figure 1. Evolution of Dual Enrollment Bills Passed by Type (Source: Legiscan)



Participation in DE has quintupled since its introduction in the 1990s (Fink, 2023), reaching around 1.5 million students by 2021, **while postsecondary enrollments have stagnated or declined**.

Figure 2. Fall Undergraduate Enrollments by Sector and Age (Source: IPEDS)



Research Questions

1. Has dual enrollment boosted overall postsecondary enrollment at **higher education institutions (HEIs) and communities**?
2. Which sectors have benefited the most: community colleges, public/private four-year institutions, or all?

Who is reaping the benefits of increased DE growth?

- When DE students continue to college-level enrollment, it benefits:
  - → **Institutions:** Increased revenue through more degree-seeking enrollment.
  - → **Communities:** Growth in youth postsecondary enrollment has positive implications for the local workforce.

Data and measures

- **IPEDS 2001-2023:** Fall enrollments by institution-year-age group.
  - **Dual enrollment headcounts:** Proxy with the number of students under 18 years old.
  - **Postsecondary enrollments of recent high school graduates:** Students between 18 to 19 years old.
  - **Community enrollments:** Aggregate enrollments by year, commuting zone, and postsecondary sector.

Methodology

Benchmark OLS Model

$$ln(Enrollment18-19yo)_{cst} = \ _0 + \ _1 ln(Under18yo)_{cst-2} + \Gamma X_{c,t-2} + \theta_t + \tau_{cs} + \epsilon_{cst} \quad (1)$$

- $ln(Enrollment18-19yo)$ is the natural log. of recent high school graduates (ages 18 to 19 years old) at commuting zone or institution c in sector s in year t (2009 to 2023),
- $ln(Under18yo)$ is the natural log. of our proxy of dual enrollment students (students under 18) in period $t-2$.
- $X_{c,t-2}$ represents controls of **enrollment of over 18 year-olds and commuting zones unemployment rate.**
- **Time and institution/commuting zone fixed effects are included.**
- Standard errors are clustered at the unit of aggregation level.

Identifying the effects by commuting zones

Identification problem: correlation between DE and postsecondary enrollment captures time-variant local and institutional changes that drive both DE and postsecondary enrollments.

Solution: shift-share instrument that leverages exogenous shares as exposures to DE growth:

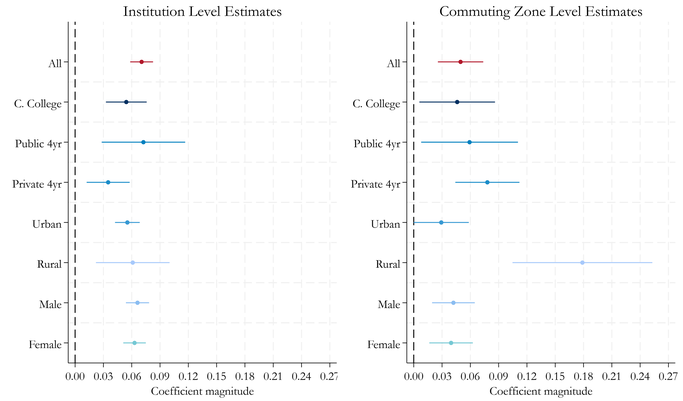
$$Z_{cs,t=2009,2023} = \frac{Under18_{cs,2001-2007}}{\sum_{s=1}^{S} Under18_{cs,2001-2007}} * ln(Under18US)_{c,t=2009,2023} \quad (2)$$

Instrumental variable estimation: $ln(Under18)_{cst-2} = \ _0 + \ _1 Z_{cst-2} + \Phi X_c + \eta_t + \nu_{cs} + \varepsilon_{cst}$

Identification assumption: The shares of DE students across sectors within a commuting zone, between 2001 and 2007, capture exposure to growth but isolate local time-variant shocks to postsecondary and DE supply and demand that could lead to endogeneity.

Benchmark OLS Results

Every 10% growth in DE at institutions (commuting zones) is associated with a 0.7% (0.4%) growth in overall freshmen enrollment.



IV Results for Commuting Zones

	First Stage $ln(Under18)_{cst}$ (1)	IV: Main Outcome $ln(Enrollment1819)_{cst}$ (2)	IV: Placebo $UnemploymentR_t$ (3)
Z_{cst-2}	0.242***		
	(0.008)		
$\widehat{ln(Under18)}_{cst-2}$		0.052***	0.003
		(0.017)	(0.002)
Commuting Zone FE	Yes	Yes	Yes
Year FE	Yes	Yes	Yes
Controls	Yes	Yes	Yes
Observations	11,047	11,047	11,047

Robust clustered standard errors at the commuting zone level in parentheses. *** $p<0.01$, ** $p<0.05$, * $p<0.1$. Additional controls include lagged total enrollment excluding DE, unemployment rate, nr. of bills passed by type, and nr. of institutions.

Discussion

- **DE growth impacts postsecondary enrollment in communities:** Causal estimates show a 10% increase in DE translates into 0.5% more 18 to 19-year-olds enrolled two years later.
- This means **a rough yield rate of 20%** (37/182), based on average enrollment figures of 1,826 DE students and 7,425 18- to 19-year-old students.
- Suggestive evidence postsecondary institutions also benefit: **10% more DE students is associated with 0.7% more freshmen** postsecondary enrollment at the institution, **a rough yield rate of 28%** (7.3/26.1).This calculation is based on an institutional average of 1,056 18- to 19-year-old students and 261 under-18-year-old students.

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