

# Adjusting your Dreams? High School Plans and Dropout Behaviour

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# The Dropout Problem

- In many western countries, very significant dropout rates before the end of secondary education, leading to poverty and social exclusion.
- Large literature describing the population of dropouts, their schools and social environment.
- The mechanisms leading to early dropout still not well understood.
- Standard economic approach: anticipated rewards from staying in school too low compared to financial and psychological costs (Eckstein and Wolpin, 1999).
- The model is very general. The key question remains to identify which mechanisms are important and/or policy relevant.

## Dropout Problem (2)

- Many possible mechanisms:
  - Poor early school experience;
  - Poverty, liquidity constraints;
  - Lack of information; future benefits of education too heavily discounted;
  - Peer influence/imitation;

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  - Poverty, liquidity constraints;
  - Lack of information; future benefits of education too heavily discounted;
  - Peer influence/imitation ;
- Many debated policy responses:
  - Early school intervention (see e.g., Heckman, 2008);
  - Tutoring/pedagogy (Dynarski et al., 2008),
  - Transfers/incentives (Dearden et al., 2009);
  - Compulsory education (Oreopoulos, 2007).
- Most of them are very radical and expensive.

## Dropout Problem (3)

- We explore another mechanism: the discrepancy between students' aspirations and the type of high school programs accessible.
- In many countries, uniform schooling terminates at adolescence: gives place to a complex system of academic and vocational tracks.
- Students do not simply have to choose whether they pursue education, they also have to choose a track.
- Not all tracks are perceived as equally valuable. In general, families are induced to perceived academic tracks as much more valuable, regardless of children's strengths and weaknesses.

## The Dropout Problem (4)

- For those not admitted to the academic track, entering a vocational program is often perceived as a failure and lead to demotivation.
- Working assumption: many middle school students end up dropping out from school because they fail to formulate realistic plans
- Dropout decisions may be reduced by helping families and students to define goals that are more adjusted to their academic aptitude.
- This idea is not new: long standing literature in economics (prospect theory), sociology (relative frustration theory) or psychology acknowledges the importance of aspirations as reference points.

## The Dropout Problem (5)

- Prospect theory (Kahneman and Tversky, 1979):
  - Aspirations (or « goals ») act as reference points.
  - The same outcome (entering a vocation program) can be framed as a « success » or a « failure » depending on initial aspirations.
  - High initial aspirations may lead to disappointment and demotivation.

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  - Tocqueville paradox: frustration and deviant behavior (dropout) become more frequent in periods of rapid economic growth and high social mobility.
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- Role model, superstar model (Lockwood and Kunda, 1997):
  - « Superstars » are relevant when we can compare ourselves with them (same domain of excellence)
  - Relevant superstars lead to inspiration when their success seems attainable, but to demoralization when it seems unattainable.

# Roadmap

- I. Background: secondary education and dropout behavior in France
- II. An experiment in underprivileged middle schools
- III. Ideas for future research

## Background : secondary education in France

- Four years of middle school from grade 6 to 9 (until age 15 or 16).
- At the end of 9th grade, depending on academic level, students can either pursue general education or enter into a vocational program.
- About 17% of French students leave school before completing any degree (INSEE, 2013). Appear to be stable over recent years.
- Most dropout decisions occur either at the end of middle school or before the end of a vocational program.
- Very strong over-representation of students with a low-SES family background. Over-representation of boys (2/3 are boys).
- About 32% of boys with North African or Sub-saharan background are dropouts vs 15% of non-immigrant (girls : 22% vs 12%)

## Background (2)

- Persistently high dropout rates are perceived as very problematic because dropouts are much more exposed to social exclusion.

	Unemployment	Monthly earnings	
3-year general	10.6	1 650	172
3-year voca.	18.0	1 260	131
2-year voca.	27.0	1 100	115
Apprenticeship	16.6	1 300	136
<i>2-year prog.</i>	19.8	1 250	130
<i>3-year prog.</i>	10.2	1 390	144
Dropout	43.5	1 070	111
<i>Late dropout</i>	37.2	1 160	122
<i>Early dropout</i>	50.6	960	100

## Background (3)

- At the end of middle school, less than 1% of families think that best option is direct entry into the labor market (Brinbaum, Kieffer, 2005).
- The vast majority of families perceive secondary education as a good investment. Difficult to interpret dropout decisions as something that is planned and perceived as “optimal”.
- Only about 22% want their children to pursue vocational education but about 45% will have to pursue vocational education. **Strong discrepancy between aspirations and available options**
- Discrepancy even stronger for those with an immigrant background. Same level of aspiration as average non-immigrant families, but strongly over represented among low-achievers.
- Immigrant families appear less aware of existing vocational programs and less convinced that a vocational degree is useful to get a job.

## Background (4)

- Many low achievers find themselves obliged to enter into vocational programs that they never planned to study and that they perceive as having little value (much less value than the academic track).
- Many have a feeling of injustice (Brinbaum, Primon 2013).
- This is especially true for students with an immigrant background. They are three times more likely than the other students to believe that they have been discriminated against.
- Assumption = this discrepancy between what students planned to do and the options that are available is one reason for why so many end up dropping out early from education.
- If this assumption is correct, one way to go is to help low achievers to define high school plans to fit both their taste and aptitudes.

# An Experiment in Paris Region

- Context : *Académie de Versailles*, largest french educational district (1.1 million pupils, 9% of the total), suburbs located west of Paris.
- Highly diverse and segregated district. Some of the richest french cities (*Versailles*), some of the poorest with very high proportion of people with an immigrant background (*Mantes la Jolie*).
- The head of the district asked us to help them design and evaluate a program targeted at 9th graders the most at risk of dropping out.
- The ambition is to help them define more realistic high school plans.
- Universe of the experiment : 50 middle-schools are invited, 37 accept the invitation. They represent about 180 ninth grade classes (4,300 pupils), mostly in underprivileged areas.

## End of 9th grade : 6 possible choices

- At the end of 9th grade (June), 6 possible track choices :

### Within National Education :

- 1) Grade repetition (middle school),
- 2) High school, 3-year academic programs (access higher ed.),
- 3) High school, 3-year vocational programs (access higher ed.),
- 4) High school, 2-year vocational programs,

### Outside National Education :

- 1) Apprenticeship (mostly 2-year vocational programs),
- 2) Dropout.

- **Vocational system is complex** (in Versailles : 64 possible 3-year programs, 46 2-year programs, 300 apprenticeship training centers).

# Assignment Process

- Middle schools decide who can be admitted to 3-y academic programs. They base their decision on students' achievement.
- **If not admitted**, students can:
  - Ask to repeat 9th grade.
  - Apply to a 3-y (or 2-y) vocational program.
- **If vocational application** : students have to list up to 4 choices (each choice = a specific qualification (plumbing, hair dressing,...) in a specific vocational school).
- **Centralized Assignment System** assigns as much students as possible to one of their choices.

# Experimental design

- First term of AY 2010-2011: within each school and each 9th grade class, the principal first identifies pupils at risk of dropping out.
- Early december 2010: the list is closed; 1130 students are selected (25% of total, about 6 per class).
- Low achievers are overrepresented (2/3 are in the 3 bottom deciles). 3-year graduation rate for such students are very low (about 20%).
- We randomly select about half of classes within each school to form the treatment group (97 treatment vs. 82 control classes, balanced).
- We invite parents of selected students in treatment classes (take-up = 52%, i.e., quite large given the population under consideration).

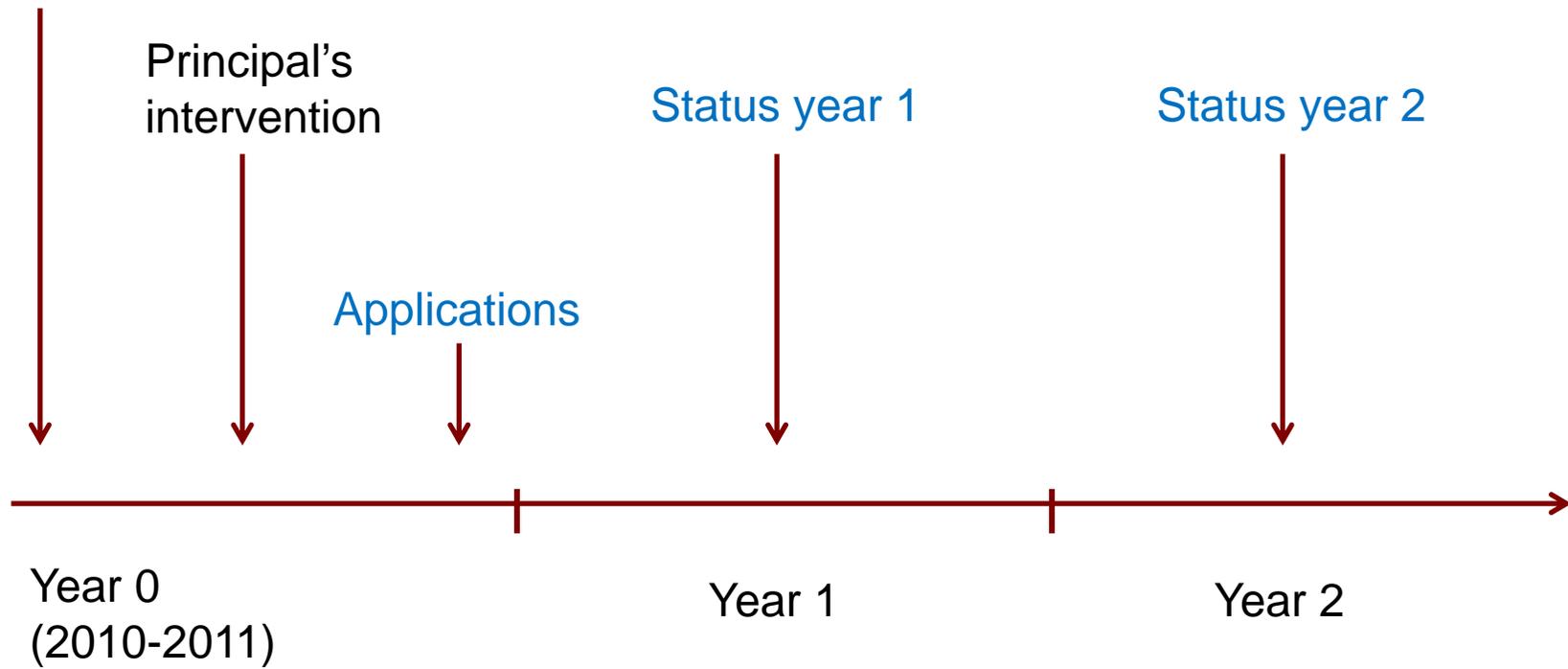
# Program content

- Two group meetings between the principal and selected families.  
Meetings organised at school at 18.00, January-March.
- Support provided by the district : 2 videos + methodological cards.
- **Introductory part of the meeting (including video) :**
  - Help understand complexity of the choice set and assignment process.
  - Warn that repetition does not necessarily lead to grade improvement.
  - Video (15') = testimonies of former low-achieving students and their parents. Illustrate that vocational education can be a solution.
- **Second (and longer) part of the meeting :**
  - Identify aspirations of families, evaluate whether they are realistic.
  - Provide them with specific feedbacks.
  - Follow-up (individualized) meetings can be scheduled
- The programme entails some fixed costs at the district level (conception of DVD and of meetings' guidelines), but no significant variable costs at the school level.

# Data

- Administrative data on marks, behaviors (absenteeism, sanctions) and applications at end of 9th grade (treatment year)
- Administrative data on assignment (and dropout) one year and two years after treatment.
- Survey conducted with parents at the end of treatment year (response rate = 80%; balanced). Information on expectations.
- Detailed within class friendship survey.

Selection of students +  
Randomization



## Preview of the results

1.No effects on behavior (absenteism, sanctions) nor on marks. **No effect on the proportion assigned to the academic track.**

**2.Applications:** significant increase in the proportion who apply to 2-y vocational ; symmetrical decrease in the proportion who ask for repetition. No change in application to 3-y vocational.

**3.Assignments (1):** significant *increase* in the proportion enrolled in either apprenticeship or 2-y prgm; no change in 3-y vocational.

**4.Assignment (2):** significant *decrease* in the proportion who dropout out (either immediatly after middle school or after one repetition).

5.Effects are large : 70% increase in the number enrolled in low-level vocational education and -30% decrease in dropout rates.

## Applications: control group

List of applications	Preferences/expectations	
• No 2-year	<i>better to repeat than to enter a 2-y prgm</i>	<i>77.7%</i>
3-y only	<i>think they can enter a 3-y prgm</i>	<i>67.3%</i>
repetition/appeal	<i>think they can enter a 3-y prgm after repeating</i>	<i>10.4%</i>

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• At least one 2-year	<i>better to repeat than to enter a 2-y prgm</i>	<b>15.8%</b>
2-y, first choice	<i>think they cannot a 3-y prgm</i>	11.0%
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Parents survey		
Expect 3-y diploma		<b>77.5%</b>

## Discrepancy expectations/academic level

- About 77% of selected families expect that their children will complete a 3-y program. About the same proportion do not even include a 2-y program in their list of applications.
- Given the very low academic level of selected students, such applications and expectations are highly unrealistic.
- Virtually all selected students get a 9th grade average mark  $< 12/20$ . But the 3-y graduation rate is only about 20% when 9th grad mark is below 12/20.
- Control group, 2 years after the treatment: proportion who completed the 1st year of a 3-y program is only about 50%.

## Impact on applications (end of treatment year)

List of applications	C	T - C	s.e.
• No 2-year	77.7	-5.4*	3.1
• At least one 2-year	15.8	+4.9**	2.3
Other cases	6.5	+0.5	1.5

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3-y academic	16.7	+0.1	2.3
Only 3-y voc.	50.6	-2.5	3.0
Repetition/appeal	10.4	-3.0	1.9
• At least one 2-year	15.8	+4.9**	2.3
2-y first choice	11.0	+3.8**	1.7
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Other cases	6.5	+0.5	1.5
Parents survey			
Expect 3-y diploma	77.5	-8.2**	2.5
Expect 2-y diploma	10.3	+3.4	2.2
Expect no diploma	0.5	-0.6	0.4
Don't know	11.6	+5.4**	2.1

## From applications to assignments

- The vast majority of preselected don't consider 2-y prgm as a possible option, even though chances of completing a 3-y prgm are very low
- Principals convinced a significant fraction that grade repetition is not a better option than direct entry into a 2-y program.
- What is the impact on students' assignments one or two years later?
- It depends on who exactly is induced to change applications, i.e. to apply to a 2-y program rather than to exclude this option.
- In particular, it depends on whether these compliers would have been admitted to a 3-y program (had they applied).

## Impact on assignments 1 year after treatment

	C	T - C	se
Within national education			
3-year academic	18.5	+0.0	2.4
3-year vocational	50.4	+0.8	3.5

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3-year academic	18.5	+0.0	2.4
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3-year academic	18.5	+0.0	2.4
3-year vocational	50.4	+0.8	3.5
<b>Repetition</b>	<b>12.7</b>	<b>-3.5*</b>	<b>1.8</b>
<i>Repetition in the list</i>	6.5	-1.0	1.6
<i>Repetition not in the list</i>	6.2	-2.5	1.4
<b>2-year vocational</b>	<b>3.8</b>	<b>+3.3**</b>	<b>1.4</b>
<i>2-y in the list</i>	3.5	+2.1*	1.1
<i>2-y not in the list</i>	0.4	+1.2*	0.6
Outside national education			
<b>Apprenticeship</b>	<b>5.8</b>	<b>+3.1**</b>	<b>1.6</b>
<b>Dropout</b>	<b>8.8</b>	<b>-3.7**</b>	<b>1.3</b>

## Impacts on assignment 1 year after treatment

1. Consistent with no impact on marks and application, no impact on the proportion admitted to a 3-y academic program.
2. No impact on 3-y vocational program either: students induced to apply to a 2-y (rather than to a 3-y) are *not* students that would have been admitted to a 3-y (had they applied).
3. Consistent with impact on applications, increase in the proportion of students enrolled in 2-y program. The principal convinced a number of students that this is a better option than repetition.
4. The principal also convinced a significant fraction of would-be dropout that apprenticeship is a better way to get a foothold in the workplace than direct entry into the labor market.

## Impact on assignments 2 years after treatment

- A significant fraction of students are induced to enter a vocational track rather than to repeat 9th grade or to dropout.
- What are the consequence in year 2? Were selected students induced to choose the « right » tracks? Did the intervention only induce a delay in grade repetition and dropout decisions?
- In fact, two years after treatment, differences between treated and control students tend to further increase rather than to diminish :
  - Dropout gap = -5.1 pts in year 2 (versus -3.7 pts in year 1)
  - Repetition gap = -4.4 pts in year 2 (versus -3.5 pts in year 1)
- No evidence that principals contributed to distort students' perceptions in favour of tracks that did not correspond to their abilities/aspirations.

## Impact on assignments 2 year after treatment

	C	T - C	s.e.
• 3-year(1st year completed)	49.5	+1.0	2.2
• 2-year (1st year completed)	3.3	+3.4**	1.3
• Apprenticeship	7.3	+2.3	1.8
• 1st year still not completed	20.0	-1.9	2.6
• <b>Dropout</b>	<b>20.0</b>	<b>-5.1**</b>	<b>2.3</b>
<i>dropout in year 1</i>	7.5	-3.9**	1.2
<i>Repetition in year 1</i>	2.3	-1.5**	0.7
Other	10.2	+0.3	2.2

## Overall effect on dropout

1. First, the intervention helped a fraction of students willing to dropout to define new prospects.
  - These students turn out to be able to persist in education.
2. Second, it induced a fraction of students willing to repeat 9th grade to opt for a 2-y program instead.
  - Repetition would not have been helpful to them: would have ended up dropping out had they repeated.

## Treatment effect at the end of the last 9th grade

	C	T - C	s.e.	Obs.
• Marks :				
Average marks (/240)	87.7	+0.6	1.1	1102
Average marks > 110	14.9	+0.9	2.5	1102
• Assignment				
3-year general	22.7	-0.9	2.6	1130
3-year vocational	55.0	-0.3	3.4	1130
2-year vocational	4.4	+3.3**	1.5	1130
Apprenticeship	6.7	+2.3	1.9	1130
Dropout	11.2	-4.8**	1.6	1130
Other	0.0	+0.4	0.3	1130

# Lessons

1. Dropout can be reduced significantly through a relatively late and low-cost school based intervention (compared to EMA, compulsory schooling, early childhood intervention, etc.)
2. School aspirations = strong determinant of educational outcomes, but quite malleable.
3. Significant proportion of grade repetition and dropout decisions seems to be due to discrepancy between the education aspirations of low-achieving students and their academic capacity
4. Dropout can be reduced by helping low achieving middle school students and their families define realistic goals.
  - Without over-estimating their ability to achieve a 3y track
  - Without under-estimating the value of shorter voc. tracks

## Further research

- The return of low-level vocational education on would-be dropout: one key assumption is that these returns are important. Credible, but very difficult to prove.
- Related question: apprenticeship vs vocational school.
- The role of aspirations in other contexts: choice of field of study in high school for example ; or dropout behavior in higher education.
- The role of principals : several recent experiments suggest that they play a key role, but it is under-researched.
- Peer group and dropout behavior.

# Appendix

## Program and design : take up

	Selected students		Non selected students	
	Test	Control	Test	Control
... first meeting	45.5	2.5	1.3	0.1
... second meeting	27.7	0.4	1.3	0.0
... two meetings	21.0	0.4	0.7	0.0
... one or two meetings	<b>52.2</b>	<b>2.5</b>	1.9	0.1
Obs.	600	511	1 664	1 422

# Impact on parents' involvement and expectations

	C	T-C	(se)
<i>Information from school :</i>			
<b>Information meetings</b>	<b>16.0</b>	<b>+24.2***</b>	<b>3.9</b>
Individual meetings with career counsellor	22.7	+1.5	3.3
Individual meetings with teachers	40.6	+2.2	5.3
<i>Interaction with other parents :</i>			
Has attended meetings of parents' organisation	9.0	+3.5	2.8
<b>Has talked with other parents</b>	<b>43.8</b>	<b>+9.3**</b>	<b>3.8</b>
<i>Satisfaction :</i>			
Happy with school information	53.3	+5.6*	4.1