

Preliminary Analysis of Melt

John Krieg

Professor of Economics

Director, Office of Survey Research

Data

- All confirmed freshmen from 201440, 201540, and 201640 (N = 7358).
- Melt is defined as freshmen who confirmed but failed to enroll in fall quarter classes.
- 789 instances of melt among 740 individuals (49 students melted in one year but then enrolled at WWU in a following year)
- 789 instances of melt represents 10.72% of confirmed freshmen.

Some Preliminaries

- 79 confirmed freshmen have missing AIs. Among these 79, 21 (26.6%) melted. Because these have missing AI data, I drop these 79 from the rest of the analysis.
- Why is AI missing? What makes them melt at such a high rate?
- After removing these 79, there are 7,279 valid observations with 768 (10.55%) of these that melted.

A few observations

melt	hispanic		Total
	No	Yes	
No	5,977 89.93	534 84.36	6,511 89.45
Yes	669 10.07	99 15.64	768 10.55
Total	6,646 100.00	633 100.00	7,279 100.00

A few observations

melt	citizen		Total
	No	Yes	
No	156 79.59	6,355 89.72	6,511 89.45
Yes	40 20.41	728 10.28	768 10.55
Total	196 100.00	7,083 100.00	7,279 100.00

A few observations

melt	honorsadmit		Total
	No	Yes	
No	6,133 89.18	378 94.03	6,511 89.45
Yes	744 10.82	24 5.97	768 10.55
Total	6,877 100.00	402 100.00	7,279 100.00

A few observations

melt	campusvisit		Total
	No	Yes	
No	2,311 85.09	4,200 92.04	6,511 89.45
Yes	405 14.91	363 7.96	768 10.55
Total	2,716 100.00	4,563 100.00	7,279 100.00

A few observations

melt	Washington State Resident		Total
	No	Yes	
No	1,186 84.23	5,325 90.70	6,511 89.45
Yes	222 15.77	546 9.30	768 10.55
Total	1,408 100.00	5,871 100.00	7,279 100.00

A few observations

melt	Non-resident, non-scholarship		Total
	Resident	Non-resid	
No	6,300 95.91	269 4.09	6,569 100.00
Yes	657 83.27	132 16.73	789 100.00
Total	6,957 94.55	401 5.45	7,358 100.00

A few observations

melt	Relative of an Alumni		Total
	No	Yes	
No	4,854 88.61	1,657 92.00	6,511 89.45
Yes	624 11.39	144 8.00	768 10.55
Total	5,478 100.00	1,801 100.00	7,279 100.00

A few observations

melt	Submitted FAFSA Application		Total
	No	Yes	
No	1,130 83.95	5,381 90.70	6,511 89.45
Yes	216 16.05	552 9.30	768 10.55
Total	1,346 100.00	5,933 100.00	7,279 100.00

A few observations

High School Region	melt		Total
	No	Yes	
Alaska	94	21	115
	81.74	18.26	100.00
Arizona	20	4	24
	83.33	16.67	100.00
California North	160	32	192
	83.33	16.67	100.00
California South	166	21	187
	88.77	11.23	100.00
Central Washington	268	35	303
	88.45	11.55	100.00
Colorado	136	16	152
	89.47	10.53	100.00
Eastern Washington	33	2	35
	94.29	5.71	100.00
Exceptions	32	7	39
	82.05	17.95	100.00
Hawaii	54	14	68
	79.41	20.59	100.00
Home School Washingto	1	1	2
	50.00	50.00	100.00
Idaho	73	8	81
	90.12	9.88	100.00
International	17	4	21
	80.95	19.05	100.00

Island and San Juan	117	5	122
	95.90	4.10	100.00
King County East	925	80	1,005
	92.04	7.96	100.00
King County North	506	71	577
	87.69	12.31	100.00
King County South	724	75	799
	90.61	9.39	100.00
Midwestern States	92	17	109
	84.40	15.60	100.00
Military & US Living	19	5	24
	79.17	20.83	100.00
Montana	49	10	59
	83.05	16.95	100.00
Nevada	29	2	31
	93.55	6.45	100.00
New Mexico	23	4	27
	85.19	14.81	100.00
Northeastern States	30	9	39
	76.92	23.08	100.00
Oregon	144	21	165
	87.27	12.73	100.00
Pierce County East	227	24	251
	90.44	9.56	100.00

Pierce County West	278	26	304
	91.45	8.55	100.00
Skagit County	170	24	194
	87.63	12.37	100.00
Snohomish County	668	53	721
	92.65	7.35	100.00
Southern States	83	25	108
	76.85	23.15	100.00
Southwest Washington	336	29	365
	92.05	7.95	100.00
Spokane County	195	16	211
	92.42	7.58	100.00
The Peninsula	502	64	566
	88.69	11.31	100.00
US Territories	1	0	1
	100.00	0.00	100.00
Utah	29	5	34
	85.29	14.71	100.00
Whatcom County	258	28	286
	90.21	9.79	100.00
Wyoming	9	7	16
	56.25	43.75	100.00

A few observations

AI Band	melt		Total
	No	Yes	
AI <= 10	19 95.00	1 5.00	20 100.00
AI > 10 & AI <=20	87 87.88	12 12.12	99 100.00
AI > 20 & AI <=30	452 88.28	60 11.72	512 100.00
AI > 30 & AI <=40	950 88.04	129 11.96	1,079 100.00
AI > 40 & AI <=50	1,193 88.76	151 11.24	1,344 100.00

AI > 50 & AI <=60	1,399 88.94	174 11.06	1,573 100.00
AI > 60 & AI <=70	1,119 89.59	130 10.41	1,249 100.00
AI > 70 & AI <=80	798 90.48	84 9.52	882 100.00
AI > 80 & AI <=90	442 94.65	25 5.35	467 100.00
AI > 90	52 96.30	2 3.70	54 100.00
Total	6,511 89.45	768 10.55	7,279 100.00

What is a logit?

- A method of using many, correlated variables to explain a binary (yes/no) outcome.
- Big benefit—it allows us to isolate the impact of a single variable even when that variable is correlated with other variables.
- For instance, AI might be connected to melt, but AI also is connected to scholarship dollars given to students. Logits allow us to separate the effects of AI from scholarships on melt.

Interpreting Logits

- Two types of interpretation: when the explanatory variable is continuous or when it is binary.
- Continuous Variable Example:

The explanatory variable—this is one of many that explains melt.

VARIABLES

WWU Scholarship (\$1000s)

This is the standard error which is a measure of precisely the marginal effect is measured. The smaller the se, the more precisely measured. A ± 2 se gives about a 95% confidence interval.

-.0184 is the “marginal effect” which explains the change in the probability of melt as the explanatory variable increases by 1. In this case, a 1 thousand \$ increase in scholarship reduces the probability of melt by $-.018 \times 100 = -1.84$ percentage points.

mfx dydx

-0.0184***

(0.00199)

Asterisks represent statistical significance at the *** (1%), ** (5%), or * (10%) level

Interpreting Logits

- Binary variable example

Explanatory variable that takes on a yes/no characteristic.

VARIABLES

Male

mfx dydx

-0.0133**

(0.00590)

This coefficient tells the impact on melt of going from “no” to “yes” in the explanatory variable. In this case, male students are $100 \times -.0133 = -1.3\%$ more likely to “melt” than “female” students.

This is the standard error which is a measure of precisely the marginal effect is measured. The smaller the se, the more precisely measured. A ± 2 se gives about a 95% confidence interval.

Logit results (continuous variables)

VARIABLES	mfx dydx	
AI	0.00161*** (0.000273)	10 point increase in AI raises probability of melt by 1.6 percentage points
Age	0.00374 (0.00433)	
HS Distance (100s of mi)	0.000473 (0.000429)	
WWU Scholarship (\$1000s)	-0.0201*** (0.00273)	A \$1000 scholarship reduces the probability of melt by 2 percentage points
Days to Quarter	-0.000175*** (4.79e-05)	An application arriving 100 days earlier than another reduces melt by 1.75 percentage points

Logit results (binary variables)

VARIABLES	mfx dydx
black	0.0123 (0.0170)
hispanic	0.0400*** (0.0131)
asian	0.00883 (0.00925)
indian	0.00639 (0.0185)
other	-0.0478*** (0.0148)
male	-0.0145** (0.00584)

Relative to whites, Hispanics are 4 percentage points more likely to melt

Relative to women, men are 1.4% percentage points less likely to melt


Logit results (binary variables, continued)

VARIABLES	mfx dydx	
First Generation	0.00440 (0.00669)	
Citizen	-0.0668*** (0.0251)	Relative to non-citizens, citizens are 6.7 percentage points less likely to melt
WA Resident	-0.138*** (0.0311)	WA residents are 13.8 percentage points less likely to melt than non-residents
Relative of an Alumni	-0.0195*** (0.00645)	
Prior Visit to WWU Campus	-0.0515*** (0.00701)	Relative to those never having visited WWU, those who have are less likely to melt by 5.1 percentage points

Logit results (binary variables, continued)

VARIABLES	mfx dydx	
FAFSA Submitted	-0.0342*** (0.00886)	Students who submitted a FAFSA are 3.4 percentage points less likely to melt than those who didn't submit one
Non-Resident with no Scholarship	-0.0204 (0.0136)	
Previously Applied to WWU	0.324*** (0.0247)	Previous applicants are 32 percentage points more likely to melt
Nursing Interest	0.0603* (0.0354)	Students with a nursing interest are 6 percentage points more likely to melt
Engineering Interest	0.199 (0.123)	
Philosophy Interest	0.132 (0.0887)	

A digression



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[Home](#)
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[Prospective Freshmen Students](#)
[Prospective Transfer Students](#)
[Plan of Study](#)
[Registration Information and Other Resources](#)
[Internship Information](#)
[Frequently Asked Questions](#)
[Pre-Physical Therapy](#)
[Pre-Occupational Therapy](#)

Information for Students Interested in Nursing

Many Western students enter nursing programs by transferring to a nursing program or by entering a nursing program after graduation. Registered Nurse (R.N.) credentials are obtained after successfully completing a state board examination following completion of a certified nursing program at the community college (ASN or ARN) or a four-year university (BSN or direct-entry MSN). Western plans to offer a RN-BSN program beginning fall 2013 through the Woodring College of Education (for information, please click on this link: <http://www.wvu.edu/nursing>).

To be eligible for a nursing education program, students must complete a specified set of prerequisites and obtain volunteer or paid health care experience. Students may work on completing the prerequisites at WWU and apply for entry into the ASN or BSN program. Completion of a degree is required for the direct-entry MSN program. Examples of Western majors that cover some or all of the prerequisites include: Biology-Anthropology, Biology, Community Health, Kinesiology/Pre-Physical Therapy, and Kinesiology/Pre-Healthcare Professions.



Listings of the accredited programs in nursing can be found at the following links:

- Accreditation Commission for Education in Nursing [Click here](#)
- American Association of Colleges of Nursing [Click here](#)
- All Nursing Schools website [Click here](#)
- bestnursingdegree.com [Click here](#)

Requirements

The specific courses to take depend on the nursing program you are preparing for. Your allied health advisor will be able to give you more specific recommendations after discussing your goals with you.

Please download the following documents for additional information:

-  [Pre-Nursing Advising Guide](#)
-  [Preparing for Grad School](#)

Logit results (binary variables, continued)

- Neither Pell eligibility nor level of EFC matter;
- When include the region variables along with binary Washington resident, none of the region variables matter;
- Interaction with Hispanic and Distance don't matter;
- Honors (both applied, accepted, and denied) don't matter
- Prior attendees of college are less likely to melt (usually 3 to 5 percentage points depending on type of college)
- Conditional melt is about 2 percentage points higher in 2016 than in either 2014 or 2015.

Ex Post Forecast

melt	Model Predicted to Melt		Total
	No	Yes	
No	1,885	298	2,183
Yes	126	155	281
Total	2,011	453	2,464

What Happens to Melted Students?

- Matched Melted Students to National Student Clearinghouse Data (NSC)
- NSC claims to match 98% of students in public and private 2- and 4-year institutions
- Of the 789 melted students, 388 (49.1%) enrolled in a school covered by the NSC
- Of these 388, 287 (73.9%) enrolled in a 4-year school

What Happens to College-Bound Melted Students?

College	#	%	College	#	%
University Of Washington	75	19.33	Everett Community College	9	2.32
Western Washington University	33	8.51	Pierce College	8	2.06
Whatcom Community College	13	3.35	Skagit Valley College	8	2.06
Bellevue College	12	3.09	The Evergreen State College	8	2.06
Washington State University	11	2.84	Portland Community College	7	1.8