

Redefining dropping out in online higher education: a case study from the UOC

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Motivation

- Dropping out has traditionally been a problem of brick-and-mortar universities
 - In Spain, the dropping-out ratio is 25,7 %
- It is also a problem in distance and online universities
 -acquiring even bigger dimensions
(38,9% for the UOC)

Dropping out definitions (I)

- Depending on the perspective adopted:
 - Not taking the final exam (course point of view)
 - Not taking any course in a certain (or consecutive) academic periods (degree point of view)
 - Not overcoming a fixed % of credits in a period of several semesters

Dropping out definitions (II)

- Example (Spain HE system):

“Percentage of students, with respect to the total of students enrolled in these studies in the semester of beginning, that have not enrolled in the theoretical academic year in which they should have finished the studies, or in the following year.”

Goal

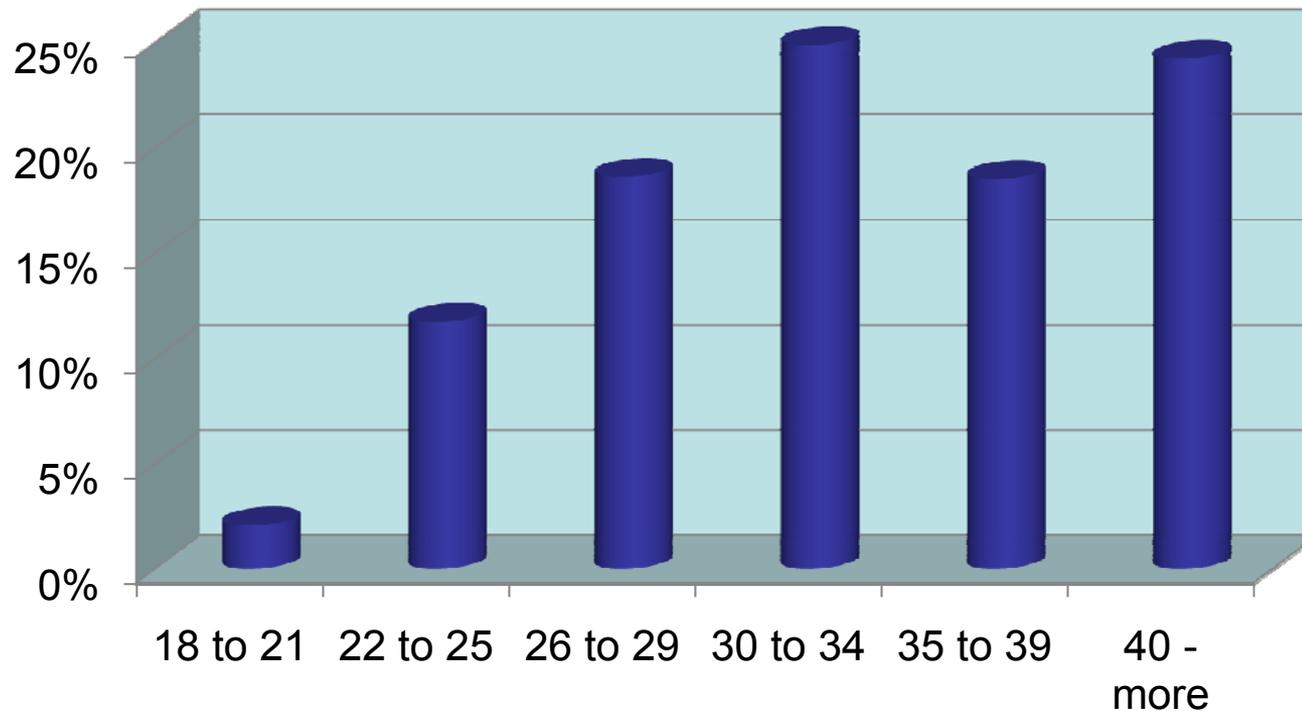
- To find a realistic definition of dropping out based on reality (observed data)
- This analysis is needed because the official dropping out definition doesn't fit the peculiarities of UOC

Universitat Oberta de Catalunya (UOC)

- A 100 % virtual university, founded in 1994
- With nearly 50,000 students:
 - Mainly adult learners
 - Work and family responsibilities:
 - 90% have a part-time or full-time job
 - 60% with previous HE record
- 19 degrees plus Masters and PhD Programme
- **Without obligatory enrolment (students can take breaks)**

UOC students' profile

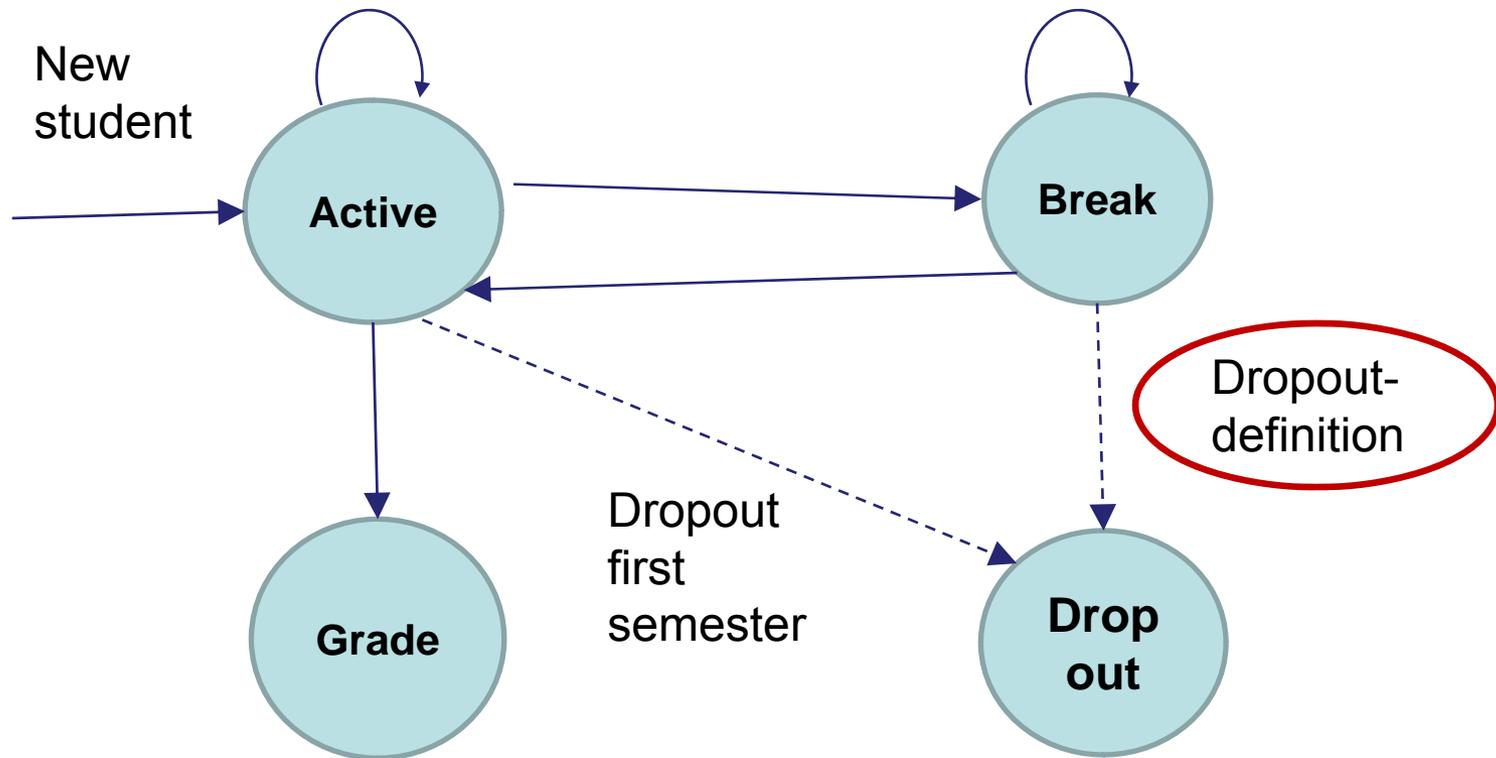
Students' ages



UOC's peculiarity

- Official definitions are related to “obligatory” enrolment
- Non-obligatory enrolment (i.e. breaks) makes such definitions unusable
- This would be the case in many distance adult education institutions

UOC's students enrolment behaviour



Structure of data used

User ID	Sex	Date of birth	Enrolment period (semester)	Degree enrolled
529960	F	05-JAN-1983	2004 (2nd semester)	Law
529960	F	05-JAN-1983	2005 (1st)	Law
529960	F	05-JAN-1983	2005 (2nd)	Law
529960	F	05-JAN-1983	2006 (2nd)	Law
529960	F	05-JAN-1983	2007 (1st)	Law
529960	F	05-JAN-1983	2007 (2nd)	Law
529960	F	05-JAN-1983	2008 (1st)	Law
529960	F	05-JAN-1983	2008 (2nd)	Law
529960	F	05-JAN-1983	2009 (1st)	Law
529960	F	05-JAN-1983	2009 (2nd)	Law

Break (one semester) 

Enrolment / non-enrolment personal records

529960;1;1;1;0;1;1;1;1;1;1;1

→ A graduated one? It seems so...

20045;1;1;1

→ A graduated student? Maybe too early / not enough data

10104;1;1;1;0;1;0;0;0;0;0;0;0;0;0;0;0;0;0;0;0

→ A dropping out student? It seems so...

21129;1;1;1;1;1;1;1;1;0;0;0;...;0;**X**

→ A dropping out student?

Analysis of long breaks

- Goal: to minimize the error of affirming that someone drops out when it does not

$$P(X=\text{"1"} \mid N \text{ consecutive "0"}) < \varepsilon$$

- Experiments performed with $\varepsilon = 0.05$
- Other ε (0.01, 0.1) have also been tested

Result examples (I): Law Studies

Law degree			
Number of semesters	Number of students	Percentage of students	Accumulated percentage
19	2	0.03	0.03
18	1	0.01	0.04
17	0	0	0.04
...			
...			
...			
8	37	0.47	1.80
7	29	0.37	2.27
6	50	0.63	2.90
5	69	0.87	3.77 % (0.0377)
4	107	1.35	5.12
3	173	2.18	7.30
2	304	3.83	11.13
1	815	10.27	21.40

Result examples (II): Marketing studies

Marketing degree			
Number of semesters	Number of students	Percentage of students	Accumulated percentage
8	5	0.29	0.29
7	3	0.17	0.46
6	6	0.35	0.81
5	7	0.41	1.22
4	3	0.17	1.39
3	30	1.75	3.14 % (0,0314)
2	40	2.33	5.47
1	141	8.21	13.68

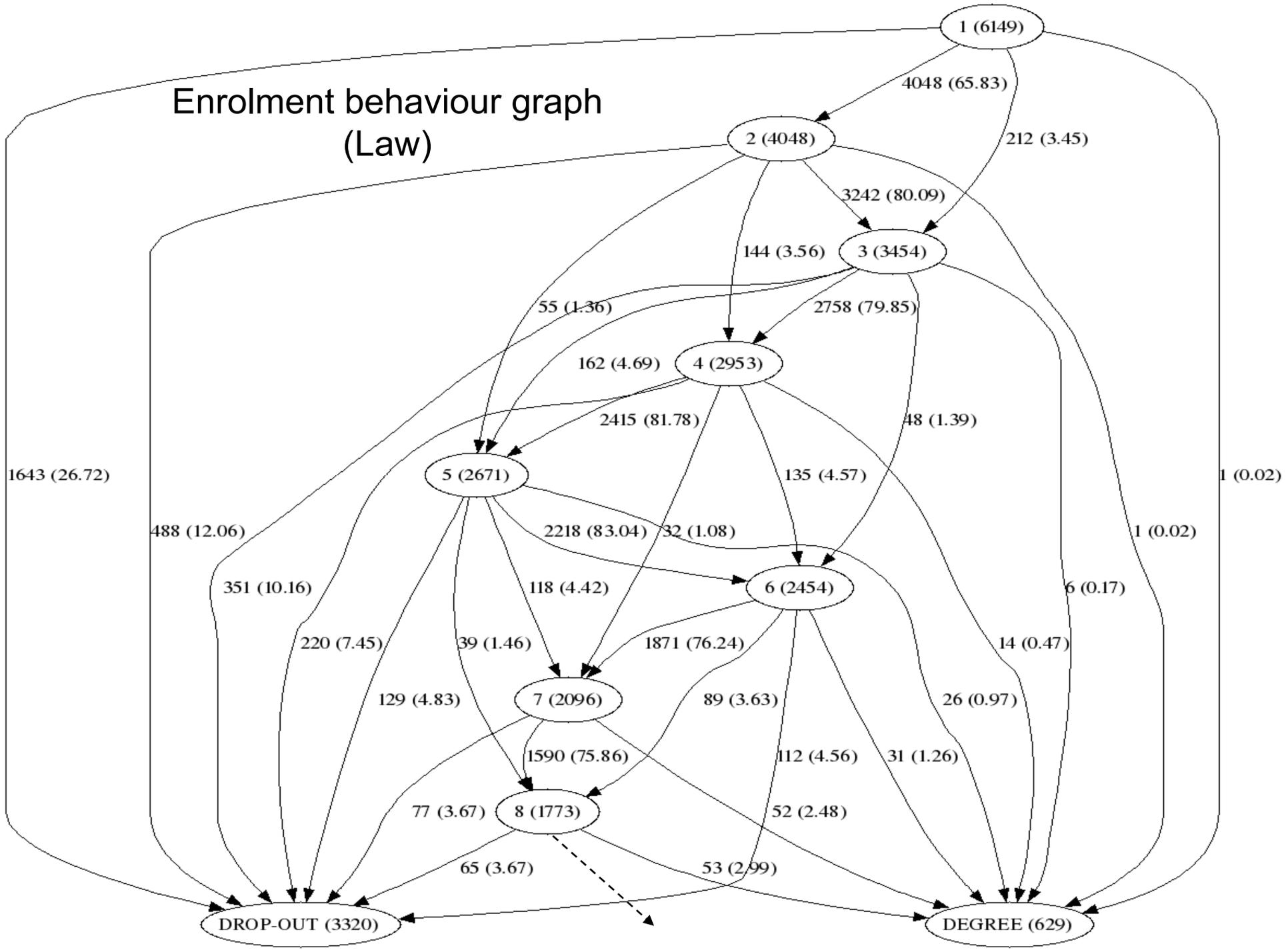
Results summary by degree
and total of degrees

Degree	N	Error	Accredited	Dropping out
Business Sci.	5	3,78%	16.6%	54.3%
Tech. Eng, in CS	5	4,46%	8.7%	65.6%
Tourism	3	3,38%	9.6%	49.7%
Catalan Language	4	3,89%	6.5%	58.9%
Law	5	3,78%	10.2%	54.0%
Psychology	3	4,58%	3.8%	56.5%
Political Sci.	3	4,27%	21.7%	49.5%
Market Res. & Tec.	3	3,14%	32.4%	38.0%
Psychopedagog y	4	4,86%	25.4%	54.2%
Computer Engineer.	4	3,36%	30.1%	37.3%
TOTAL	4	4,35%	13.3%	57.6%

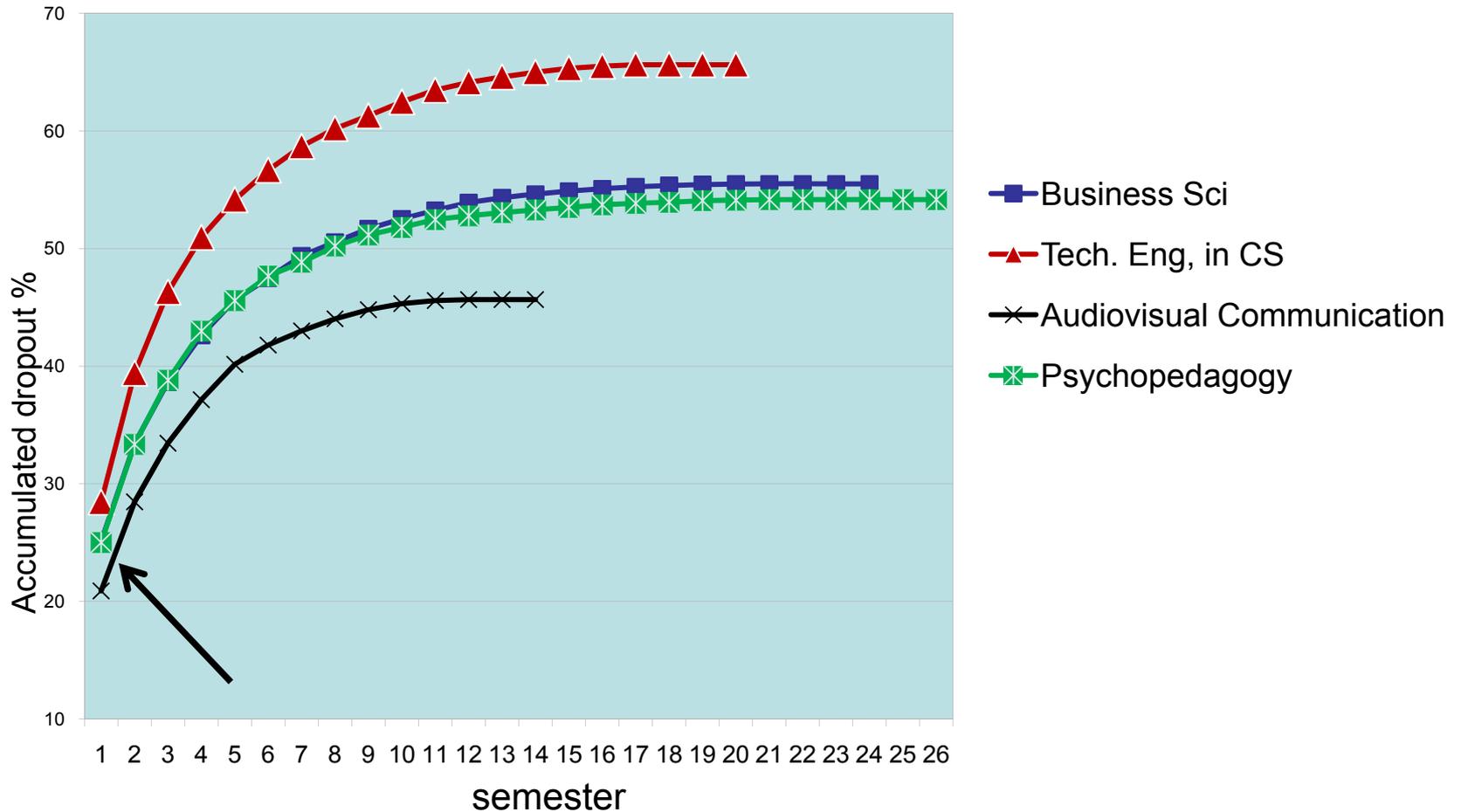
Discussion

- There exist differences between particular degrees → no “one-size-fits-all” definition
- There seem not to exist differences between types of degree content (humanities vs scientific)
- Short degrees (*1st cycle*) seem to have shorter break-up periods ending in dropout

Enrolment behaviour graph (Law)



Importance of 1st semester dropout



Conclusions

- Defining dropping out in distance HE needs to take into account differences:
 - Between individual degrees
 - Between degrees of different duration
- The importance of 1st semester dropout has been confirmed

Future work

- Analysis of causes – predictive analysis of dropping out for “tagged” students:
 - Socio-demographic issues (gender, age, educational background...)
 - Institutional issues (mentoring of the 1st semester enrolment, tracking of student’s - *learning analytics*-,...)
- Designing specific actions to reduce dropping out

Thank you for your attention!

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