GRADE EXPECTATIONS AND PERSISTENCE IN THE ECONOMICS MAJOR

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ABSTRACT

This study examined the effect of university students' expectations for their end of term economics grades on persistence rates in the undergraduate major. The study also looked for any gender effects. Students' expectations in introductory microeconomics were statistically significant in predicting grades and retention in introductory microeconomics, but not in whether or not students would take another economics class. Controlling for introductory economics grades, students' expectations in intermediate microeconomics were not statistically significant in predicting grades in the course or persistence in the major. The only significant gender differences were that females performed slightly worse in introductory microeconomics, and that they expected lower grades in intermediate economics.

INTRODUCTION

Researchers in the area of education have conducted several studies relating to persistence rates in undergraduate economics, particularly on what may contribute to lower percentages of women in the major. These studies have looked into math preparation (Sax, Kanny, Riggers-Piehl, Whang, & Paulson, 2015), grade sensitivity (Owen, 2010; Rask & Tiefenthaler, 2008), and gender of faculty (Canes & Rosen, 1995; Rask & Bailey, 2002; Smith & Zenker, 2014) as determinants of students staying in the major. Several recent studies have also looked into the role of self-confidence in relation to performance in economics, as measured by what grade students expect to receive in a class (Ballard & Johnson, 2005; Dahlbom, Jakobsson, A., Jakobsson, N., & Kotsadam, 2011; Jakobsson, N. 2012).

The focus paid to gender comes from women's underrepresentation in economics. In the U.S., the undergraduate ratio of male economics majors/male B.A.s to female economics majors/female B.A.s is about three to one (Planning Group Meeting 2014). A gender gap in the major is apparent at matriculation and widens thereafter. Women both enter college intending to major in economics at lower percentages than men and switch into other majors at greater percentages than men (Jensen & Owen, 2003). This divergence from the gender parity normally found among the social sciences naturally raises questions.

Research studying expectations suggests that besides ability, self-confidence in a subject may play a role in whether or not some students engage in a subject. Jensen and Owen (2003) found that students who intend to major in economics, who rate economics as relevant, who are confident of their understanding of economics, and who expect higher grades in economics classes than in their other classes are more likely to continue in the economics major. Researchers have found that women expect to do less well in introductory economics courses (Ballard & Johnson, 2005; Bengtsson, Persson, & Willenhag, 2005, Jakobsson, N. 2012). It is possible that lower expectations may contribute to some students, especially women, not staying in the economics major.

In this study, I examined what influenced the formation of expected grade in economics classes, if there were correlations between expected and actual grades, and if expected grade predicted whether or not students took another economics course. I also looked for any gender effects. My research was based off of a sample of students at a university who took economics

classes and who were surveyed on what grade they expected to get in the class. Importantly, I had available students' actual grades in economics courses.

Unlike previous studies, which focus on expectations only in introductory courses, I also studied students' expectations in an intermediate course for comparison. I found that the formation of expectations differed slightly according to gender, and that while there was no statistically significant difference in average grade expected in introductory microeconomics, women expected lower grades on average than male students in intermediate microeconomics. Expectations predicted grades and retention in introductory microeconomics, but they did not predict grades in future classes or whether or not students took additional economics classes. This study is among the few studying the effects of expectations on persistence in economics with a sample size ranging in the hundreds to thousands. It is also unique as a West Coast U.S. study.

LITERATURE REVIEW

Studies that look into expectations as a determinant of persistence in the economics major consider expectations as a measure of confidence. Women's lower expectations are thus interpreted as lower self-confidence in the subject. Some researchers have asked students what grade they expect in a class and compared this to their actual grade. In a study that surveyed over a thousand university students at a U.S. Great Lakes region university in 1998-99, Ballard and Johnson (2005) found that women expected to receive lower grades in their introductory microeconomics classes than men expected to receive. On average, women also received lower grades in the class. The researchers found expected grade to be positively and significantly correlated with performance, and concluded that negative expectations are self-fulfilling. They believed that women's previously formed attitudes influenced the gender gap in performance. Women, however, did not underestimate their grades. Both men and women overestimated the grade they would receive.

In a similarly designed study, Jakobsson (2012) surveyed students at a university in Sweden on what grade they expected on an introductory macroeconomics test a week later. On average, women underestimated their grade, while men did not over or underestimate their grade. The study did not control for other variables known to influence expectations and performance. The sample was also comparatively small at ninety-eight students. Based off of an earlier study

on secondary school students' expectations for a math test that had found women to be under-confident about the grade they would receive (Dahlbom et al., 2012), the researchers concluded that under-confidence in math skills carried over to university level macroeconomics.

Another explanation could be that math and economics are sometimes stereotyped as more masculine fields. Other studies have found that negative stereotypes deter women from entering STEM fields (Bamberger, 2014; Fetzer, Czerniejewski, & Voll, 2015). One study found that when presented with the stereotype that men are better than women at math directly before a test, women faired worse on the test than those who were not presented with this stereotype (Sax et al., 2015). It is possible that negative stereotypes inform women's performance expectations in both mathematics and economics.

One more study worth noting was done by Bengston, Persson, and Willenhag in 2005 on a sample of over 2000 Swedish university students who took microeconomics from 2001-2004. This study found women to be less confident about their performance post-task. The set-up was more elegant, with confidence being measured as whether or not students answered a fifth question on a microeconomics test, which would only improve their grade if they answered the first four questions satisfactorily. The researchers found that although men and women took the same amount of time to answer questions, women attempted the fifth question less often than men did, regardless of if they worked out the first four problems correctly or not. This leads to the question of if lower self-confidence influences not attempting problems on other economics tests or even not taking another economics class. Also, how much feedback in the form of actual grades determines future expectations in economics classes has not been studied.

Some theories argue that expectations are rather stable, and determine how people evaluate their abilities, regardless of actual performance. Beyer and Bowden (1997) found that the type of task determined whether or not there was a gender difference in expectations of performance. There was a gender difference for stereotypically male tasks, but not for female or neutral tasks. They hypothesized that expectations determine how people evaluate themselves post-task, with people who expect to do less well evaluating themselves lower on average, compared to people who had relatively higher expectations but performed equally. They attribute this to "self-verification theory," which is that people aim to be consistent when evaluating their abilities. A study by Deux (1984) found that when people meet expectations, they attribute this

to stable causes. If they fall above or below their expectations, they attribute it to unstable causes such as luck. This would imply that people who have higher expectations are also consistently more confident in their abilities.

Importantly, low expectations could contribute to some students shying away from taking economics classes. Further, if women have lower expectations, this could contribute to lower percentages of women majoring. In other words, students who may be successful in economics may not stay in the major partly because of low expectations that are not entirely performance based. In both Ballard and Johnson's (2005) and Jakobsson's (2012) research, expectations were only measured in introductory courses, which does not allow for seeing if expectations evolve given feedback from grades in introductory courses, or if expectations in intermediate classes are positively correlated with grades in intermediate courses. To see if expectations influence students' grades in other classes or decisions to take further economics courses, it is necessary to have a study that measures expectations in more than one level of the major, and to control for certain variables that may influence expectations and/or performance.

The design of my study most closely follows Ballard and Johnson's study (2005) in which university students where asked the second week of the term, before any grade work was done, what grade they expected to receive in their microeconomics class. Students were also asked twenty-five other questions relating to their academic and social background. The researchers ran probit regressions addressing what factors determined expectations, if expectations influenced performance, what explained gender differences in expectations, and what other factors explained gender differences in performance. In this study I ran similar regressions addressing the same questions, along with asking the question of if expectations also influence taking further economics classes.

EMPIRICAL STRATEGY

To look at what influenced the formation of expectations, I used probit estimation with the dependent variable being expecting an A. Independent variables included demographics, math SAT score, and in the case of grade expectations in intermediate microeconomics, the grade that a student received in introductory microeconomics. This is consistent with previous studies. Becker and Walstad (1990) modeled expectations on age, gender, previous academic experience, motivation, and other demographic variables. In formation of expectations, Rosen

and Aneshensel (1978) found that social and family background influences women more than men.

My model for looking at what may influence grades included many of the same independent variables. The model was not a true education production function (Douglas & Soluck, 1995), as it did not have inputs such as interest, ability, and level of effort. Rather, the goal was to see if there was a correlation between expected grade and actual grade and if expectations had an effect on the gender coefficient, controlling for social and academic background. I used ordinary least squares estimation, with the dependent variable, final grade, being roughly an average of students' grades on three examinations, as well as points from homework and attendance. A measure of math ability was important to include, as studies have shown math scores to be a significant and positive predictor of grade in introductory economics classes, whether it be the math SAT score (Ballard & Johnson, 2005) math ACT score (Ballard & Johnson, 2004; Durden & Ellis, 1995), or an indicator variable for having taken calculus (Ballard & Johnson, 2004; Durden & Ellis, 1995; Brasfield, Harrison, & McCoy, 1993). I used math SAT score as a measure of math ability in all regressions.

Lastly, for measuring persistence in the major, I used probit estimation, with taking intermediate microeconomics given having taken introductory microeconomics at the university as the dependent variable. I ran a regression with just social and academic background variables and grade in introductory microeconomics, as well as a regression that included expected grade in introductory economics. Assuming that expected grade works as a reasonable proxy for confidence, and that confidence is a fairly stable trait, I hypothesized that expectations could predict whether or not students took another economics course. I also ran another regression that included interactions between gender and introductory microeconomics grade, and gender and expectations.

I anticipated women's expectations for grades to be lower than men's. I also hypothesized that students who expected lower grades would receive lower grades on average, because of self-confidence for any reason. Lastly, I was curious to see if students who had lower expectations for their grades in introductory microeconomics were less likely to take intermediate microeconomics. If expectations made no difference in predicting grades, then this would show that expectations are not a good measure of confidence, that confidence in itself is

not a predictor of grades, or that expectations are randomly inaccurate. A similar conclusion could be made for persistence in economics.

DATA DESCRIPTION

The data set used in this study encompassed a seven-question survey and grades in economics courses for students surveyed at the University of California Santa Barbara. This data set allowed for seeing if differing expectations for final grades correlate with students' grades and/or persistence rates. Student were surveyed in class the first week of class in either their introductory or intermediate microeconomics courses in the Fall of 2013, Spring 2015, or Summer 2015. Seventy-seven percent of students were surveyed in Fall 2013. Students were asked their sex, age, ethnicity, race, academic year, major/intended major, and what grade they expected to receive in the course. Other information on students including time of matriculation, parents' education, and citizenship were available through university records. Years for students' grades ranged from Spring 2007 to Fall 2015.

There were a total of 523 students surveyed in introductory microeconomics, and 685 students surveyed in intermediate microeconomics. Among students who took either introductory or intermediate microeconomics, forty-four percent identified themselves as Asian, thirty-four percent as White non-Hispanic, sixteen percent as Hispanic, under two percent as black, and less than one percent answered "other." Among women, there was a larger percentage of Asian students, fifty-one percent compared to thirty-nine percent of male students. About fifteen percent of the sample did not have U.S. citizenship. Ninety-six percent of students taking introductory microeconomics were between the ages of eighteen to twenty-one, and the rest were older. Ages of students in intermediate economics were more evenly spread between the ages of eighteen to twenty-three. Students aged twenty or older were largely transfer students, who made up thirty-five percent of the class.

A large gender gap existed in classes starting with introductory economics. Forty-four percent of students in introductory microeconomics were women, with this number affected by the larger percentage of economics/accounting majors. The percentage of women who were strictly economics majors or economics/math majors was thirty-three percent. In upper-division classes, women made up about thirty-six percent of students on average.

In both the introductory and intermediate courses, over half of students expected to receive an A grade in the class, even though they were informed of a strict curve at the beginning of the term. Nearly all students who did not expect to receive an A grade expected to receive a B grade. The distribution of expectations is summarized in Table 1.

Table 1

Expectations and Grades in Microeconomics Classes by Gender

Variables	Men	Women	Significant Difference	Total obs
Mean SAT Math	660	642	yes, p<.01	1512
Mean SAT Reading	592	573	yes, p<.01	1512
Mean SAT Writing	606	610	no	1512
Introductory Microeconomics				
Expected 4.0 (A)	65%	55%		334
Expected 3.0 (B)	32%	42%		196
Expected 2.0 (C)	2%	3%		12
Expected 1.0 (D)	2%	0%		5
Average Expected Grade	3.61	3.52	no	547
Average Actual Grade	2.83	2.71	yes, p<.01	1251
Intermediate Microeconomics I				
Expected 4.0 (A)	65%	51%		420
Expected 3.0 (B)	34%	46%		274
Expected 2.0 (C)	0%	3%		9
Expected 1.0 (D)	0.23%	0.00%		1
Average Expected Grade	3.64	3.49	yes, p<.01	704
Average Actual Grade	2.65	2.72	no	1416
Intermediate Microeconomics II				
Expected 4.0 (A)	61.54%	63.64%		15
Expected 3.0 (B)	38.46%	36.36%		9
Average Expected Grade	3.62	3.64	no	24
Average Actual Grade	2.78	2.79	no	918

Notes: Fifty-nine students in the sample dropped out of Introductory Economics before getting a grade. Sixty-six students in the sample dropped out of Intermediate Microeconomics I before receiving a grade.

Students were given number grades on a four-point scale that corresponded to letter grades. Actual grades were distributed partly according to a curve, with about twelve percent of

students receiving a grade within the A range, twenty-five percent a grade in the B range, and forty percent a grade in the C range. While there was no statistically significant difference in expectations between men and women's expectations, there was a statistically significant difference in performance, with women performing slightly worse in the class. Both men and women's average grades corresponded to a letter grade of a B minus.

The data set had a few limitations. One was that since students were only surveyed once, it was not possible to see if a particular student's expectations changed in later economics courses. Only an average of students with the same characteristics could be compared. Also, in measuring persistence to intermediate microeconomics, it was necessary to limit the sample to non-transfer students who took introductory microeconomics during or before Fall 2013, so as to allow a two-year period for students to take intermediate microeconomics, since no grades were imported into the data set past Fall 2015.

Additionally, even though the sample was fairly large, it was not large enough to break down into all combinations of expected grade, actual grade, and gender without some categories being very small. The sample size did not allow for studying, for example, if A students who expect an A take economics classes more often than A students who expect a B, because there were so few A students to begin with, and even fewer who expected a B. Nevertheless, the data set allowed for looking at expected grades in more than one class, and to some extent for examining retention in the major.

RESULTS

I first looked at what influences students' expectation in microeconomics, modeling expectations on gender, previous academic experience in economics, and math SAT scores. Since more than half of students expected an A, and nearly the whole remainder expected a B grade, I made the dependent variable an indicator variable for expected an A or not an A. The assumption is that students who expect an A differ from students who expect lower grades. The marginal effects from the probit regressions for formation of expectations are in Table 2.

In introductory economics, there was no difference in average expectations between gender, with or without controlling for other variables, which is not what I anticipated. This differs from other studies that found that either women underestimated their grades or at least expected lower grades than men did. The coefficient on math SAT score was significant in both

introductory and intermediate microeconomics, suggesting that every ten point jump that a student has in his or her SAT score makes the student about eight percent more likely to expect a final grade of an A. Students must assume that their economics courses will be math heavy. Having a parent with a bachelor's degree, a measure of socioeconomic background, surprisingly only influenced students' expectations in introductory microeconomics. Perhaps after being comfortable taking college courses, students do not find socioeconomic background to be as relevant in influencing their grades.

Table 2

Expecting an A Grade in Microeconomics -- Marginal effects after probit

Independent Variables	1 Intro Econ		2 Intm. Econ I Full Sample		3 Intm. Econ I Non Transfers	
Female	-0.08	(0.05)	-0.16*	(0.03)	-0.14*	(0.04)
Transfer	0.23*	(0.11)	0.19*	(0.07)		
Math SAT/100	0.08*	(0.04)	0.11*	(0.02)	0.08*	(0.03)
Econ/Math	0.08	(0.09)	-0.07*	(0.06)	-0.04	(0.08)
Econ/Accounting	0.14*	(0.07)	0.02	(0.04)	0.03	(0.05)
Undecided	-0.03	(0.08)	-0.17*	(0.05)	-0.13	(0.07)
Other Major	-0.04	(0.07)	-0.18*	(0.04)	-0.08	(0.05)
Asian	0.1	(0.06)	0.08	(0.04)	0.11*	(0.05)
Hispanic	-0.06	(0.08)	0.04	(0.06)	0.05	(0.07)
Other Race	0.1	(0.07)	0.02	(0.05)	0.06	(0.06)
Parent BA	0.11*	(0.05)	0.02	(0.04)	0.02	(0.04)
Not citizen	0.11	(0.07)	0.3*	(0.07)	0.25*	(0.07)
Intro Econ Grade					0.16*	(0.03)

Notes: Numbers in parentheses are standard errors. * Denotes significance at the 5% level. Reference category for race is White, for major is Economics. First probit regression pseudo R squared is 0.0786, obs. 475; Second probit regression pseudo R squared is 0.1301, obs. 811; Third probit regression pseudo R squared is 0.1282, obs. 650.

In intermediate economics, women expected lower grades than men on average. Women who were non-transfers were fourteen percent less likely to expect an A grade, even controlling for grade in introductory microeconomics and for other variables. Introductory economics grade was one of the largest predictors of expected grade in intermediate economics. This suggests that students went into intermediate microeconomics with their performance in introductory microeconomics in mind. In restricting the sample to only women, however, I found that introductory microeconomics grades had a differing effect on expectations according to gender

that was statistically significant, with the coefficient for men being higher at 0.22, standard deviation 0.04, and the coefficient for women not being significant at the five percent level. It appears that women's previous economics grades did not play a role in revising their expectations. Ballard and Johnson (2005) similarly found that GPA influenced men's expectations more than women's.

Citizenship status was also a large predictor for expected grade in intermediate economics. Non U.S. citizens were more likely to expect an A grade. Asian international students, who made up twenty-nine percent of the sample of students who were surveyed in intermediate economics, mostly influenced this. The coefficient was large both in the sample that included transfer students and the one that excluded them.

Besides examining what factors may influence students' expectations, I looked for correlations between expectations and grades. No correlation would indicate that the idea that expectations were self-fulfilling was not plausible in this sample of students. In this case there was a large correlation between expecting an A in introductory microeconomics and receiving a higher grade in the class. This could be, however, because there was no control for experience/performance in economics courses in high school. In intermediate economics, expected grade only correlated with actual grade if not controlling for the grade that students received in introductory microeconomics. When controlling for grade in introductory microeconomics, the perceived predictive power of grade expectation was washed out. These results are available in Table 3.

Interestingly, when expectations were included in the regression for grade in introductory microeconomics, the negative coefficient on female was neutralized. Positive predictors of grade in introductory economics were math SAT score and not being a citizen, while being female, a major outside of the economics department, being of a minority race other than Hispanic, and being a transfer student were negative predictors in the regression that did not include expectations. Math SAT was the only variable that was consistently significant and positive in predicting both introductory and intermediate economics grades.

Table 3

Grades in Introductory Microeconomics and Intermediate Microeconomics I

	Introductory Economics				Intermediate Economics I			
Independent Variables	1		2		3		4	
Female	-0.1*	(0.04)	0.02	(0.07)	0.11	(0.06)	0.14	(0.07)
Intro Econ Grade					0.38*	(0.05)	0.37*	(0.06)
Math SAT/100	0.25*	(0.03)	0.28*	(0.05)	0.24*	(0.05)	0.19*	(0.06)
Econ/Math	-0.1	(0.09)	0.19	(0.12)	-0.03	(0.12)	-0.08	(0.19)
Econ/Accounting	0.02	(0.05)	0.18	(0.11)	0.06	(0.07)	0.11	(0.08)
Undecided	-0.35*	(0.09)	-0.08	(0.12)	0.05	(0.15)	-0.11	(0.17)
Other Major	-0.2*	(0.06)	0.08	(0.09)	-0.01	(0.09)	0.05	(0.11)
Asian	-0.26*	(0.05)	-0.35*	(0.09)	-0.08	(0.07)	-0.12	(0.09)
Hispanic	-0.11	(0.07)	-0.05	(0.11)	0.06	(0.1)	-0.05	(0.13)
Other Race	-0.21*	(0.06)	-0.32*	(0.11)	0.00	(0.09)	-0.03	(0.13)
Parent BA	-0.03	(0.05)	-0.19*	(0.08)	0.16*	(0.07)	0.13	(0.08)
Not citizen	0.29*	(0.07)	0.3*	(0.11)	0.18	(0.09)	0.24*	(0.12)
Transfer	-0.28	(0.14)	-0.23*	(0.09)	-0.4	(0.58)	-1.16	(0.8)
Expect A in Intro Econ			0.33*	(0.07)				
Expect A in Intm. Econ I							0.09	(0.08)
Constant	1.41*	(0.21)	0.71*	(0.34)	-0.05	(0.31)	0.18	(0.36)

Notes: Numbers in parentheses are robust standard errors. * Denotes significance at the 5% level. Reference category for race is White, for major is Economics. Firs linear regression R squared is 0.1601, obs. 1131; Second regression R squared is 0.2578, obs. 421, Third regression R squared is 0.1904, obs. 783; Fourth regression R squared is 0.1970, obs. 478

Lastly, I looked at what factors affect students' decisions to take intermediate microeconomics or not, and whether or not expectations in introductory microeconomics carry over to this decision. Most declared economics majors (non transfers) who took introductory microeconomics also took introductory macroeconomics (94%), (males 95%, females 93%) either because they were serious about pursuing the major or because students enrolled in their classes for the next term midway through the term previous. After introductory macroeconomics, there was a steady decline in students who stayed in the economics track, which began to steady once students made it into the full major.

Very few students failed out of introductory micro or macroeconomics. Of the students who didn't take intermediate microeconomics, about 51% and 12% received a grade of C and C+ respectively in introductory microeconomics, and about 4% received a lower grade. Of the students who took intermediate microeconomics, grades were fairly evenly distributed from a grade of C to a grade of A, and only about 1% received a grade lower than a C. These percentages correspond to 250 C and C+ students not taking intermediate microeconomics, and 220 students with the same grades taking microeconomics. Grade distribution in introductory macroeconomics was very similar. While many students who did not take intermediate microeconomics were C students in introductory microeconomics, many C students in introductory microeconomics took intermediate microeconomics.

In each economics course, the percentage of women who took another course was four to six percent lower than the percentage of men who took another class. Expectations only predicted whether or not students dropped out of introductory economics. There was no gender difference. I examined the possible effects of grades and expectations in the decision to take intermediate microeconomics, and looked for any gender effects. Grade in introductory microeconomics and being a declared economics major were the largest positive predictors of taking intermediate microeconomics, which makes logical sense.

Gender had no effect on the influence of introductory microeconomics grade on the decision to take intermediate microeconomics. An interaction between female and expected grade was also not significant. Expectations were in no way significant in predicting taking intermediate microeconomics, which contradicts the hypothesis that expectations, as a measure of confidence, may influence persistence in the economics major. Results from these regressions are found in Table 4.

Table 4

Continuing from Intro Economics to Intermediate Economics: Marginal effects after probit

Independent Variables	1		2		3		4	
Female	-0.02	(0.03)	-0.02	(0.06)	-0.02	(0.13)	0.00	(0.09)
Intro Econ Grade	0.21*	(0.02)	0.23*	(0.04)	0.21*	(0.03)	0.23*	(0.04)
Math SAT/100	0.06*	(0.02)	0.07	(0.04)	0.06*	(0.02)	0.07*	(0.04)
Econ/Math	-0.29*	(0.08)	-0.02	(0.11)	-0.29*	(0.08)	-0.02*	(0.11)
Econ/Accounting	0.02	(0.04)	0.06	(0.08)	0.02	(0.04)	0.06	(0.08)
Undecided	-0.37*	(0.07)	-0.16	(0.08)	-0.38*	(0.07)	-0.16*	(0.08)
Other Major	-0.4	(0.05)	-0.38*	(0.06)	-0.4*	(0.05)	-0.38*	(0.06)
Asian	0.01	(0.04)	0.03	(0.08)	0.01	(0.04)	0.03	(0.08)
Hispanic	-0.02	(0.06)	-0.11	(0.09)	-0.02	(0.06)	-0.11	(0.09)
Other Race	0.02	(0.05)	0.05	(0.09)	0.02	(0.05)	0.05	(0.09)
Parent BA	0.02	(0.04)	-0.06	(0.07)	0.15	(0.04)	-0.07	(0.07)
Not citizen	-0.18*	(0.06)	-0.15	(0.08)	-0.18*	(0.06)	-0.15*	(0.08)
Expect A in Intro Econ			0.08	(0.06)			0.09	(0.08)
Female x Intro Econ Grade					0.00	(0.05)		
Female x Expect A in Intro Econ							-0.03	(0.11)

Notes: Numbers in parentheses are standard errors. * Denotes significance at the 5% level. Transfer students excluded from sample. Reference category for race is White, for major is Economics. First probit regression pseudo R squared is 0.2180, obs..943; Second probit regression pseudo R squared is 0.2016, obs. 396; Third probit regression pseudo R squared is 0.2180, obs. 943; Fourth probit regression pseudo R squared is 0.2018, obs. 396.

CONCLUSION

In this study, I found that expecting an A grade in introductory microeconomics was positively correlated with grade received in introductory microeconomics. Math SAT score, being a transfer student, being an accounting major, and having a parent with a college degree were all significant in influencing expected grade in introductory microeconomics. In intermediate microeconomics, math SAT score, transfer status, citizenship, gender, and being Asian influenced expectations. Grade in introductory microeconomics influenced men's expected grade in intermediate economics, but most likely did not influence women's expected grade. Grade in introductory microeconomics was a significant

predictor of both taking microeconomics and grade in microeconomics. It is possible that expectations in introductory microeconomics indirectly had an effect, but one could also conclude that they were not relevant.

There were many effects that I anticipated that were not seen in the results of this research. Gender was not a predictor of grades in introductory microeconomics. Gender was also not a predictor of continuing to intermediate microeconomics when controlling for grade in introductory economics. Women likewise did not exhibit any degree of grade sensitivity that hindered them from taking more economics course. As for expectations, they were not significant in predicting grades in intermediate economics nor were they a predictor of continuing to intermediate economics.

In summary, introductory economics grade was the largest predictor of future grades and retention in the economics major, and this effect did not differ between genders. Expectations in introductory microeconomics predicted grades for that class, possibly because they acted a proxy for pre-university economics experience. If expectations for performance in a class can be considered as a measure of self-confidence, it is likely that these effects are absorbed in actual grades, or that they adjust to some extent with feedback from grades.

Future studies on expectations could focus on whether there are particular effects for high or low performers. As for any interactions between gender and expectations, this effect is likely small if anything. Of course it is also likely that women with lower expectations for performance in economics classes self-select out of the major before taking any economics classes. The gender gap in undergraduate economics, after all, is mostly attributable to the very start of college, with women making up about a third of students in the major. Thus, a more rigorous study on expectations and gender in the field of economics would have to encompass either university students from more majors or secondary school students.

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