

# Does Financial Aid Improve the Educational Outcomes of High-Achieving Low-Income Students?

Evidence from the French *aide au mérite*

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→ what is the effect of giving additional financial aid to **high-achieving low-income** students?

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## Aide au Mérite: Key Elements [▶ changes since 2008](#)

Introduced in 2008: **200€ par month** over 9 months for 3 years at most

**Eligibility criteria:** (*circulaire N°2008-1013 du 12 juin 2008*) [▶ details](#)

1. Recipient of **need-based financial aid** [▶ criteria](#) [▶ timeline](#), and
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Important:

1. Bac grade **not used** by higher education institutions for selection,
2. application to need-based financial aid made **before** Bac grade is known

## Amounts of Need-Based Financial Aid by Echelon

Echelon	2009-10	2010-11	2011-12	2012-13	2013-14	2014-15	Aide au mérite (% 2009-10)
0	Exemption from tuition and student social security fees						-
0 bis	-	-	-	-	1,000	1,007	-
1	1,445	1,525	1,606	1,640	1,653	1,665	125
2	2,177	2,298	2,419	2,470	2,490	2,507	83
3	2,790	2,945	3,100	3,165	3,190	3,212	65
4	3,401	3,590	3,779	3,858	3,889	3,916	53
5	3,905	4,122	4,339	4,430	4,465	4,496	46
6	4,140	4,370	4,600	4,697	4,735	4,768	44
7	-	-	-	-	5,500	5,539	-

Notes: Amounts are not adjusted for inflation.

# Data

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**Students taking Bac** OCEAN Bac

student characteristics, Bac grade

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student characteristics, higher education institution, degree, discipline

Match these datasets using a unique anonymised student identifier.

# Sample and Descriptive Statistics

Bac cohorts: **2009-2014**

Eligible to need-based financial aid: **1,062,620 students** [sample selection details](#)

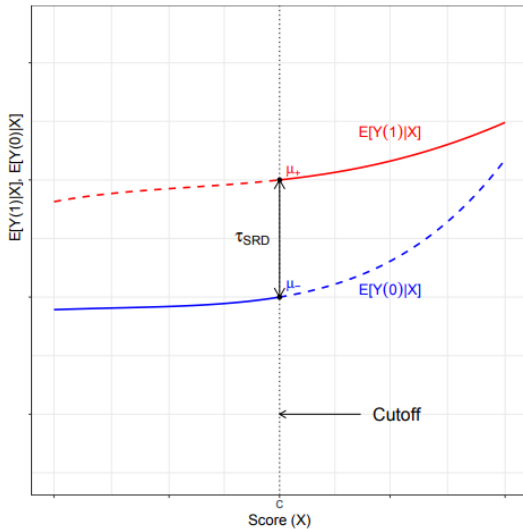
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Bac cohort	2009	2010	2011	2012	2013	2014	2009-14
Number obs.	164,535	165,282	177,499	187,093	183,442	184,769	1,062,620
Bac grade $\in$ [14, 18]	26,590	25,141	27,731	32,373	37,627	39,661	189,123
Recipients of aide au mérite in Bac year	6,282	6,030	6,751	8,099	11,209	11,126	49,498
Female (%)	57.16	56.93	56.70	55.81	56.19	56.88	56.59
16 or above at Bac (%)	4.29	4.02	4.14	4.87	6.69	6.69	5.16
Enrolled in Bac year (%)	90.49	90.97	89.86	89.88	91.40	91.25	90.64
Enrolled in 2 <sup>nd</sup> year 2 years after Bac (%)	51.11	51.86	50.94	50.76	50.76	50.63	50.99
Enrolled in 3 <sup>rd</sup> year 3 years after Bac (%)	29.19	29.84	28.95	28.49	29.14	28.97	29.08

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For outcome  $y$ , the intent-to-treat effect is identified by:

$$\beta^{RDD} = \lim_{\varepsilon \rightarrow 16^+} \mathbb{E}(y_i \mid \text{Bac grade}_i = \varepsilon) - \lim_{\varepsilon \rightarrow 16^-} \mathbb{E}(y_i \mid \text{Bac grade}_i = \varepsilon) \quad (1)$$

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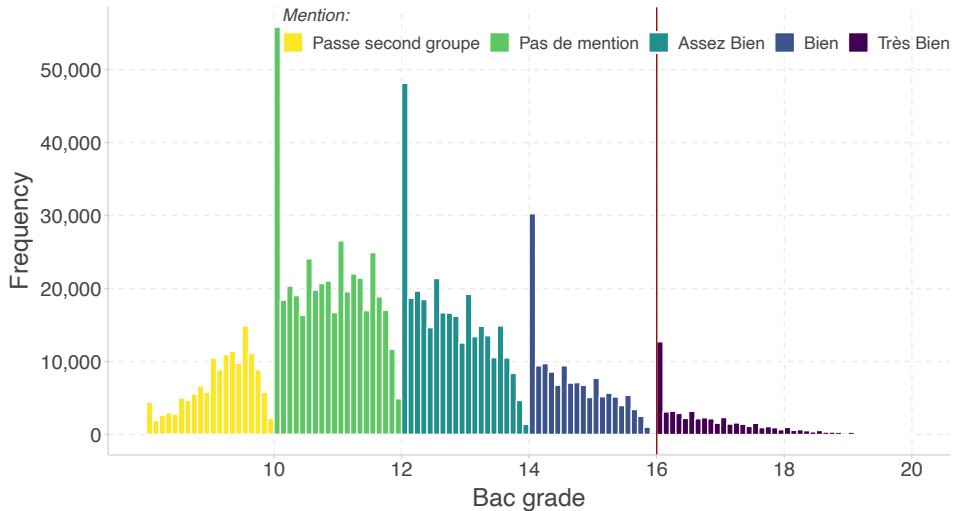
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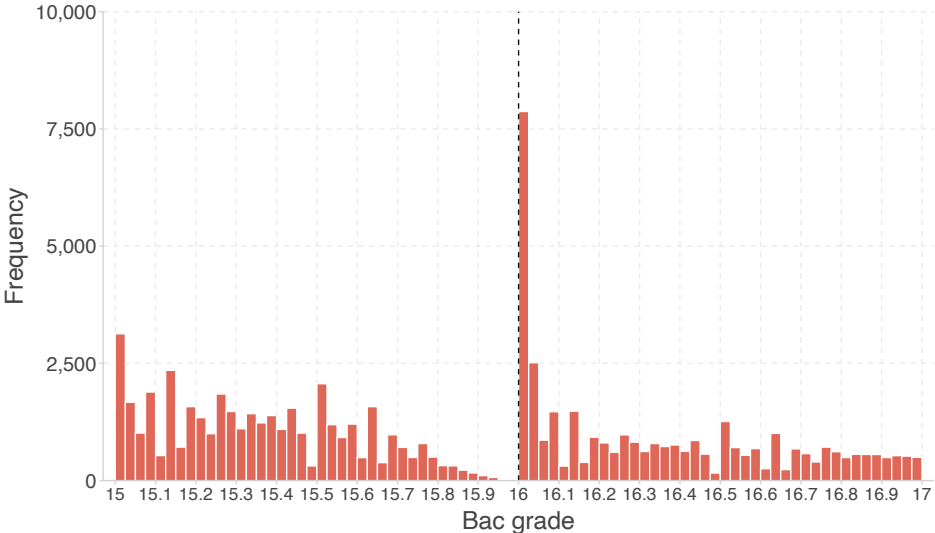
**Issue:** the distribution of grades around 16 is **not** continuous.

# Bac Grade Distribution

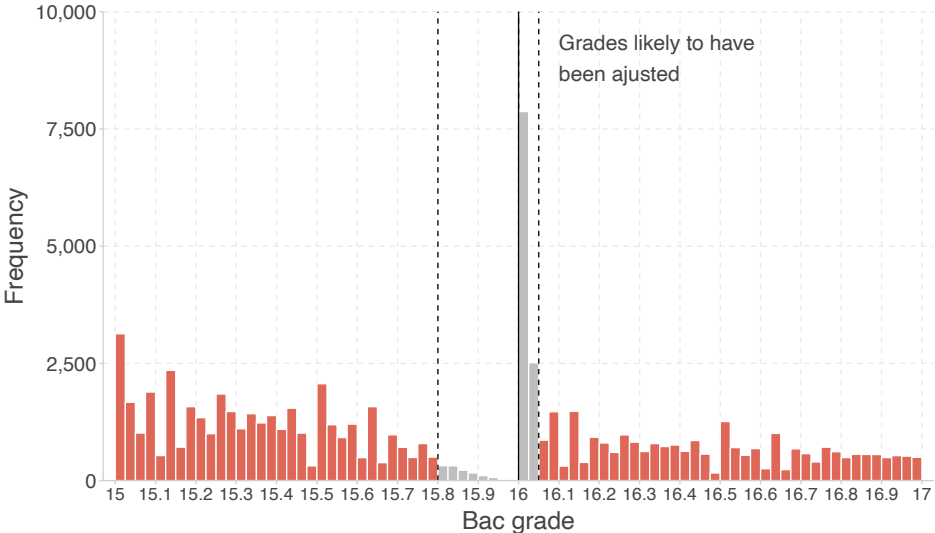




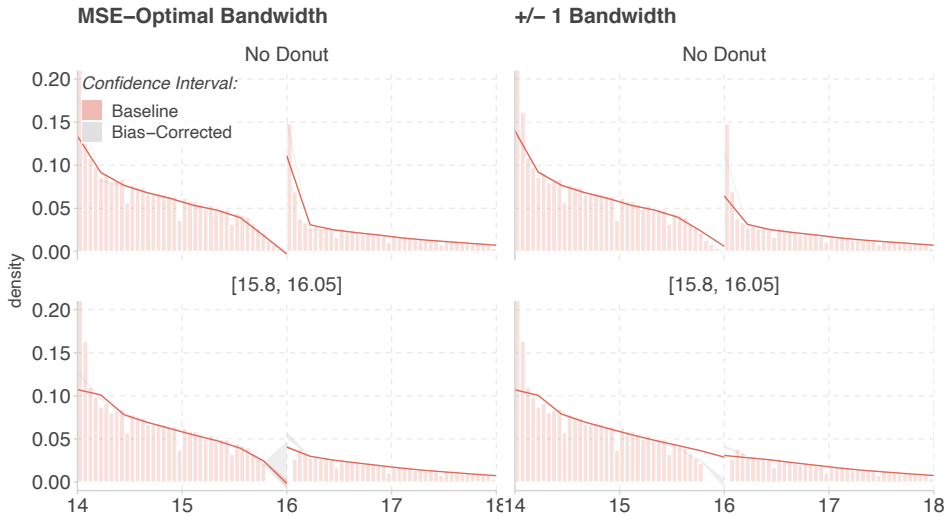
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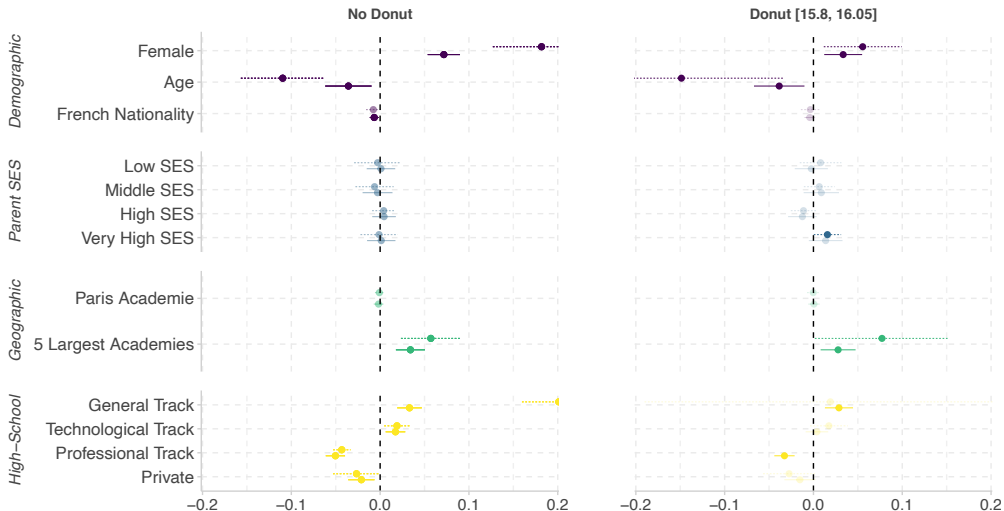


# Cattaneo et al. (2020) Manipulation Test



# Falsification Test on Observables

Bandwidth: ● MSE optimal ● +/- 1 Significant at 5%: ◊ FALSE ● TRUE



# Main Results: Visually

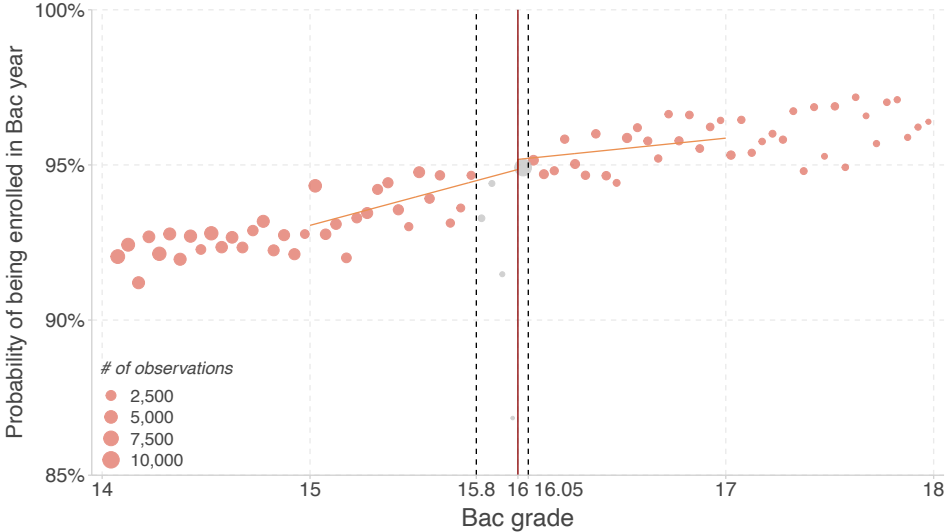


Figure 1: Enrollment in Bac year

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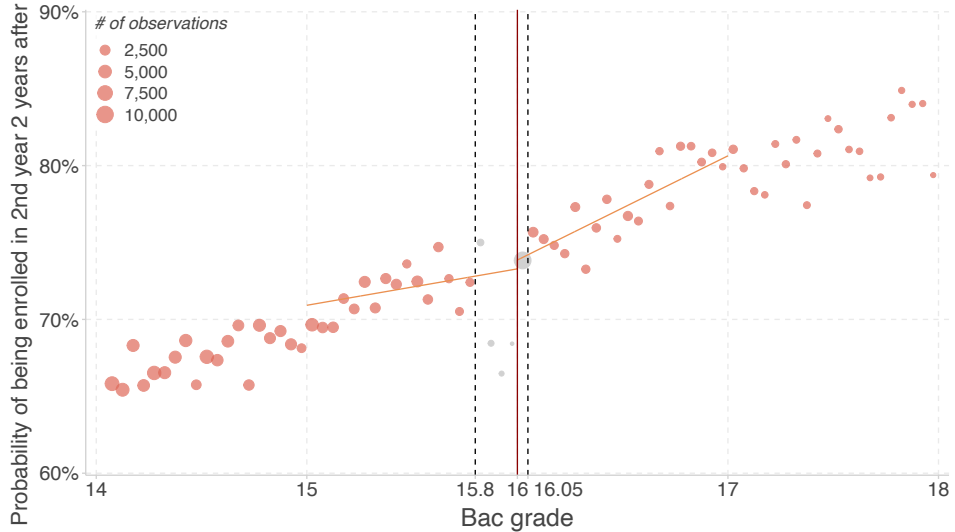


Figure 2: Enrollment in 2<sup>nd</sup> year 2 years after Bac

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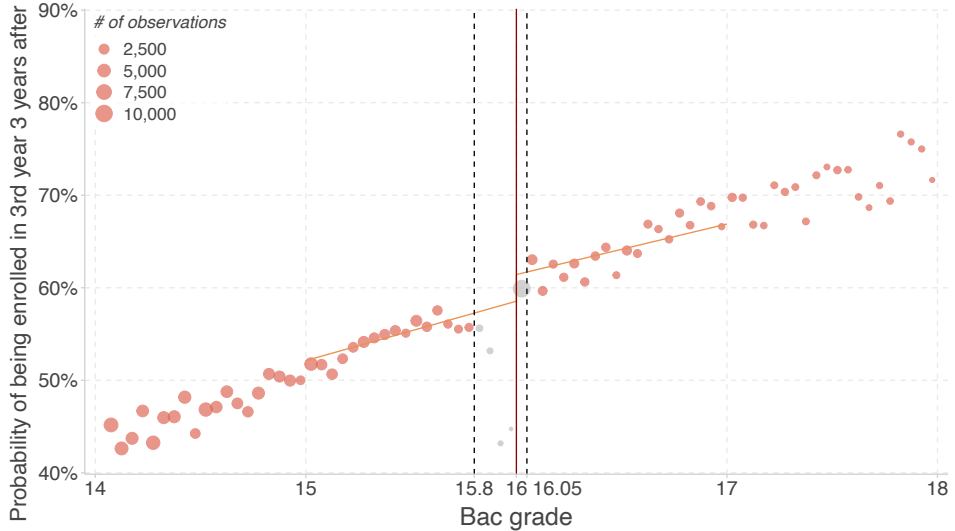


Figure 3: Enrollment in 3<sup>rd</sup> year 3 years after Bac

## Main Results: Estimates

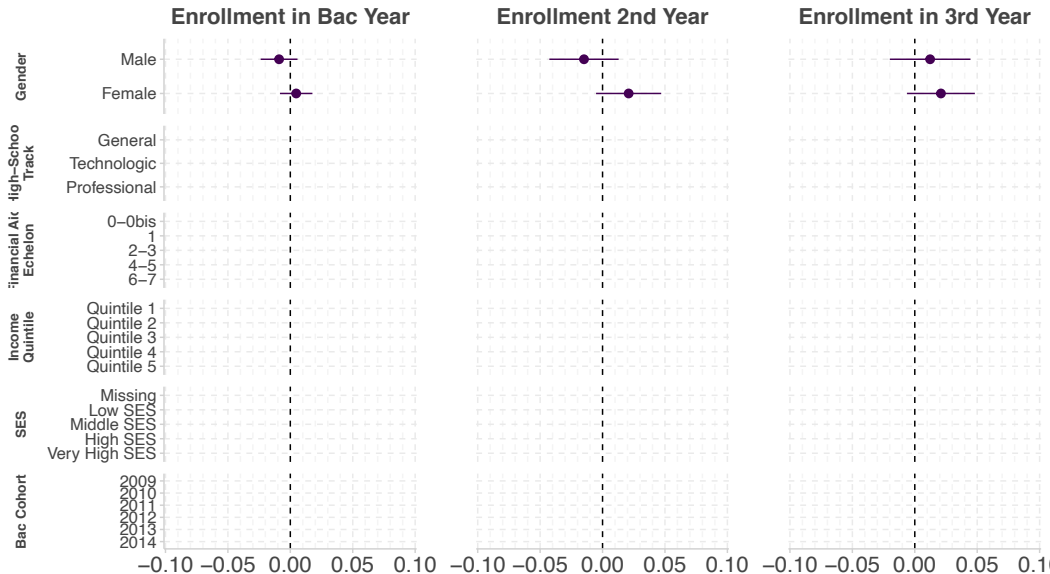
	<i>Enrollment</i>		<i>Persistence 2<sup>nd</sup> Year</i>		<i>Persistence 3<sup>rd</sup> Year</i>	
	(1)	(2)	(3)	(4)	(5)	(6)
Eligibility	0.007*** (0.005)	-0.001 (0.01)	0.009*** (0.008)	0.006*** (0.01)	0.033*** (0.009)	0.017*** (0.011)
Robust <i>p</i> -value	0.008	0.636	0.005	0.007	0	0.01
# obs. left	39,283	37,917	39,283	37,917	39,283	37,917
# obs. right	35,895	27,733	35,895	27,733	35,895	27,733
Poly. order	1	1	1	1	1	1
Bandwidth	[(15, 17)	(15, 17)	(15, 17)	(15, 17)	(15, 17)	(15, 17)
Donut		✓		✓		✓
Controls		✓		✓		✓
Mean [15.5, 15.8[	0.943	0.943	0.723	0.723	0.562	0.562



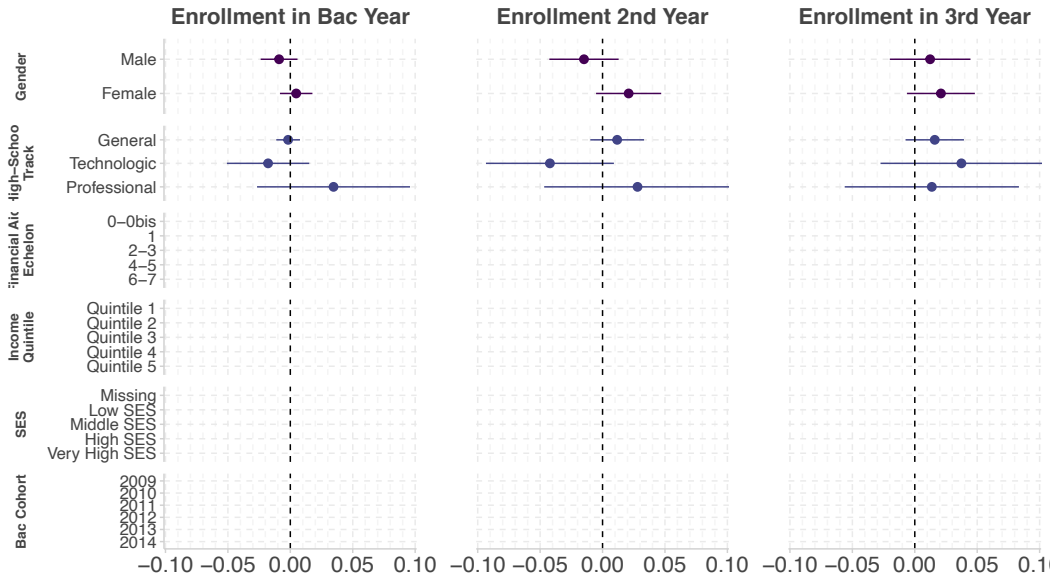
# Robustness Checks

- Donut size [▶ figure](#)
- Bandwidth size [▶ figure](#)
- 3 Placebos: Effects at 14 and 15, and students not eligible to need-based financial aid [▶ figure](#)

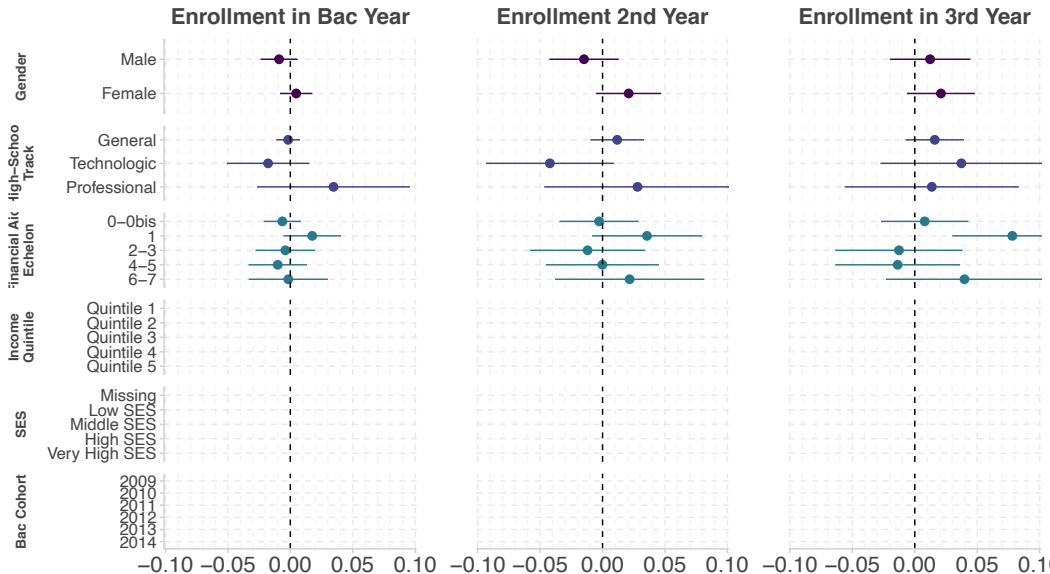
# Heterogeneity



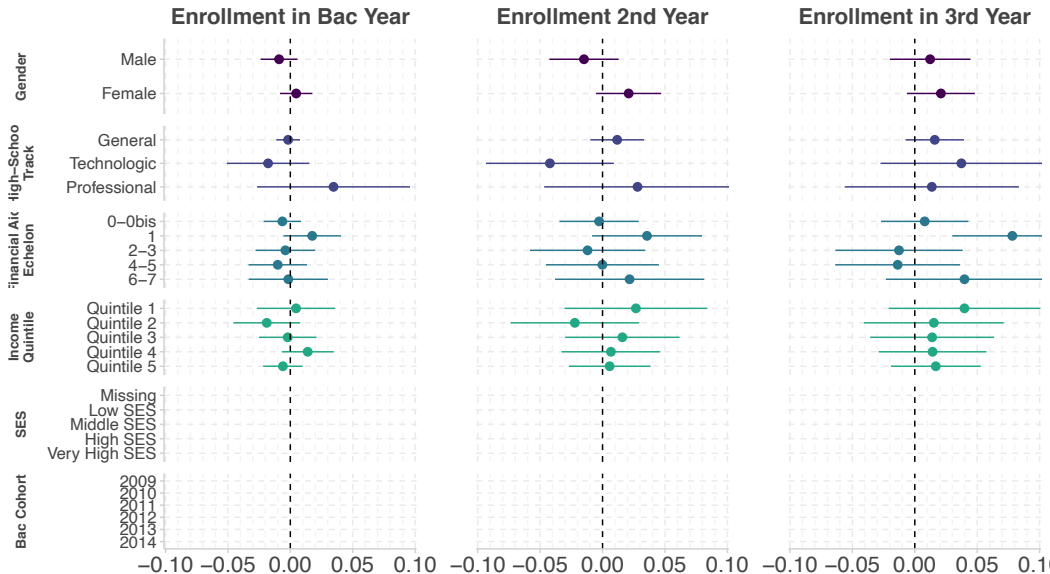
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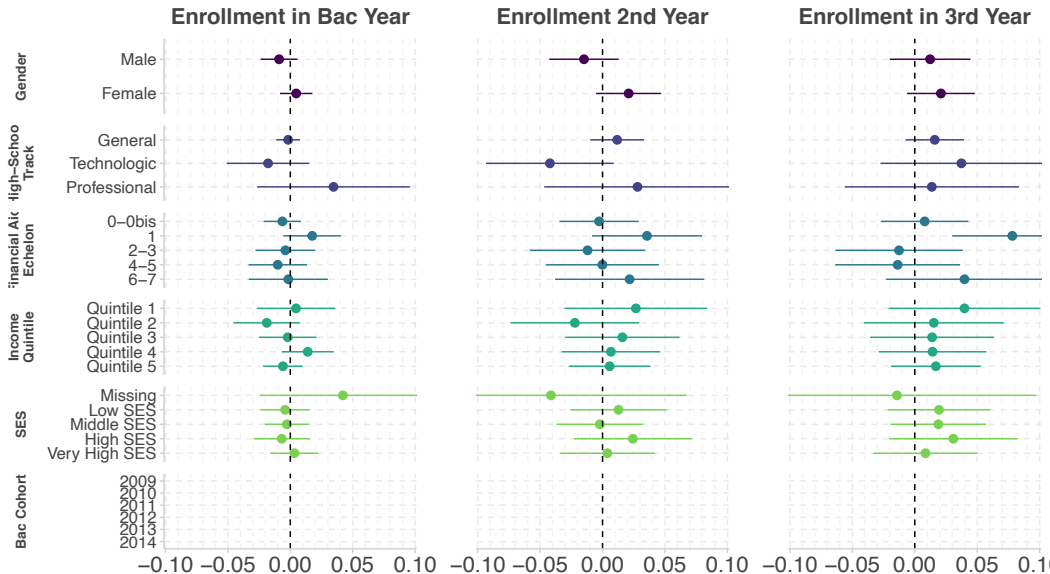
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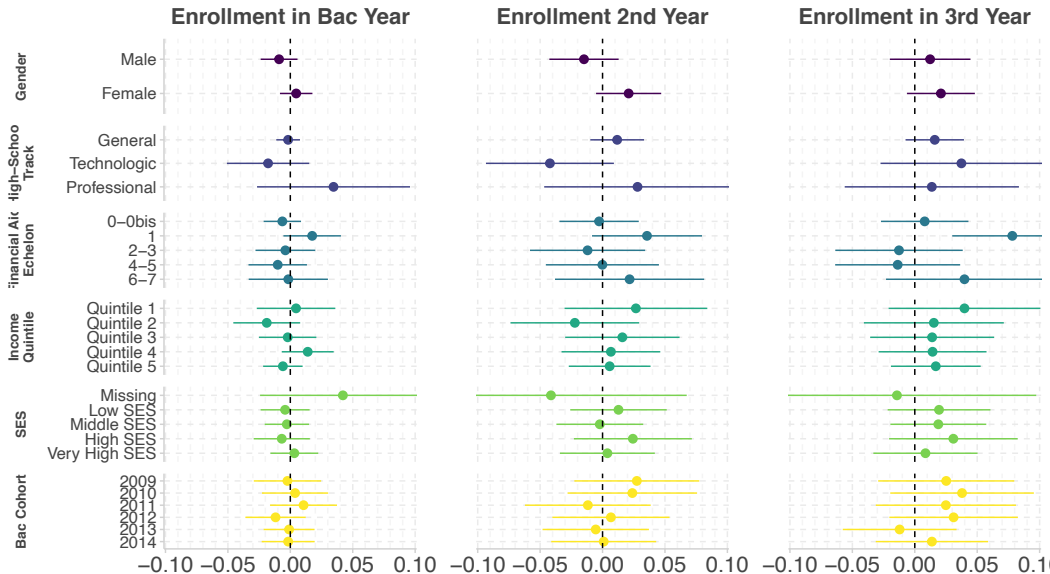
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# Conclusion

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3. **Partial crowding out** of parental financial contributions

Thank you for your attention!

**Cattaneo, Matias D., Nicolas Idrobo, and Rocio Titiunik**, *A Practical Introduction to Regression Discontinuity Designs: Foundations* Cambridge Elements: Quantitative and Computational Methods for Social Science, Cambridge University Press, 2019.

**DARES**, “Les Activités Rémunérées Des Étudiants : Quelles Formes et Quelle Organisation ?,” DARES Analyses 046 2017.

**Fack, Gabrielle and Julien Grenet**, “Improving College Access and Success for Low-Income Students: Evidence from a Large Need-Based Grant Program,” *American Economic Journal: Applied Economics*, April 2015, 7 (2), 1–34.

## Aide au Mérite: Évolution du Dispositif [retour](#)

1. **Été 2013: suppression prévue** pour la rentrée 2013 car jugé inefficace: *"[...] les aides au mérite [...] ont un impact moindre sur le cursus d'étudiants déjà excellents que celui des bourses sur critères sociaux sur la réussite des étudiants des classes moyennes et modestes."* ([Réponse à la QE n°12985, 30/04/2015](#)) puis **suppression repoussée** à la rentrée 2014 suite au mécontentement
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→ pour autant, **aucune évaluation formelle** à ma connaissance



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→ **Budget annuel:** ~ 50 M€ en 2011 (63% en licence en 2010-2011), soit ~ 3% du budget des bourses sur critères sociaux

## Aide au Mérite: Détails Supplémentaires [retour](#)

*"Un étudiant ne peut bénéficier de plus de **3 aides au mérite** au titre du **cursus licence** ou de tout autre cursus d'une durée égale ni de plus de **2 aides au mérite** au titre du **cursus master**. Ces limitations s'appliquent aussi bien dans le cas d'un cursus linéaire que dans le cadre d'une ou plusieurs réorientations.*

*L'étudiant répondant aux conditions d'éligibilité de l'aide au mérite et inscrit en **médecine, odontologie ou pharmacie** bénéficie de cette aide pour **la totalité de la durée de ces formations**. Il en est **de même** pour l'étudiant inscrit dans une formation habilitée à recevoir des boursiers **après un concours d'entrée, une sélection sur dossier ou une classe préparatoire aux grandes écoles**.*

*En cas de **redoublement**, un étudiant ne pourra **plus bénéficier de l'aide au mérite** sauf si ce redoublement est fondé sur des raisons médicales graves.*

*Toutefois, **à titre exceptionnel**, les étudiants autorisés à redoubler leur **1ère année d'études médicales (PCEM1) ou de pharmacie (PCEP1)** ou à effectuer une **seconde 2ème année de classe préparatoire aux grandes écoles** conservent pendant cette année leur aide au mérite.*

*Le maintien de l'aide au mérite est **soumis aux conditions d'assiduité aux cours et de présence aux examens** prévue pour les bourses d'enseignement supérieur sur critères sociaux (annexe 4)."*

## Need-Based Financial Aid [retour](#)

Aide financière principale dans le supérieur: *Bourses sur critères sociaux (BCS)*

**Conditions d'attribution:** *(circulaire N°2008-1013 du 12 juin 2008)*

1. **Ressources financières:** revenu des parents durant l'année  $n - 2$
2. **Points de charge (jusqu'à 17):**
  - Nombre d'enfants à charge supplémentaire,  
*2 points par enf. à charge en plus, 4 points par enf. à charge en plus dans le sup*
  - Distance à l'établissement d'inscription  
*30-249 km = 1 point,  $\geq 250$  km = 2 points*

Chaque combinaison (revenu parental, points de charge) donne droit à un certain *échelon* d'aide financière [Table pour 2008](#)

Envoi du dossier avant fin avril/début mai

→ demande de bourse se fait **avant** de connaître sa note au Bac et son admission dans un des voeux de formation du supérieur

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**Aide au mérite:** "ne fait pas l'objet d'une demande particulière de la part de l'étudiant" (*circulaire N°2008-1013 du 12 juin 2008*)

## Parent Income Condition and Points in 2008 [back](#)

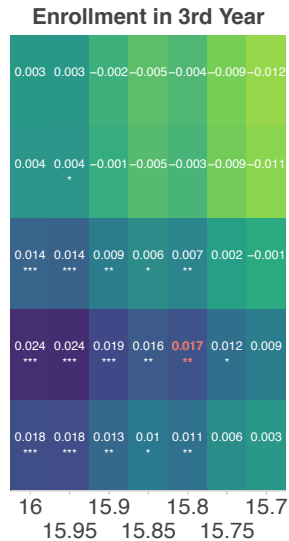
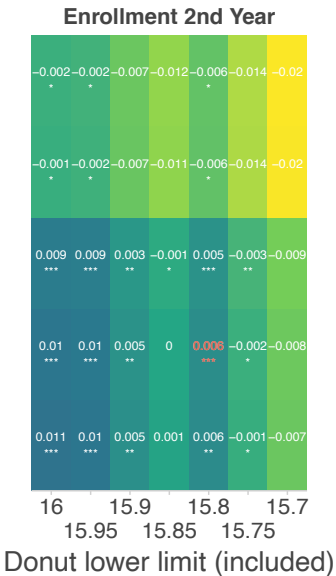
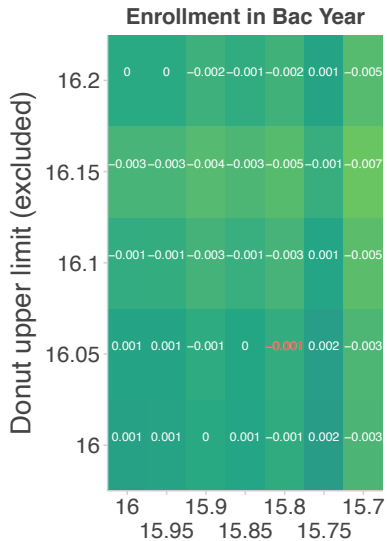
Points	Echelon #						
	0	1	2	3	4	5	6
0	27 060	21 800	17 920	15 560	13 550	11 570	7 300
1	30 070	24 220	19 580	17 300	15 050	12 850	8 110
2	33 080	26 650	21 540	19 030	16 560	14 140	8 930
⋮	⋮	⋮	⋮	⋮	⋮	⋮	⋮
16	75 170	60 570	48 960	43 260	37 630	32 110	20 280
17	78 170	62 990	50 920	44 490	39 140	33 400	21 090

## Sample Selection Criteria [back](#)

- Unique and non-missing student identifier ( $\sim 95.5\%$  of raw sample),
- Takes the Bac at the June session ( $\sim 99.5\%$ ),
- Obtains the Bac only once over the period ( $\sim 80\%$ ),
- Non-missing Bac grade ( $\sim 96\%$ )
- Eligible to a need-based grant ( $\sim 33\%$ )

# Donut - With Controls

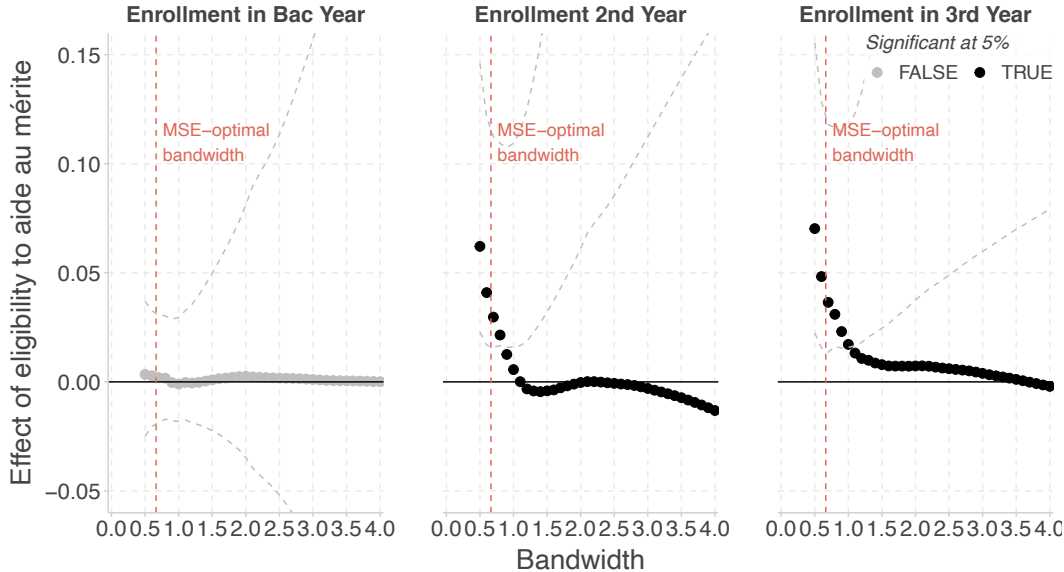
[back](#)





# Bandwidth - Donut + Controls

[back](#)



# Placebos [back](#)

