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“Is dual credit always dual, or can it be detrimental?”

An examination of the
relationship between rising dual
credit hours and undergraduate
success in agricultural sciences.



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Background & Motivation

- 1990's to today: Increase in availability of dual credit offerings.
 - Designed to challenge high school senior.
 - Texas requirement (ECS, 2018)
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- New Student Orientation
 - Academic Advising
 - First Time Full Time Freshman with 60 hours

Previous Research

- Positive relationship between dual credit hours and college success (KCPE, 2016)
- Increase the percentage of students pursuing postsecondary opportunities (KCPE, 2016)
- More likely to complete degree in less time and at lower cost (McCauley)

Objectives

The primary objective is to determine the relationship between the quantity of dual credit hours obtained and postsecondary performance in the area of agricultural sciences.

- Secondary objectives of this research are to:
 - determine if there is a point at which dual credit can hinder college performance, and
 - assess the post-graduation implications of decreased time to completion.

Experimental Design

- First Time Full Time Freshmen
 - Agricultural Sciences
 - Plant, Soil, & Environmental Science
 - Agriculture
 - Agricultural Communication
 - Agricultural Business & Economics
 - Animal Science/Pre-Vet
 - Fall 2013 – Fall 2016
 - Dual credit hours
 - Gender
 - Major
 - GPA (1st semester)
 - Age

Data

Table 1. Summary Statistics (n=706)

	F13	F14	F15	F16	Total
Total Number of Majors	174	180	181	171	706
	121	118	119	102	460
Students with Dual Credit	(70%)	(66%)	(66%)	(60%)	(65%)
	59	69	62	63	253
Males	(34%)	(38%)	(34%)	(37%)	(36%)
	115	111	119	108	453
Females	(66%)	(62%)	(66%)	(63%)	(64%)
Average Age	18.12	18.11	18.14	18.15	

Data

Table 2. Summary Statistics by Major (n=706)

	AGBE		PSES		AG		AGCOM		ANSC		PREVET	
	Total	No	Total	No	Total	No	Total	No	Total	No	Total	No
F13	44	17 (39%)	11	1 (9%)	18	7 (39%)	17	3 (18%)	27	9 (17%)	57	16 (28%)
F14	55	22 (40%)	13	1 (8%)	12	7 (58%)	17	4 (24%)	25	9 (15%)	58	19 (33%)
F15	60	18 (30%)	7	2 (3%)	19	5 (26%)	13	3 (23%)	42	17 (27%)	40	17 (43%)
F16	56	26 (46%)	4	2 (50%)	16	6 (38%)	18	1 (39%)	45	21 (6%)	32	13 (41%)

Methods

- Linear Regression

$$GPA_i = \beta_0 + \beta_1 dual_i + \beta_2 dual2_i + \beta_3 male_i + \beta_4 age_i + \sum_{m=1}^4 \beta_5 major_{ib} + \varepsilon_i$$

- Intercept: agriculture majors, female

Results

Table 3. Coefficient Estimates (n=706)

Variable	Parameter Estimate	Standard Error
Intercept	3.54***	0.51
DUAL	0.03***	0.01
DUAL2	-0.00**	0.00
Gender (males)	-0.21***	0.08
AGE	-0.05	0.03
PSES	-0.09	0.17
AGCOM	0.18	0.14
AGBUS	-0.06	0.10
VET & ANSC	-0.29***	0.10

*Significance levels where $\alpha=0.1$

**Significance levels where $\alpha=0.05$

***Significance levels where $\alpha=0.01$

Summary & Discussion

- More is not always better.
- Expand statistical analysis
 - Historical data
 - Course (MATH vs. ENGL vs. ECON)
 - Dual Credit vs. AP vs. CLEP
 - ACT or SAT score
 - Dual Credit Performance
 - Subsequent GPA

Questions?

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