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Department of Economics, University of New Mexico

Price Elasticity of Enrollment for Undergraduate Admission and Retention Decisions at the University of New Mexico, 2010-2018

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version
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Executive Summary

For the decade *after* the Great Recession (2010-2019), public higher education institutes (colleges and universities) generally experienced a pattern of declining state appropriations. This led many universities to compensate through raising tuition and fees (T&F), and in some cases pursue increases in out-of-state student enrollments (to generate greater net revenue, due to higher T&F above marginal costs). Moreover, the policy levers that universities used were commonly based on greater dependence on undergraduate T&F, and in many cases making greater use of differential pricing. This involves a whole range of mechanisms (discounting, differential tuition etc.) that charge different students amounts that differ from the posted T&F, which we refer to collectively as price differentiation. Some price differentiation occurs due external factors (e.g., changes in grant or scholarship coverage). Internally, partitioning the student population allows for greater disaggregation and can facilitate price differentiation (e.g., by residency, year, major, college, etc.).. As quasi-efficiency measures, some forms of price differentiation can be justified in allowing universities to convert a greater portion of student willingness to pay into sufficient revenues that match up with covering varying marginal costs of program delivery. Generated revenues can also be used for equity purposes in cross-subsidizing particular groups of students. All this points to the need to understand disaggregated price responsiveness. If state support were to further erode as a consequence of an economic recession caused by the 2020 global pandemic, then the need to understand disaggregated student price responsiveness only gains importance.

Using individual-level data for the period 2009-2018, the objective of this econometric analysis is to investigate price elasticity of demand for disaggregated groups of applicants and students at the University of New Mexico (UNM), a large public research university. Price elasticity is a unit-less measure (in proportional terms) of the responsiveness of college enrollment to changes in the net price; it is defined as the percentage change in quantity demanded (enrollment) divided by the percentage change in price. Price elasticity is an empirical question, where the answer connects directly to expected revenue generation for changes in T&F.

Over the period of our analysis (2009-2018), UNM experienced fiscal deficits in 8 out of the 9 years in their budget planning cycle (which also continued on for fiscal years (FY) 2019 and 2020 [and likely FY 21] at UNM). To help address the fiscal deficits UNM, like many other universities, steadily increased net prices through changes in price discounting, reductions in state lottery scholarship coverage, and increases in the posted price of base T&F. The University made greater use of price differentiation to help generate revenues needed to cover costs. As examples, differential tuition was added for some colleges at UNM, and additional charges, above annual increases in base T&F, were added on upper division undergraduates. Identifying the different responsiveness to net price changes among the different student groups would allow for further and more efficient use of price differentiation that would increase revenue and minimize any resulting decline in enrollment. Although price differentiation can and is applied to graduate students, we focus here on the undergraduate population. Potential for differential pricing exists in multiple stages and components of a degree – at the enrollment decision of a freshman applicant and the retention decisions of existing students at different stages of their degrees. We further disaggregate our estimates by residency status, area of study, income categories, test scores (ACT) and financial need. On the one hand, this extent of estimate disaggregation makes possible complex and targeted pricing to generate sufficient revenues to cover costs. On the other hand, greater use of price differentiation may add pricing complexity/variability to student charges (depending on final net price distribution); and students and their families may have a preference for greater simplicity in

understanding pricing. But rather than promoting any particular pricing strategy, our objective is limited to better understanding the complexity of student price responsiveness at UNM.

For our econometric demand analysis, we create two net price measures: Net Price 1, which incorporates tuition and fees (minus all forms of aid); and Net Price 2, which incorporates both tuition and fees (minus all forms of aid), *and* estimated board and lodging costs. We conduct this analysis on what we describe as both the extensive and intensive margins. On the **extensive margin**, we estimate the binary enrollment choice on two dimensions: (i) admissions – for which we estimate the price elasticity of enrollment for freshmen applicants; and (ii) retention – for which we estimate price elasticity of continued enrollment or enrolling for another semester (thus conditional on enrollment for freshmen fall) and is estimated for all students from freshmen fall until the end of their fifth year. For the extensive margin binary (enrollment) demand model, we estimate price elasticities, and disaggregate by test score, financial need, area of study, household income and New Mexico residency status. On the **intensive margin**, we model the number of credit hours enrolled, and estimate price elasticities. We disaggregate the intensive margin price elasticity estimates by area of study, full time status and New Mexico residency status.

The extensive margin (enrollment) estimates for in-state students generally demonstrate price inelastic demand (relative unresponsiveness in proportional terms to increasing prices), with applicants relatively more responsive to board and lodging price changes (Net Price 2) relative to tuition changes. Out of state student enrollment demonstrates price elastic demand (greater relative responsiveness in proportional terms to increasing prices) and also exhibits relatively greater responsiveness to board and lodging costs (Net Price 2) relative to tuition (Net Price 1). When disaggregated by ACT test scores, the high-scoring group is least responsive to price changes and when disaggregated by need, the somewhat needy group is the least responsive to price changes. Given this test score and need disaggregation, the only out-of-state admissions student population that demonstrates price inelasticity is the combined high scoring and somewhat needy sample for Net Price 2. All other combinations are price elastic. Thus, there are multiple out-of-state groups that could be targeted for enrollment increases via improved (net price) financial aid offers.

For the retention analysis, we find in-state students that are in the early degree period and later degree period (fifth year plus, when many scholarships may lapse) demonstrate the greatest price responsiveness, albeit all are generally price inelastic. Out-of-state students demonstrate a weak relationship between net price and enrollment after the first year, implying that once they complete their first year and decide to continue enrollment, price changes do not significantly influence their enrollment decisions thereafter.

For the student credit hour cohort analysis, while price inelasticity generally dominates results, we again witness higher relative price responsiveness towards the beginning of the degree and after the fourth year. The estimates demonstrate a sharp increase in price responsiveness in the fifth year and after, with the estimates sometimes demonstrating price elasticity of demand.

Lastly, full-time students demonstrate a general trend of being less responsive to net price changes relative to part-time students on both the extensive and intensive margins. For example, for part-time students taking 0-6 credit hours, we find significant price elasticity in the Net Price 2 measure.

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1. Introduction:

Across numerous states in the US post-2008, recessionary contractions in state budgets, coupled with increases in the non-discretionary components (e.g., state Medicare costs) of those budgets, contributed to significant reductions in state support to higher education (HE) in real dollar terms. This in turn pushed public colleges and universities to partially offset these lost public dollars with increases in tuition and fees (T&F), at rates that outpaced the rate of inflation, including the Higher Education Price Index (HEPI). To some extent, in the immediate post recessionary years, counter-cyclical enrollment surges also helped to offset losses in state support (at least in cases where net tuition covered a college's marginal costs of adding the increment in students). More recently (e.g., 2018 and 2019) flattening or even sharply decreasing enrollment trends have led to lost revenues. At the same time, in many states recent increments in public support have not caught back up to where they were prior to the Great Recession in real terms.[1] Combining together, in the decade of fiscal years 2010-2019, many public higher education institutions confronted expected fiscal deficits in many if not all of the years in this period, as they entered each new budget planning cycle. Then, while not a specific focus of this analysis, even more recently the coronavirus global pandemic hit in the spring of 2020, affecting 2020-2021 budgets and beyond.

Throughout the period, 2010 to 2019 there was pressure to not just increase price generally, such as the *base* undergraduate tuition and mandatory student fees (which rose at an average of roughly 4.5% at UNM), but also to use greater price differentiation to convert a part of students' willingness to pay or consumer surplus into needed revenues to cover costs. This variation in a

[1] Prior to 2020, state support for higher education had generally started to increase over the last several years (prior to the disruption of the global pandemic in Fall 2020) According to the Chronicle of Higher Education's *2019 Almanac*, for the most recent year, 17 (33) of the 50 states had increments to state public support for higher education that were less (more) than the HEPI for 2018 of 1.8%.

generally increasing net price includes a combination of sources: changes in tuition coverage by a broadly-available state scholarship to in-state students (the New Mexico Legislative Lottery Scholarship [NMLLS]); use of price discounting (internal subsidies or simple reductions to lower the net price from the increasing posted price); and what economists call price discrimination — where different student are charged different prices based on, say, residency, year in school or major or college of enrollment. Referred to here collectively as price differentiation, this range of mechanisms causes different students to have different net T&F charges. But, variation in net prices allows micro-level, econometric demand estimation, and calculating disaggregated price elasticities.

The price elasticity of demand for college enrollment is a unit-less measure (in proportional terms) of the responsiveness of college enrollment to changes in net price; it is defined as the percentage change in quantity demanded (enrollment) divided by the percentage change in price. There is a body of published and grey literature, with various received wisdoms, on the price elasticity of demand of college and university students. Historically, econometric demand studies for HE have shown negative price coefficient estimates (downward-sloping demand) that exhibit price inelasticity, or relative unresponsiveness in proportional terms to increasing prices. The practical management implication for universities has been that price (net T&F) increases have continued to be relied upon to generate needed revenues to cover costs. However, the post (2007-2009) recessionary period of continued T&F growth, and first increasing and then recent declining enrollments in HE,[2] opens the need for current empirical studies estimating price elasticity. Of particular interest is the need for greater disaggregation of estimates that line up with the trend for greater use of price differentiation. If state support for HE further declines in any economic

[2] According to the Chronicle of Higher Education's *2019 Almanac*, 35 out of 50 states have negative projected growth in high school graduates over the next decade (with more than half of those with a projected decrease of more than 5%).

recession caused by 2020 disruption of the coronavirus global pandemic, then the need to understand disaggregated student price responsiveness only gains importance.[3]

The objective of this analysis is to econometrically estimate price elasticities of demand, for undergraduate students at the University of New Mexico (2009-2018). Using individual level data, we estimate elasticities on a disaggregated basis, for both the **extensive margin** (the admission enrollment and retention enrollment decisions) and **intensive margin** (credit hours enrolled), on a semester-by-semester basis as students move through their undergraduate career, with various breakouts (e.g., resident versus non-resident, by skill and need, and for various colleges/units). Over the period of our analysis (2010-2018), UNM confronted expected fiscal deficits in 8 out of the 9 years in their budget planning cycle (which also continued on for fiscal years (FY) 2019 and 2020 and now 2021 at UNM). Over the period 2009-2018, UNM also made greater use of price differentiation, which helped capture revenues needed to cover costs. This specifically included greater use of price differentiation based on the College/Major of the student – through the increased use of differential tuition[4], and a wide variety of course and program fees, as well as the introduction of upper division premiums;[5] (i.e., a higher credit hour tuition charge junior and senior level courses in a major). As a quasi-efficiency measure, predominately these additional charges above annual increases in base tuition, fell on upper division undergraduates, where it is expected that the incremental costs of educational delivery are also higher (e.g., smaller class sizes, and greater proportional use of tenure-track professors). Identifying the different responsiveness to net price

[3] Projected UNM Main Campus reductions in state support for 2021-2022 are in the range of 5%, as of October, 2020.

[4] See appendix for complete list of differential tuition implementations during study period.

[5] Upper Division Course Premiums assessed on all 300 and 400 level classes were introduced in the year 2017-2018 at the rate of $18.00 per credit hour. In 2018-2019 this rate was increased to $25.00 per credit hour, and in 2019-2020 the rate was increased again to $35.00 an hour

changes among the different student groups could allow for targeted raising of tuition that would increase revenue, help cover associated costs, and minimize any resulting decline in enrollment.

Finally, while our sample data (2009-2018) does not cover the disruptions of Spring 2020, there are several salient points. First, it does cover the period immediately subsequent to the Great Recession of 2007-2009; i.e., it covers demand and price responsiveness behavior after the most recent recession. Second, formally estimating demand models allows isolation of particular demand characteristics or groupings; e.g., this allows focusing on, say student residency, part-time versus full-time status, or students from lower income households (if particular demand shifts are expected)

2. Background:

Although state funding for education has been increasing across the Unites States in recent years, it remains below Great Recession (2008) levels (SHEEO, 2020). Consequently, public universities have had to raise tuition to recoup the loss in state funding and cover educational delivery costs. Price differentiation in various forms is increasingly being discussed and implemented as the possible basis for enhancing revenues sufficient revenues to cover cost; the use of price differentials will allow institutions to extract a greater portion of the willingness to pay of applicants and students by identifying the responsiveness to net T&F changes of different segments of the student population and pricing them accordingly (e.g., across varying incremental costs of delivery). To be able to model this pricing approach we need to investigate higher education demand, and the responsiveness to variation in net (rather than posted) prices.

2.1. Demand for Higher Education

A generalized equation containing the key determinants of higher education demand might be expressed as:

$$\mathbf{Q_D} = \mathbf{D}\left(\begin{matrix}\mathbf{Price},\ \mathbf{Price_c}, \mathbf{Price_s}, \mathbf{Household\ Income},\ \mathbf{Test\ Scores},\ \mathbf{Peer\ Effects},\\ \mathbf{Expected\ Major},\ \mathbf{Residency}, \mathbf{X}\end{matrix}\right) \quad (1)$$

Where the demand for higher education depends on the price, we use two net price measures to capture the real price of enrolling at UNM, and other factors. Other than what is referred to as the own price (Price), two other prices have a large influence on whether an applicant decides to enroll at UNM. The price of complements, Price_c and the price of substitutes, Price_s. There are expenditures incurred that complement or aid in obtaining a degree which are not direct tuition costs, e.g. textbooks, board and lodging, the applicant will consider the prices of these complements when making his or her decision to enroll, consequently for one of our net price measures we include Price_c in the demand function. Every fall hundreds of HE institutes compete for freshman fall students, they do so by offering tuition discounts and scholarships, thus comparative prices are an important factor in determining where an applicant chooses to enroll. The University of New Mexico has major in-state competitors including New Mexico State University, and more locally in Central New Mexico Community College (in Albuquerque) and their net prices likely plays a role in determining who enrolls at UNM. Price_s represents the net price of these competitors in the demand function. Household income determines the budget constraints. Other factors that are listed in the demand function and influence the enrollment decision are; Test-scores (which affect offered merit-based aid), peer effects or cohort effects, expected or actual major or college (e.g. engineering, business school etc.), as difficulty levels and required skills and expected future income vary by area of study. Also included is residency status, as in-state students face lower posted tuition. Lastly, tastes and preferences influence the enrollment decision, these are given by X - a vector of tastes and preferences.

We estimate a variety of higher education demand models, and then use the estimation results to calculate a common measure of student responsiveness to price, known as the price elasticity of demand. Universities typically have fixed posted or listed prices in any given year, but in

implementation have considerable variation in net prices offered and charged to different prospective and enrolled students. It is this variation in net prices that allows econometric estimation of individual-level demand models. To review, for a downward-sloping demand curve, an increase in price is associated with a decrease in quantity demanded for normal goods and services, and a decrease in price is associated with an increase in quantity demanded. Thus, price and quantity demanded have an expected inverse relationship (the "law" of demand) and the price coefficient capturing this fitted relationship will have a negative value. In our context, these estimates represent student enrollment responsiveness to changes in the net price of education. As noted, price responsiveness is typically converted into a unit-less ratio measure of percentage changes for ease of comparisons. Specifically, price elasticity of demand (or price elasticity of enrollment) is a measure of the responsiveness of demand (enrollment in this instance) to changes in price (T&F). The measure is calculated as follows:

$$\text{Price Elasticity of Demand (E)} = \frac{\text{Percentage Change in Quantity Demanded}}{\text{Percentage Change In Price}}$$

Equivalently, the slope-point form is used in estimation and calculation, $(dQ/dP)(P/Q)$, as evaluated at the sample means. For simplification, E is commonly discussed in absolute value terms (reflecting the expected inverse relationship between and P and Q); but, we will attempt to be explicit. In practice, the price elasticity (E) of enrollment measure is calculated controlling for the other factors of demand.

Estimation of E are fundamental to calculating revenue. If E is negative, and an absolute value is less than one ($|E|<1$), then an increase in price will be associated with an increase in revenue because of the proportionally smaller decline in demand (enrollment). In this case, enrollment is referred to as relatively unresponsive, or price inelastic. Alternatively, if E is negative, and the absolute value is greater than one ($|E|>1$), then a price increase will decrease total revenue because of the proportionally larger decline in demand (enrollment). In this case, enrollment is

referred to as relatively responsive or price elastic. Thus, whether or not an implemented price increase (e.g., net T&F) will increase or decrease generated revenues, depends on price elasticity of demand. The historical context over the last several decades in higher education has generally been that student populations have been highly inelastic (e.g., net tuition and fee increases have been used by administrations and boards to generate needed additional revenues).[6] But, E expresses an empirical relationship, which may vary across student populations, and over time.

To analyze estimated price elasticities, the student population can be dis-aggregated along various dimensions. For our study, we focus on dimensions that might plausibly serve as the basis for differential pricing. We disaggregate the student population by subject area, skill measures, need and year of study. We then calculate price elasticity of enrollment for the disaggregated groups. The analysis has two primary components. The first component uses freshman admissions data which consists of freshman applicants who have been admitted to UNM. We disaggregate the applicant sample by subject area, by measures of financial need and by test score (ACT).

2.2. Admissions Analysis

For subject area we create five primary categories; social sciences, physical sciences, engineering, business and humanities. Students in studying different subjects may demonstrate different price elasticities of demand, because of different demand functions. As different majors have differing expected future incomes it is possible that the willingness to pay for particular degrees may also vary. For instance, a tuition and/or fee increase aimed at the engineering school may increase revenue by a larger amount relative to an across the board tuition increase, this would be a

[6] The assumption is that other demand factors are held constant (or not shifting the demand curve). While this had generally held (or changes have no significantly shifted demand curves to the left), the coronavirus pandemic has the potential to significantly shift demand in ambiguous ways (e.g., much lower household incomes for a significant slice of the population, lowered opportunity costs of college [in a recession] etc.). Further, the nature of offered and expected good (the HE bundle) may also be altered significantly.

consequence of an engineering students having a higher willingness to pay because of the higher than the mean expected income that an engineering degree offers.

A further approach is to delineate the analysis along student characteristics, following Curs & Singell (2010). We initially analyze the price responsiveness of applicants by financial need and thresholds of standardized test scores, separately, after which we follow Curs & Singell's (2010) method of examining students based on a joint matrix of what Curs and Singell (2010) referred to as "need-ability" categories. Estimated need (i.e., by the student and their family) for financial aid is a common basis for price differentiating. Willingness (and ability) to pay for an education is expected to be a function of earnings and household income, where applicants from low-income households would be willing to pay less relative to those from wealthy household. While increasingly questioned as flawed indicators of ability and potential, high school grades and standardized test scores (e.g., SAT or ACT) are still common measures of admission in higher education, and applicants with higher GPA's and standardized test scores have more substitutes available and larger array of offers (with financial aid) from competitors, thus creating divergence in willingness to pay by, say, the applicant's test scores.

2.3. Retention Analysis

Student retention encompasses the second portion of our econometric regression analysis. We use longitudinal data, which allows us to separate out price elasticity of enrollment by year of study (cohort analysis) and investigate the responsiveness of students during their first five years of enrollment at UNM. Universities including UNM are already commonly implementing or experimenting with differential pricing by charging upper level students higher fees. We hypothesis that higher level undergraduate students are less responsive to net price changes, given the boost in expected lifetime income resulting from graduating and their nearness to completing their degree. This may change when students move on to their 5th year of study and are no longer eligible for the

New Mexico Legislative Lottery Scholarship[7], the substantial drop in financial aid may place them on a different point on the demand curve and make them considerably more responsiveness to changes in the net price of attending UNM. We further disaggregate the cohort analysis by subject area to explore the possibility that upper-level majors in degrees with higher expected incomes (and thus perhaps higher marginal utility and willingness to pay) are less responsiveness to changes in the net price of education.

3. Recent Trends at UNM

To help set the context for the econometric analysis, this section presents trend information at UNM for admissions and enrollment (both broken out for both in-state and out-of-state students), and two different net price measures (both broken out for both in-state and out-of-state students).

3.1. Admissions and Enrollment

The admissions data encompasses the years 2009-2018. Figure 1 presents the percentage of admitted applicants that enrolled at UNM by year of application and residency status. The proportion of admitted students that enroll is considerably higher for in-state compared to out- of-state applicants. The rate out-of-state enrollment hovers around half or less of the in-state rate throughout the sample period. Furthermore, in-state applicants demonstrate a general enrollment rate decline through the sample period, likely explained by economic expansion post-recession. On the other hand, the out of state enrollment rate remains fairly consistent with the exception of a big drop in the 2009-2010 academic year.

[7] The New Mexico Legislative Lottery Scholarship (NMLLS) encourages New Mexico high school graduates and New Mexico General Education Diploma (GED) recipients to enroll full time and complete a 2-year degree within 4 semesters or a 4-year degree within 8 semesters. It provides financial support by paying a portion of the cost of tuition at any New Mexico public post-secondary institution. https://hed.state.nm.us/financial-aid/scholarships/legislative-lottery

Figure 1

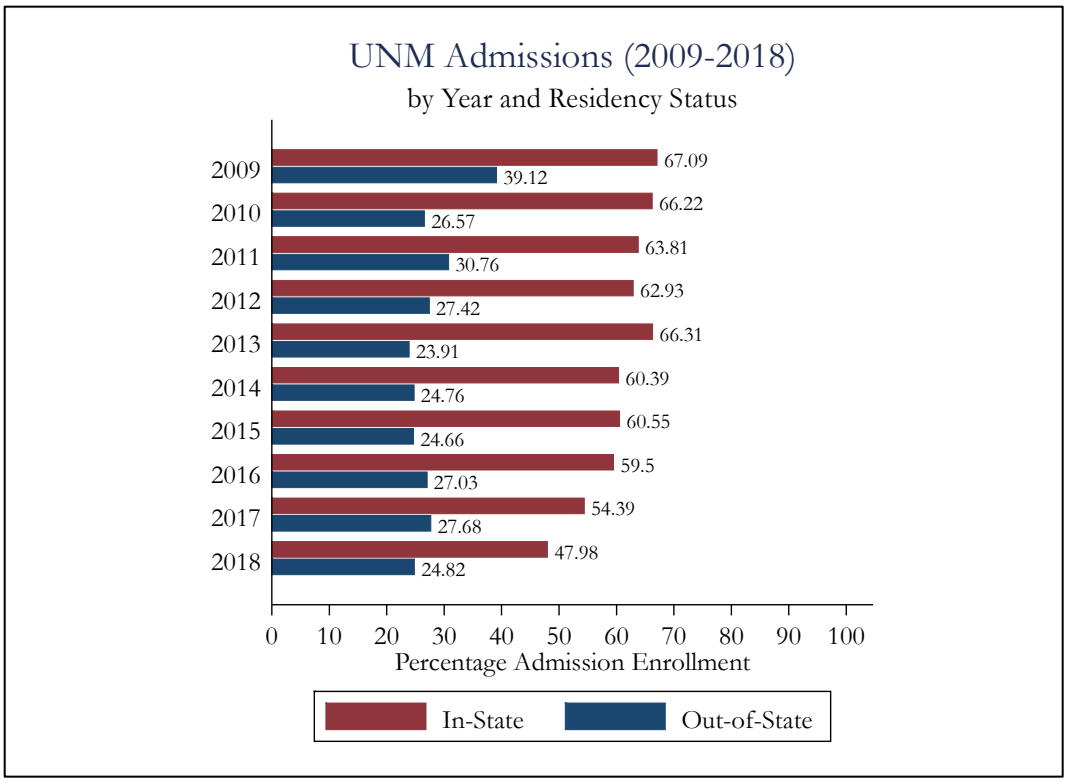
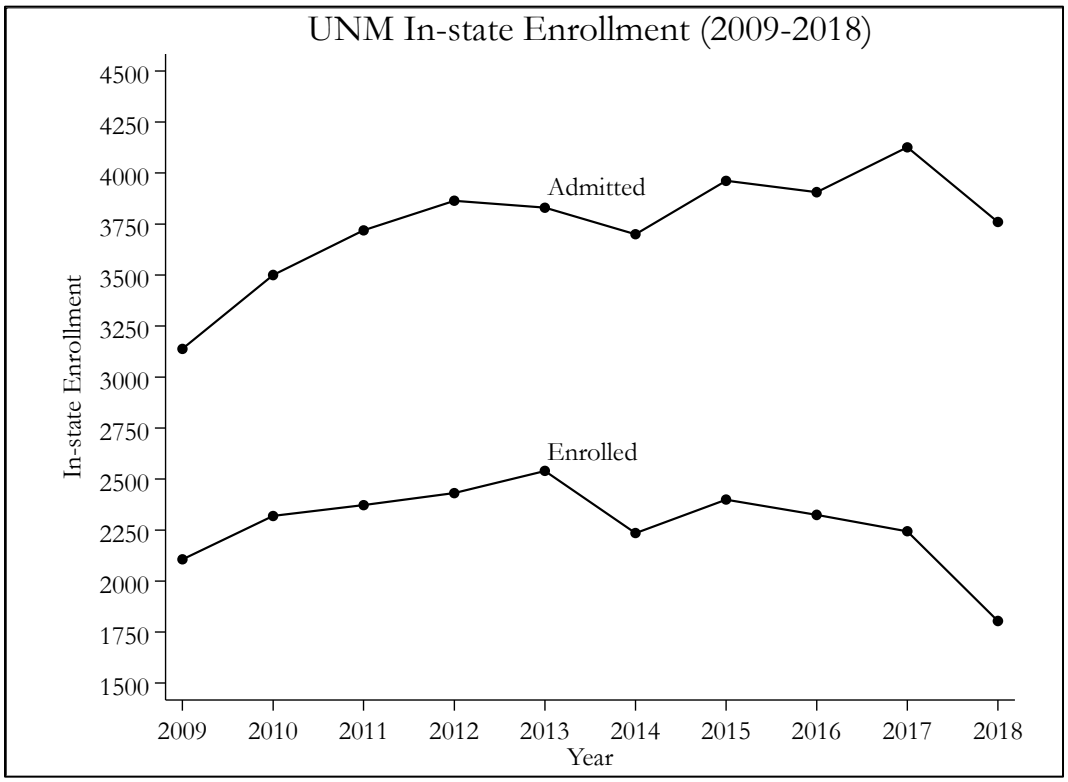


Figure 2 displays how the total number of in-state admitted freshman and enrolled freshmen has trended. Beginning in 2009 (following the Great Recession (2008)) both student admissions and enrollment experienced increases that continued until 2012 for student admissions and until 2013 for student enrollment. Admissions increased sharply from around 3,100 students in 2009 to about 3,800 students in 2012. Then, after 2012 admissions demonstrated no consistent trend and experienced a sample high of about 4,100 admissions in 2017. Overall, for the period, the compound annual growth rate was approximately 2.1%. Enrollment increased annually from about 2,100 students in 2009 to a sample high of about 2,500 students in 2013, after which it experienced a

general decline to a sample low of about 1,800 students in 2018. Overall, for the period, the compound annual growth rate was approximately -1.7%.

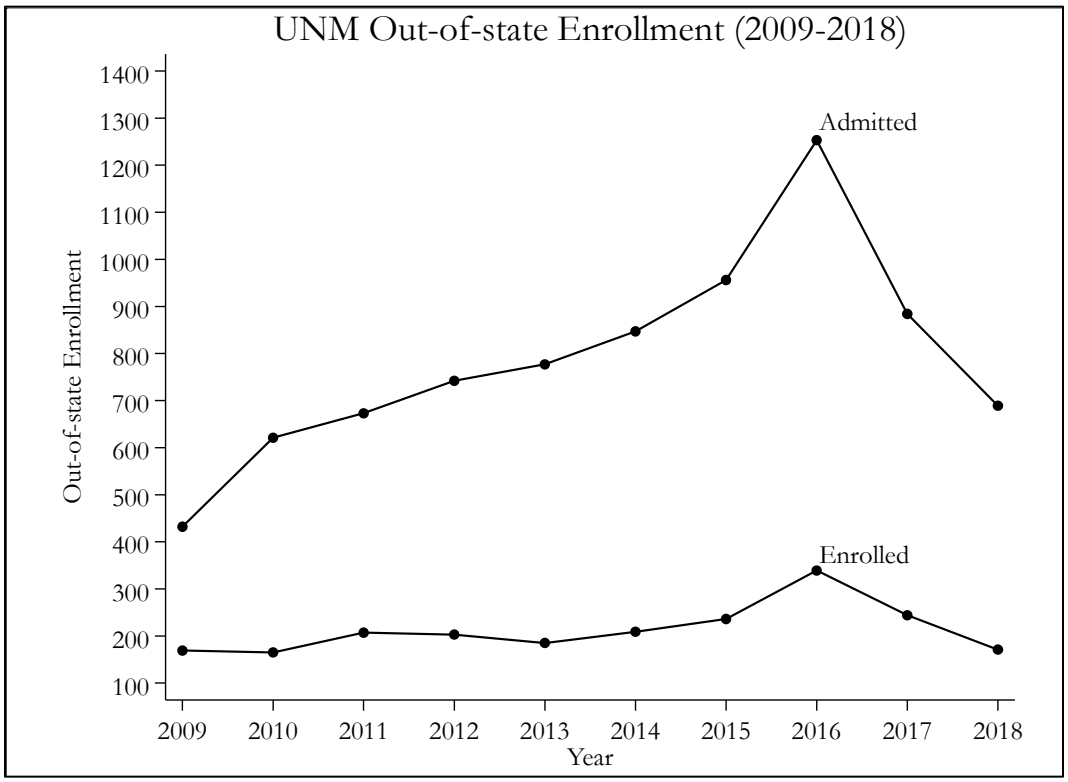
Figure 2



Freshmen admissions and freshmen enrollment trends for out-of-state students are presented in Figure 3. Both admissions and enrollment for out-of-state students experienced a general increase from 2009 to 2016, with compound annual growth rates for the period of approximately 16% and 10%, respectively. The admissions trend line demonstrates a considerably steeper increase, with admissions rising from 420 students in 2009 to a little over 1,200 students in 2016, during the same period enrollment rose from 150 students to over 300. Both out-of-state student admissions and enrollment experienced a steep decline after 2016. From a sample high of over 1,200 students in 2016 admissions fell to 700 students by 2018, this decline in admissions

coincides with the national economy prospering. Out-of-state enrollment fell from over 300 students to a little less than 200 students in the years 2016-2018.

Figure 3

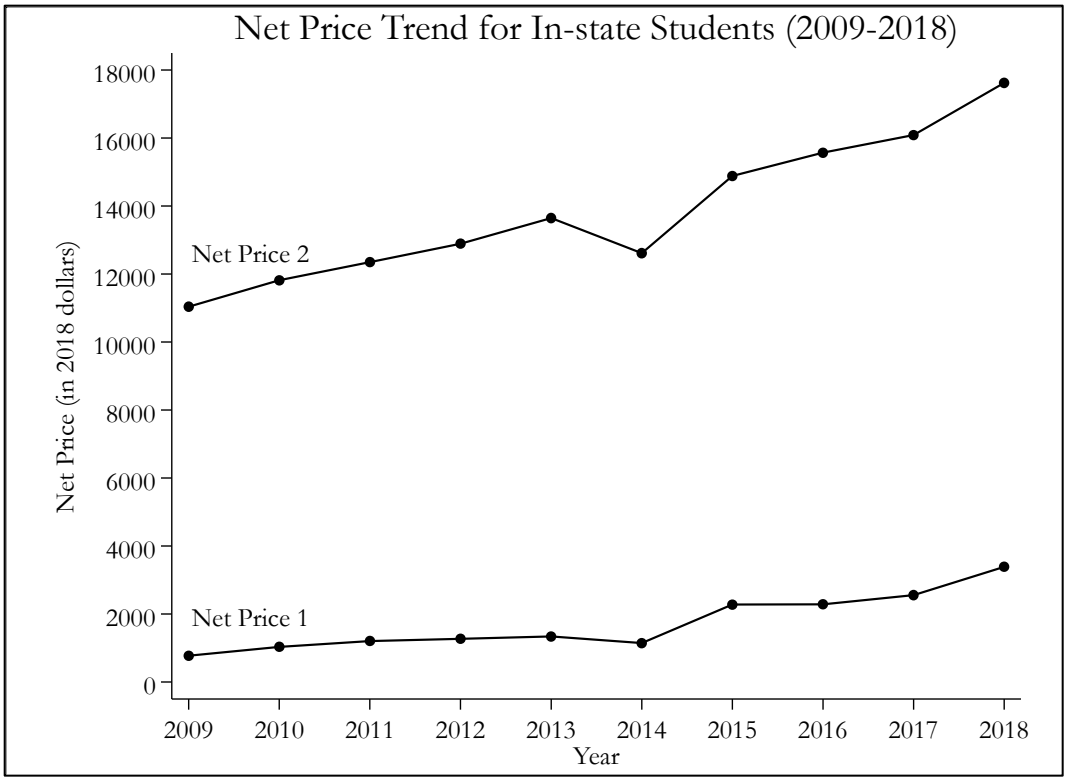


3.2. Net Price

For our analysis we use two net price measures. Net Price 1 is calculated by subtracting financial aid from posted tuition and fees (T&F). Net Price 2 is calculated by deducting financial aid from the total cost associated with attending UNM (posted tuition + calculated board and lodging). The trend lines for Net Price 1 and Net Price 2 for in-state students are given in Figure 4. Both measures of net price experience a general increase over the years 2009-2018, with net price 2 experiencing a steeper increase relative to net price 1. This means that the cost of living associated with attending UNM has increased more relative to tuition and fees. Net Price 1 for in-state students increased by $2,000 (in constant 2018 dollars) from about $1,000 in 2009 to about $3,000 in 2018,

with a compound annual growth rate of approximately 13% for the period. Net Price 2 for in-state students increased from about $11,000 in 2009 to about $17,500 in 2018 with a compound annual growth rate of approximately 5.3%. The key point is that over the time period analyzed, net prices were generally increasing in real terms, and especially so for the larger Net Price 2 measure (which includes a room and board calculation). That is, we are estimating price elasticity (E) measures during a time period when prices were on the way up (as state support was declining).

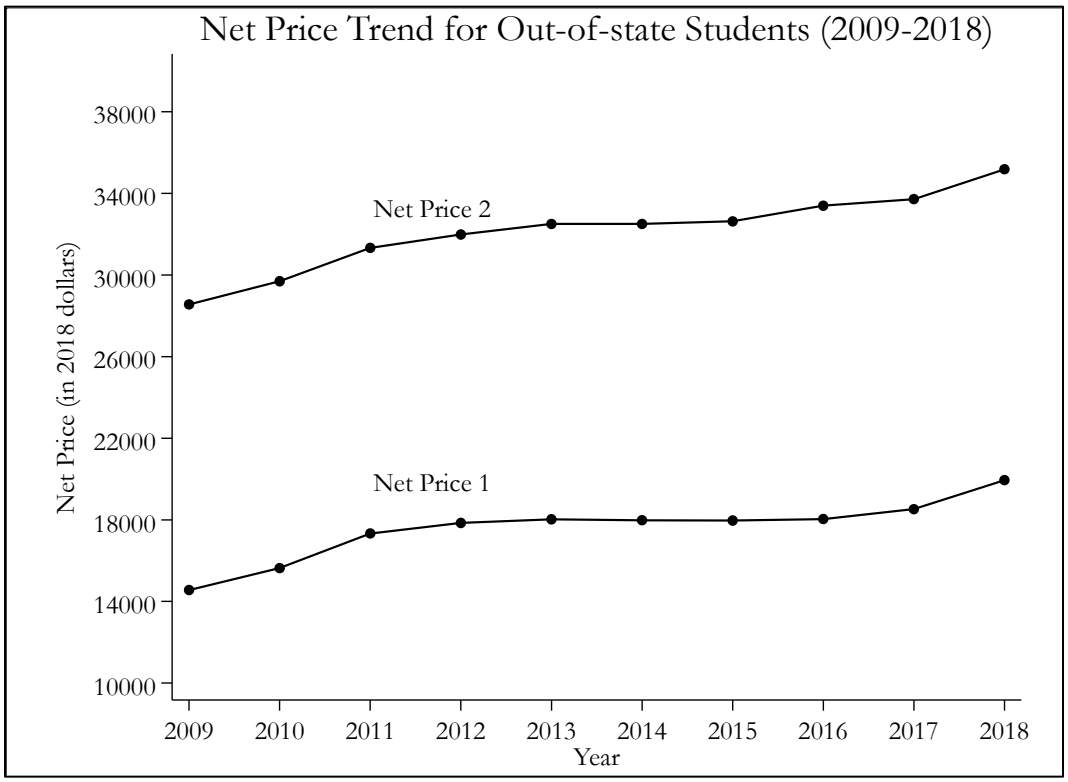
Figure 4



Out-of-state student net prices (Figure 5) are much higher relative to in-state students because of the higher posted out-of-state tuition. Out-of-state net prices demonstrate a general increase across our sample years with both experiencing around a $4,000 (in 2018 dollars) increase between the years 2009-2018. Net Price 1 for out-of-state students had a compound annual growth

rate of approximately 4% for the period. Net Price 2 for out-of-state student had a compound annual growth rate of nearly 2.3%. Again, the key point is that over the time period analyzed, net prices were generally increasing in real terms, and roughly similarly so for both measures. That is, we are estimating price elasticity (E) measures during a time period when prices were on the way up.

Figure 5



3.3. Retention

The retention data encompasses the years 2009-2018; it contains information on all student enrollment at UNM in the aforementioned years, irrespective of the number of credits and semester of enrollment. The retention graphs present the semester average net prices with the net price measures adjusted to constant 2018 dollars. Figure 6 has information on the average of Net Price 1 for every semester of study (2009-2018). The semester average of Net Price 1 for in-state students,

given in Figure 6, shows a small initial decline in the semester average of Net Price 1 from freshman fall to freshman spring and increases every semester thereafter. The semester average of Net Price 1 for in-state students rises from less than $1000 when they begin their undergraduate education to near $3000 by the time students reach their 6th year of study. For out of state students the average increases every semester beginning fall freshman, out of state students begin their undergraduate education at an average net price 1 of $7,500, by the time they progress to their 6th year, the amount is almost $11,000. Thus. Net Price 1 was generally rising over a typical student's time at UNM, for the given time frame.

Figure 6

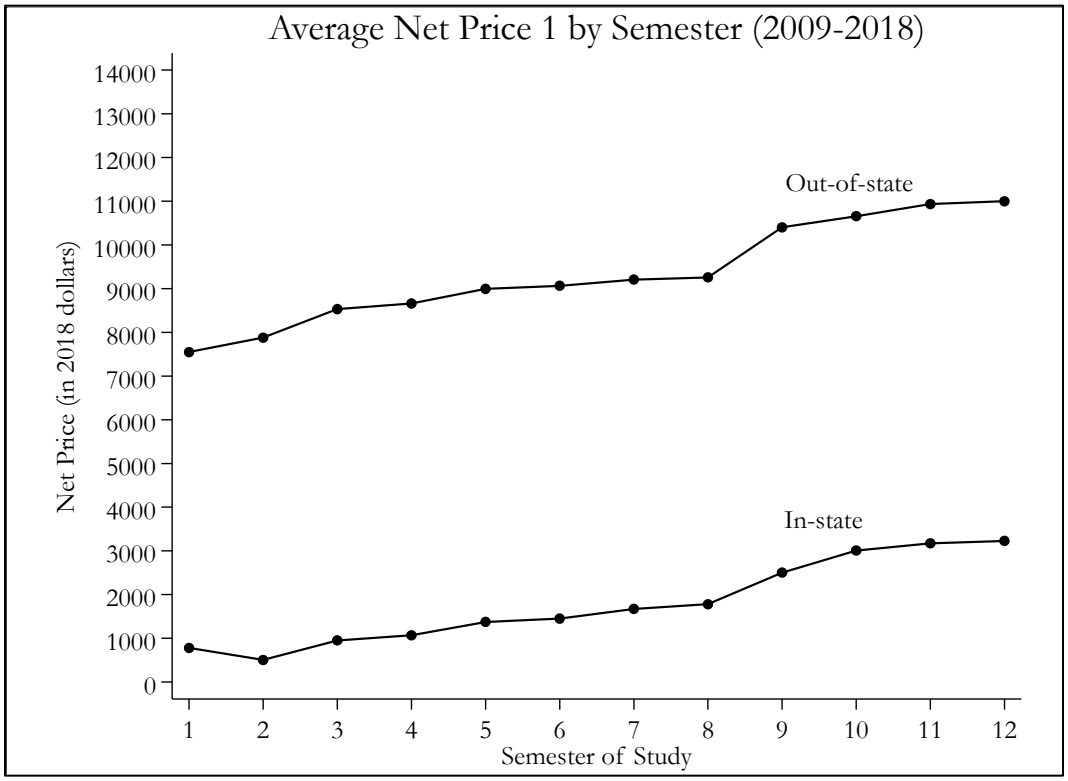


Figure 7 graphs the average Net Price 2 for each semester of enrollment. In-state students demonstrate a decline in the semester average of Net Price 2 as they progress from freshmen fall to freshman spring (similar to the Net Price 1 semester average). After the second semester (freshman spring) the average of Net Price 2 increases every semester. The average Net Price 2 is around $17,500 in the first semester (freshman fall) and falls to a little over 15,000 in the second semester (freshman spring), after which it rises every semester and reaches $20,000 in the beginning of the fifth year. For out of state students the Net Price 2 semester average rises every term, it begins with an average of little over $25,000 in freshman fall and rises to almost $28,000 at the beginning of the 5th year. Thus, Net Price 2 was generally rising over a student's time at UNM, for this time frame.

Figure 7

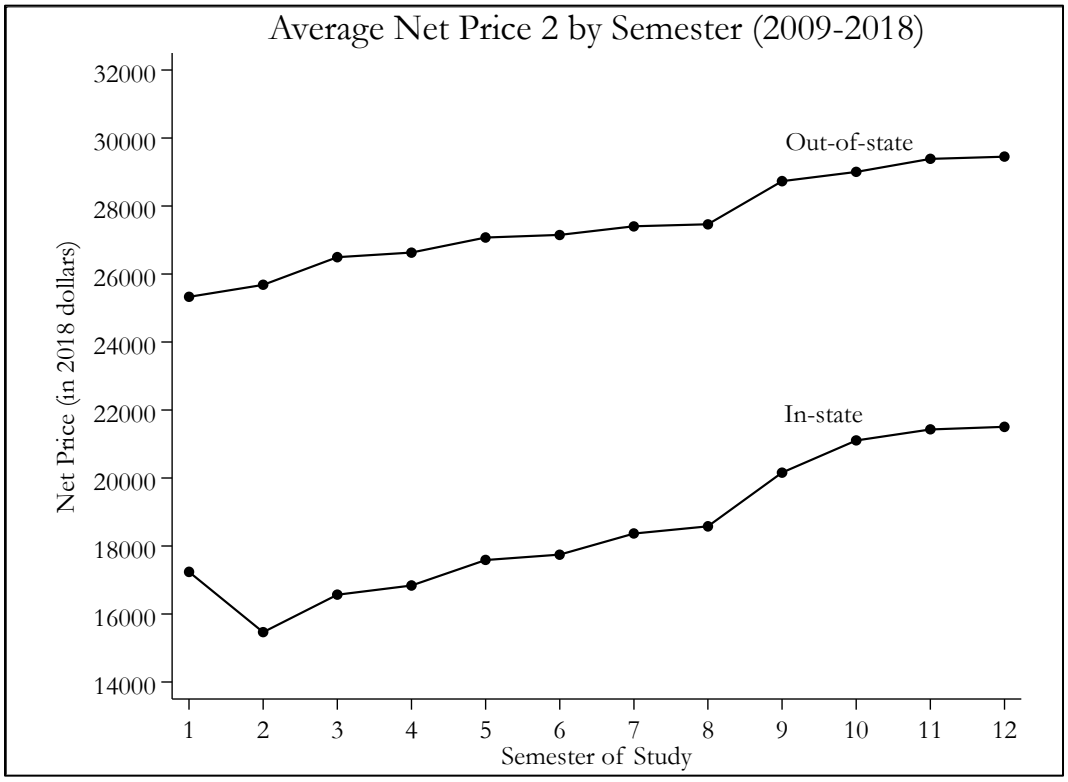
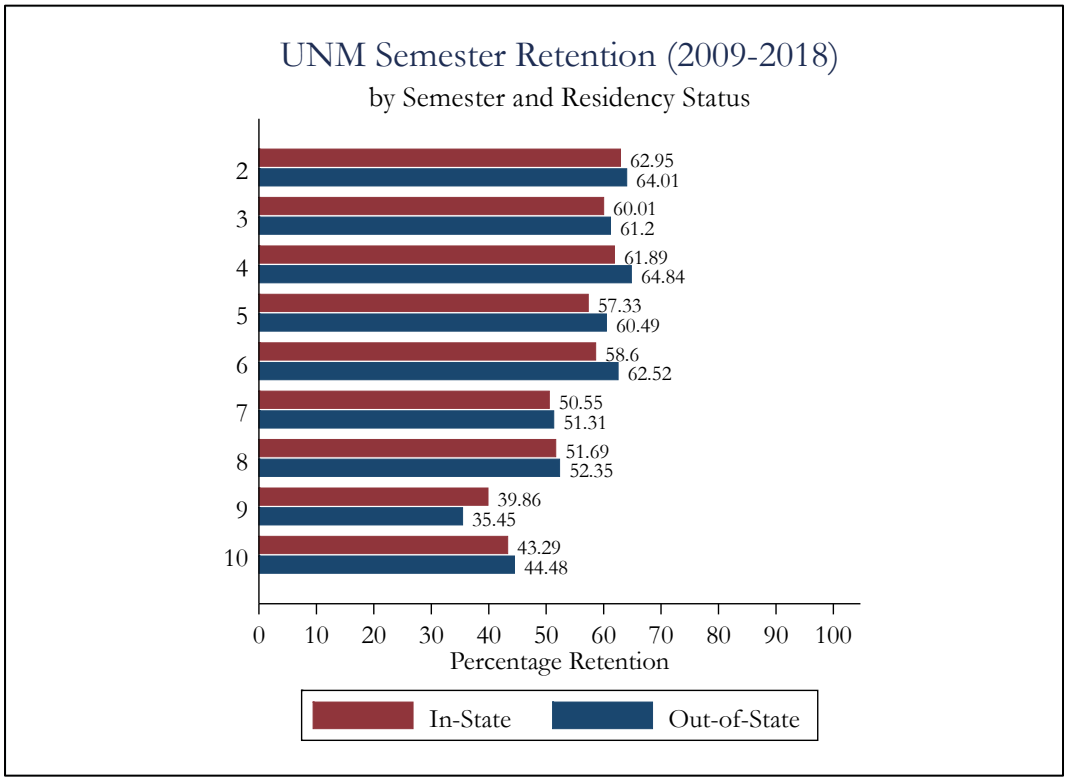


Figure 8 presents student retention for the semester with the y-axis giving semester of enrollment. Both in-state and out of state student experience a general decline in retention from Freshman onwards. The second semester (freshman spring) has the highest retention rate for both in-state and out of state students and semester 9 (5th year fall) has the lowest retention rate for both groups.

Figure 8



3.4. Intensive Margin

The intensive margin analyzes the variation in the number of credits hours enrolled. Figure 9 presents average credit hour enrollment by semester. Out of state students have a marginally higher credit enrollment for semesters 1-8 (freshman fall – senior spring) after which in-state students demonstrate marginally higher credit hour enrollment. For the first 8 semesters, the average in-state enrollment hovers around 14.5 credit hours while out of state around 15. The higher credit hour

enrollment in earlier years for out of state students explains their lower enrollment compared to in-state students in the 5th year, as they now require less hours to graduate compared to their in-state peers.

Figure 9

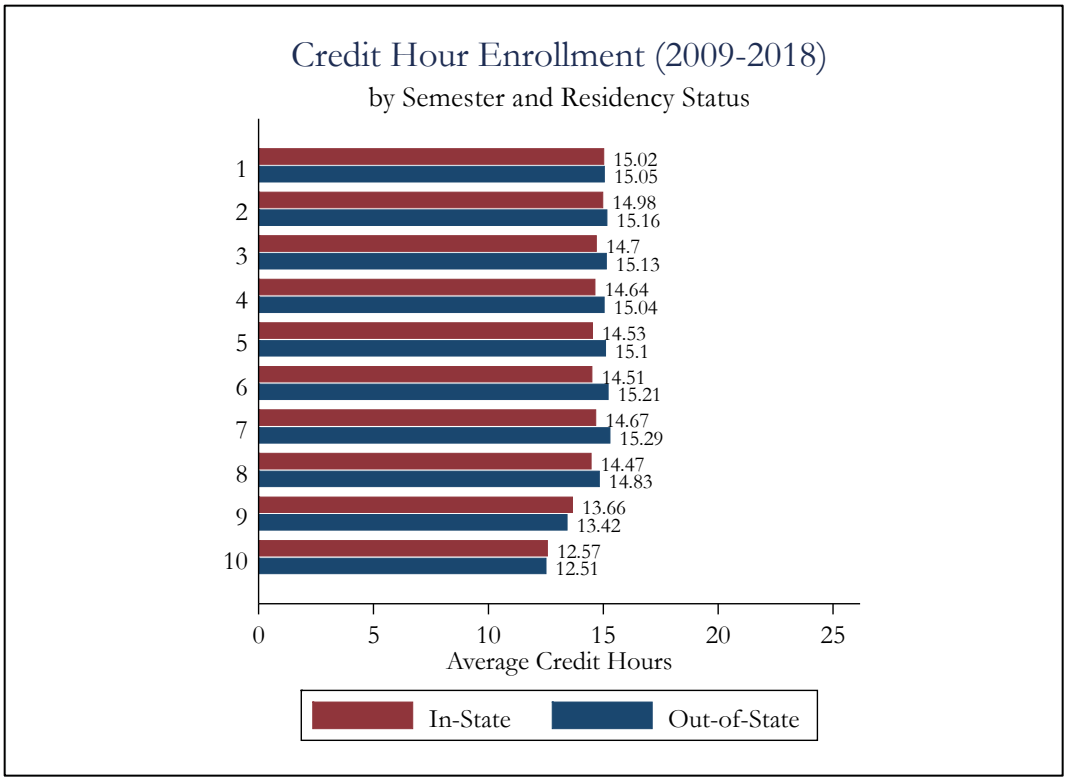


Figure 10 presents the average credit hours for enrolled students for the four semesters encompassing freshman and sophomore year. Each semester has an independent trend line, freshman fall students have the highest credit enrollment average in 2009 with freshman spring credit average a shade below. Freshman year semesters consistently demonstrate a higher credit enrollment average than sophomore semesters. All semester trends experience a steep increase in 2012 that continues until 2014, the semester credit average increases from between 14.25-14.75 in 2012 to 15.25-15.5 in 2014, this may a result of the NM Lottery Scholarships eligibility requirements

increasing from 12 to 15 semester credit hours in that period (as well as a steep price discount implemented for full-time students [15+ credit hours], in the same period) (see Bishwakarma & Berrens, 2018; and Berrens 2019).

Figure 10

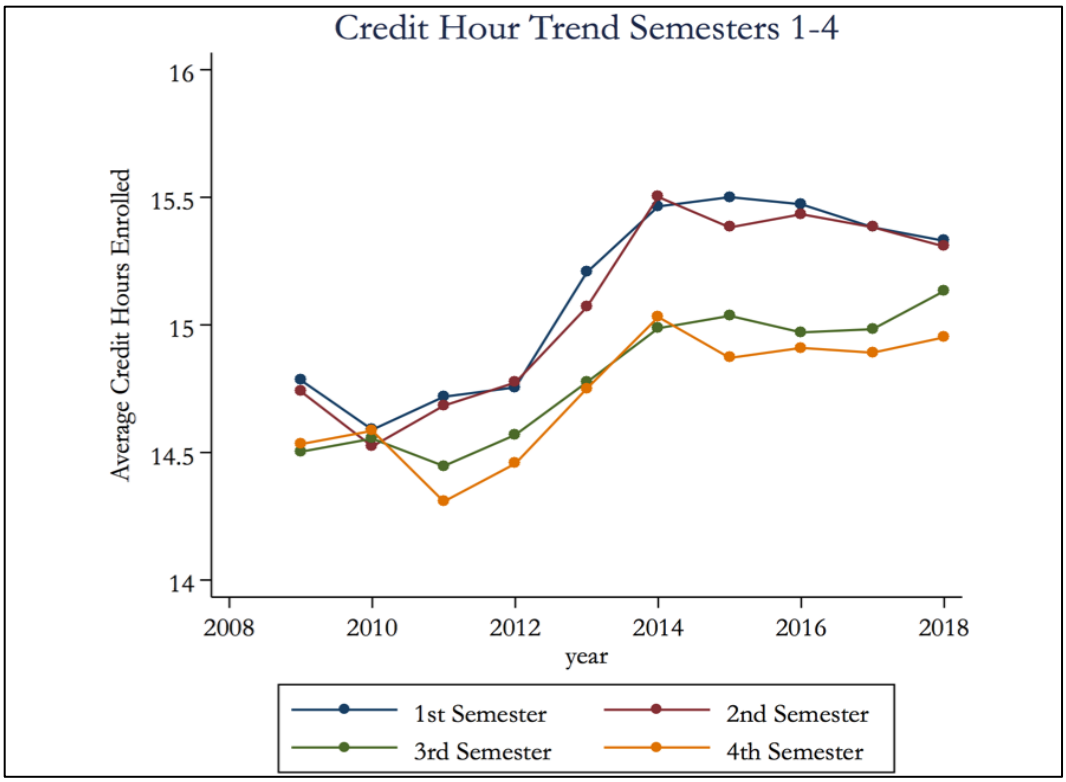
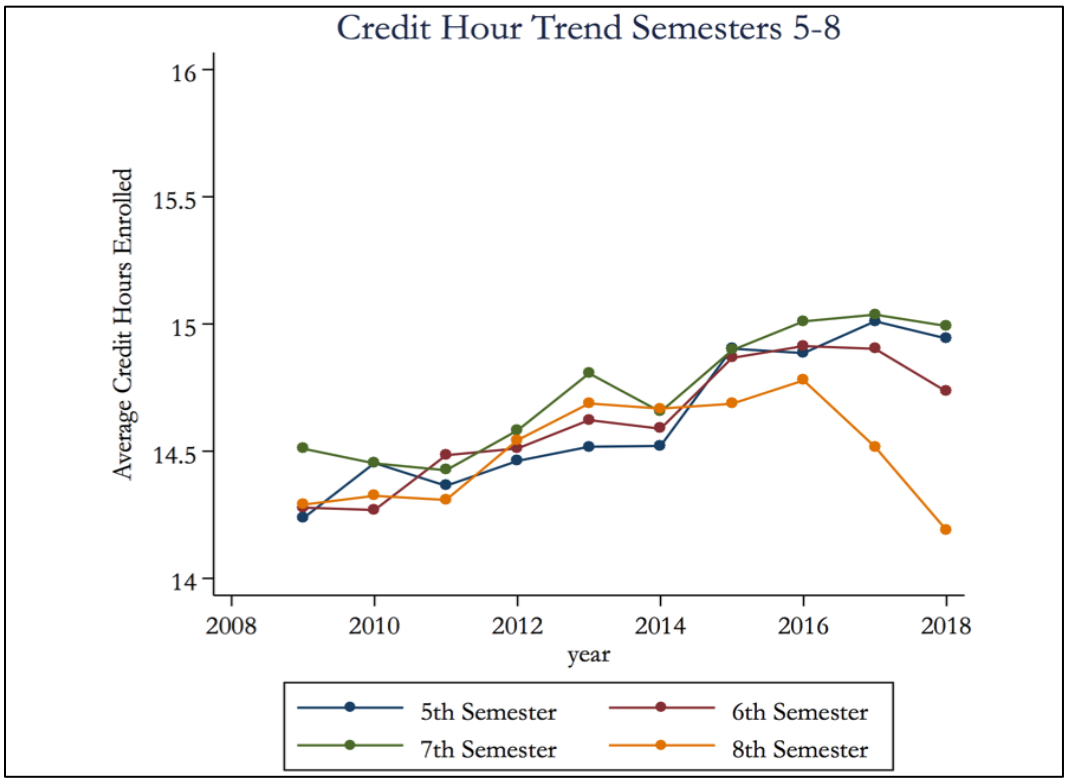


Figure 11 presents the trend line for junior and senior year semester. All semesters demonstrate a consistent and general increase in the credit hour average until 2016, after which all semesters tail off with the 8th semester (senior spring) demonstrating a steep decline. This is possibly a result of the increase in the average hours in freshman and sophomore years shown in Figure 7, enrolling for greater amount of credit hours earlier in their degrees means students require less credit hours towards the end of their degree to graduate. This is consistent with observed data on greatly reduced

time-to-degree for UNM undergraduates, given the NMLS and a larger internal bundle of incentives and policy changes over the last decade (see Bishwakarma & Berrens, 2018; and Berrens 2019).

Figure 11



4. Literature Review

In this section, we selectively review the large literature on empirical estimates of price elasticity of demand (E) in higher education.

Prior academic literature on the relationship between net price or tuition, generalized as the price elasticity and enrollment decisions are listed in Table 1. An early comprehensive paper investigating price elasticities of demand was Leslie & Brinkman (1987), who brought together the prior disparate literature on how students respond to changes in the price of higher education. They

find that higher education usually has an inelastic price elasticity of demand. Students at private universities were some of the least responsive to tuition price changes, while students at community colleges and older students were some of the most responsive. This reflected the trend of earlier research on the subject consistently finding inelastic demand estimates for enrollment (Jackson & Weathersby, 1975; Kane, 1991; Kane, 1994; SI. John, 1990; Savoca, 1990). Since the earlier work in the field, tuition prices have generally experienced large increases (in real terms), thus moving prices to a different point on the demand curve. According to simple demand theory, as price moves up a linear demand function, the more responsive demand will be to price changes. More recent research has shown some evidence of greater price responsiveness to net price and tuition changes (Neil, 2009; Curs & Singell, 2010; Bruckmeier and Wigger, 2014; Langelett, George, et al, 2015; Grimes, Forthcoming) confirming the aforementioned hypothesis. Of the prior research, Curs & Singell's (2010) work is closest to the analysis presented here; they investigate the price elasticity of demand for higher education by nine categories of financial need and GPA to identify the segments of the student population with low and high demand responsiveness. They find that students with high financial need tend to have inelastic demand, and that elasticity varies by student GPA, with high GPA students tending to have more substitutes at their disposal and thus are more responsive to changes in net price.

There is prior literature studying the impact of financial aid changes (as opposed to net price) on enrollment. Leslie and Brinkman (1998) found that a substantial portion of low and middle-income enrollment was as a result of financial aid. Twenty percent to forty percent of low-income enrollment was associated with the existence of financial aid, and thirteen percent for middle-income students. They estimated that a combined 16 percent of total enrollment was a result of need-based financial aid. The aforementioned findings make clear that financial aid plays a substantial role in enrollment decisions, highlighting the importance of using *net price* measures that incorporate

financial aid as opposed to solely posted tuition (or T&F) measures. But financial aid is not a singular entity and encompasses many different types of aid, therefore applicants may react differently to changes across aid types. Moreover, applicants may react differently to financial aid changes than they do to tuition changes. For our econometric analysis, in the construction of our net price measures we make two simplifying, albeit useful, assumptions relating to financial aid and tuition. The assumptions are: (1) all financial aid is perfectly homogenous irrespective of type (i.e. one $1,000 scholarship or grant is the same as another $1,000 scholarship or grant); and (2) a financial aid increase and a tuition decrease of the same amount is perfectly analogous.

Table 1: Price Elasticity of Student Enrollment Research Papers and Findings

Authors	Dataset	Question Variable	Key Findings
Leslie & Brinkman (1987)	Meta-analysis	$100 tuition increase, 1983	Mean Elasticity for first-time freshmen of -0.7 points
Jackson & Weathersby (1975)	Meta-analysis	$100 tuition increase, 1974	Elasticity of -0.05 to -1.46 points
McPherson (1978)	Meta-analysis	$100 tuition increase, 1974	Elasticity of -0.05 to -1.53 points
Kane (1991)	NLSY	$1,000 tuition increase, 1988	Elasticity of -13 to -15 points
Kane (1994)	HSB	$100 tuition increase, 1980	Elasticity of -0.63 to -1.22 points
Kane (1995)	IPEDS 1980-1992	$1,000 tuition increase at community colleges, 1991	Elasticity of -3.5 points for total public enrollment
Kane (1995)	IPEDS 1980-1992	$1,000 tuition increase at 4-year colleges, 1991	Elasticity of -1.4 points for total public enrollment
EPS. John (1990)	HSB	$1,000 tuition increase, 1982	Elasticity of -2.8 points
Savoca (1990)	NLS72	$100 tuition increase, 1972	Elasticity of -0.49 points
McPherson & Schapiro (1991b)	CPS 1979-1989	$100 tuition increase, 1979	Elasticity of -0.68 points for lower income students
Shires (1996)	California enrollments		Elasticity of -0.15 at CCC, -0.20 at CSU, and -0.05 at UC
Heller (1997)	IPEDS 1978 to 1993	$100 tuition increase, 1993	Elasticity of -0.36
Rouse (1994)	NLSY	8% tuition increase, 1982	Elasticity of -0.60 to -1.00, depending upon sector
Neil (2009)	LFS 1979–2002	C$1000 tuition increase	Elasticity of -2.5 and -5 points
Curs & Singell (2010)	University of Oregon Applications data 2000–2005	Net Price, Tuition and Fees minus subsidized aid and grants	Elasticity of -3.34 to -0.50, depending on grouping of students
Bruckmeier and Wigger (2014)	HS Graduate Federal Statistical Office data 2002-2008	€500 tuition increase, 2006	Elasticity of -2.7 to 0, depending on specification
Langelett, George, et al (2015)	Survey of South Dakota State University, 2012-2013	Discover price elasticity region on demand curve	Elasticity <-1 (Price Elastic) for tuition greater than $9,000
Denning (2017)	Texas Education Research Center (ERC), 1994–2005	Community College discounts	Elasticity of -0.29 points
Grimes (Forthcoming)	Pittsburg State University enrollment data	Tuition	Elasticity of 1.19 to 1.29 points

Note: Elasticity is the price elasticity of demand measure, also referred to as Student Price Response Coefficient (SPRC) in previous literature.

5. Data

To give some sense of the full data, Tables 2A and 2B provide descriptive statistics for in-state, and out of state applicants over the period. We use admission and enrollment data provided by the Institute of Design and Innovation (IDI)[8]at the University of New Mexico, which encompasses the years 2009-2018. During the period of our study (2009-2018), nearly 70,000 students were accepted to UNM, and approximately half of those students chose to enroll. For admission analysis, we use applicant data encompassing all students who applied and were admitted to UNM (irrespective of whether they actually enrolled). The administrative data contains information on whether the applicant enrolled at UNM, information on applicant demographics, year of application, high school GPA, ACT scores, student majors, parent's education levels, and for those who completed the FAFSA forms, family income. Importantly, the data also includes financial aid and student loan information. For the cohort analysis, we use the longitudinal student data, which has information on all admitted students who enrolled for freshmen in the fall semester. The longitudinal dataset contains information for every semester a student attends UNM, including their academic, financial aid and student loan information. Furthermore, the longitudinal dataset has high school information for New Mexico residents, thus allowing for controlling high school fixed effects in the analysis.

To estimate price elasticity of demand we need a measure for the price of education at UNM. We create two net price measures, Net Price 1 which accounts for tuition and fees costs, and Net Price 2 which accounts for tuition, fees, and an estimate of board and lodging costs. The **Net Price Measures:** are calculated as follows:

$$\text{Net Price 1} = \text{Tuition \& Fees} - (\text{Federal Aid} + \text{State Aid} + \text{Institutional Aid})$$

$$\text{Net Price 2} = \text{Tuition \& Fees} + \text{Board and Lodging} - (\text{Federal Aid} + \text{State Aid} + \text{Institutional Aid})$$

[8] https://idi.unm.edu/

Net price is calculated for each semester using the scholarship and funding for that respective period. A list of the major scholarships and sources of funding are listed in Table A3 in Appendix A. It is the financial aid and funding support that provides the necessary variation in our net price explanatory variables, given that posted tuition only varies annually and does not vary among applicants and students in the same academic year (except by residency status). The inclusion of financial aid creates both student-time variation in the net price variables. The largest and most notable source of aid is the New Mexico Legislative Lottery Scholarship (see Binder & Ganderton (2004) for a full description). It was originally meant to cover full tuition costs (and did so) but, due to state funding shortfalls in the past few years, it now only covers partial tuition. The proportion of tuition coverage has varied by year (contingent on available funds) thus providing variation across time. Furthermore, the New Mexico Lottery Scholarship (NMLLS) is a merit-based scholarship that is broadly available, but solely to New Mexico residents. Consequently, many do not qualify due to residency status or by failing to meet the high school GPA requirements. These differences create within time across student variation in our net price variables. Other major funding sources are the Bridge Success Scholarship, Success Grant, Pell Grant and the Amigo Scholarship (full list in Table A3). A considerable proportion of Net Price 1 observations are negative as a result of the Lottery Scholarship paying all or substantial amount of tuition for in-state students, and when combined with other aid sources these may be larger than T&F. Negative values are converted to zero for our analysis. Net price standard deviation measures indicate substantial variation in the net prices assigned to applicants and students. Large negative values depict students who received very high aid packages exceeding T&F. (This includes out-of-state student athletes at the minimum values who received aid to cover more expenses than typically incurred by non-student athletes.) Maximum (high) Net Price values reported are for students who received no aid at all (i.e., they are being charged the posted T&F rates). For the net calculation in-state posted tuition is used for New

Mexico residents and the out-of-state tuition rate is used for students who are from states other than New Mexico.

5.1. Individual Control Variables

Information unique to each individual that could affect enrollment decisions is included in this analysis to ensure accurate estimations of demand and associated price responsiveness. Our demand model includes demographic information (gender, age and race/ethnicity), parent's total income reported on the FAFSA (which should match their AGI from the previous year's tax return), GPA on a 0-4.5 scale and the highest ACT score reported to the university. Out-of-state applicants/students generally score higher on the ACT than in-state applicants/students. For the longitudinal data we also have New Mexico high school identifier (high school fixed effect), semester course credits, cumulative course credits and UNM GPA. Both the admissions analysis and cohort analysis include year fixed effects. Approximately 44% of admitted students are Hispanic and 32% are white non-Hispanic (the remainder is split between American Indian, Asian, Black, and Other). Fifty-five percent of admitted students are females (no category is reported for those who do not identify as male or female).

5.2. Financial Need and ACT Score Groupings

We used estimated financial need and ACT test scores for categories in the admissions analysis. The categories and their construction are as follows. The estimated financial need categories consist of: Non-Needy - students with a combined family and student contribution reported from the FAFSA in the highest to 33rd percentile for in-state and out-of-state students (approximately less than -$13,800 for in-state students and -$1,720 for out of state students); Somewhat Needy - students between the 33rd and 67th percentiles (between -$13,800 and -$4,457 for in-state students and between -$1,720 and $10,606 for out-of-state students); and Needy - students below the 67th percentile (above -$4,457 for in-state-students and $10,606 for out-of-state students). Large, negative

numbers for in-state students are a result of estimated family contributions that exceed the T&F price of UNM. The standardized test score categories in our analysis differ from Curs & Singell (2010). While their categories are based on high school GPA, we have chosen to use the highest reported ACT scores for each applicant. This is done to more clearly delineate between the groups (their analysis split between GPA's below 3.5, between 3.5 and 3.65, and finally above 3.65), and for a standardized comparison between the students (Koenig et al., 2008; Noble & Sawyer, 2004). The categories are as follows: High Scoring - highest ACT score of 24 or higher (this cutoff was chosen based on ACT reported statistics on the percentiles of students whose scores are at a certain level); Average Scoring- highest ACT score between 17 and 23 (representing the middle third of all scores across the U.S. on the ACT); and Low Scoring - highest ACT score less than 17 (representing the bottom third of all scores across the U.S. on the ACT).

3.3. Substitute Price Indices

The University of New Mexico student enrollment is a function of the price of substitutes; these are the primary HE institutes that compete with UNM for the same pool of applicants and offer a substitute good – a postsecondary education. UNM's primary competitors are located within New Mexico while universities in bordering states also compete to a lesser degree. To account for competition and substitute pricing within New Mexico we calculated average net price measures for 14 other New Mexico higher education institutions. The inclusion of all 14 competitors lead to most institutes dropping from the analysis as a result of multicollinearity. Consequently, we settled for creating an index using four major rival institutions within New Mexico (Central New Mexico Community College, New Mexico State University, Eastern New Mexico University and New Mexico Highlands University) and weighted it by proportion of institute enrollment to state enrollment. The net price (substitute) index or measure is as follows:

$$\text{Net Price} = (\text{In} - \text{State Total Cost of Education} - (\text{Average Federal Grants} + \text{Average Institutional Aid}) * (\text{Institute enrollment/State enrollment})$$

For the purposes of accounting for competition from neighboring states we calculated and substitute price index using the net price for all states that border New Mexico (Utah, Arizona, Colorado and Texas) and weighted it by proportion of state enrollment to total US enrollment. The net price index for the bordering states is as follows:

$$\text{Net Price} = (\text{Average Tuition} - \text{Average State aid}) * (\text{State enrollment/Total US enrollment})$$

For each of the states weighted net prices were included as separate variables with variation coming across time and states. The net price measures for New Mexico competitors and HE in bordering states together make up the substitution price index for in-state students. The inclusion of the substitution price index combined with year fixed effects in our model lead to all substitute net price measures dropping due to multicollinearity. This implies that year fixed effects account for year to year changes in the pricing of UNM's competitors. As a robustness check we estimated regression models with the substitution price index but excluding year fixed effects, this approach would allow the substitution price index to remain in the model.

For out of state students we created a net price index for their state of origin and weighted it by the proportion of states enrollment to national enrollment. We then matched the weighted net price of a student's state of origin to that student in the dataset.

$$\text{Net Price} = (\text{Average Tuition of State} - \text{Average State aid}) * (\text{State enrollment/Total US enrollment})$$

The out-of-state regression model allowed for the joint inclusion of substitute prices and year fixed effects.

6. Methodology

6.1 Extensive Margin

We begin by calculating the price elasticity of enrollment for the extensive margin which encompasses (i) admissions and (ii) retentions decisions. For the admissions decision we estimate the price responsiveness of a college applicant on whether to enroll for the freshman year at the University of New Mexico (UNM). We then proceed to retention decisions and calculate the price elasticity of demand (E) of students on whether to enroll for another semester.

Admissions Enrollment: The applicant's binary decision to enroll (Yes or No) is modeled as the following probability function:

$$\mathbf{Prob(Enroll_{it}) = f(\alpha + \delta * P_{it} + B'X_{it} + \gamma_t + \varepsilon_{it})} \qquad (2)$$

The individual level enrollment is also treated as a Yes/No demand decision; this binary dependent variable is given by the probability function (2) and in estimation specified as a Probit model. In equation (2), $\mathrm{Enroll_{it}}$ is a dichotomous indicator variable, $\mathrm{Enroll_{it}} = 1$ if admitted applicant i decided to enroll at UNM in period t. $\mathrm{Enroll_{it}} = 0$ if applicant i decided not to attend UNM in period t. $\mathbf{P_{it}}$ is the net price measure for individual i in time t. The price elasticity of demand value is calculated from the estimated coefficient associated with $\mathbf{P_{it}}$ and is given by δ. $\mathbf{X_{it}}$ is a vector of individual level covariates. The vector $\mathbf{X_{it}}$ includes variables for race/ethnicity, gender, age, natural log of household income, high school GPA, highest ACT score, parent education levels. $\boldsymbol{\gamma_t}$ represents year fixed effects.

The regression model is reflective of the generalized higher education demand function (Equation 1), albeit specific to freshman admissions enrollment. The higher education demand function contains $\mathbf{Price}$, $\mathbf{Price_c}$, $\mathbf{Price_s}$, which are terms for own-price, price of complements and price of substitutes, respectively. The Net Price 1 measure captures the real price of enrolling at UNM, the own price. Net Price 2 includes the costs for textbooks and board and lodging costs, thus

accounting for the price of complements. Year fixed effects account for the price of substitutes or the price changes among HE institutes competing with UNM for students. The higher education demand function contains a term for scores (**Scores**), a potential measure of academic preparedness. For the admissions margin our measures for academic preparedness are high school GPA and highest ACT score. Another important predictor of the admissions enrollment decision of the applicant is the parents' level of education, this predictor functions via the taste and preferences (**X**) term in the higher education demand function. The demand function also contains a term for peer effects, this is an important predictor of the admissions decision and would be accounted for by the inclusion of high school fixed effects. Unfortunately, the admissions dataset does not have high school identifiers ruling out the inclusion of high school fixed effects, instead we rely on year fixed effects in capturing some of the peer effect variation in enrollment. Two other important predictors of admission enrollment are subject area (**Expected Major**) and Residency status (**Residency**), which we include in the regression model and use as a basis for estimate dis-aggregation to identify price responsive groups.

Retention: Similar to the initial enrollment decision (2), the retention equation models the student decision to continue enrollment for another semester.

$$\mathbf{Prob(Enroll_{is})} = \mathbf{f(\alpha + \delta * P_{is} + B'X_{is} + \gamma_t + \lambda_h + \varepsilon_{it})} \qquad \mathbf{(3)}$$

The individual level retention is also treated as a Yes/No demand decision; this binary or dichotomous dependent variable is given by the probability function (3) and in estimation specified as a Probit model. In equation (3), $\mathrm{Enroll}_{is} = 1$ if student i was enrolled at UNM in period T-1 and continued enrollment in period T. $\mathrm{Enroll}_{is} = 1$ if student i was not enrolled at UNM in period T-1 but enrolled in period T. $\mathrm{Enroll}_{is} = 0$ if student i was enrolled at UNM in period T-1 and did not

enroll in period T. $\mathrm{Enroll}_{is} = 0$ if student i was not enrolled at UNM in period T-1 and did not enroll in period T. The period of observation is the academic semester, beginning the spring semester of freshman year. X_{is} is a vector of individual level covariates for individual i in semester s. The vector X_{is} includes variables for race/ethnicity, gender, age, UNM GPA, ACT Score, semester credit hours, cumulative credit hours and major. New Mexico high school fixed effects are given by $\boldsymbol{\lambda_h}$ and $\boldsymbol{\gamma_t}$ represents year fixed effects. The high school fixed effects and year fixed effects are operationalized by creating dichotomous variables for each high school and year. The admissions and retention information come from different datasets; thus, the covariates do not match exactly. The retention dataset has more variables, primarily information on the student's high school, information we include in our retention regression model.

The regression model is reflective of the generalized higher education demand function, but specific to the retention decision of students. The retention model includes UNM cumulative GPA and cumulative credit hours of the student as a measure of academic preparedness, as opposed to high school GPA, as was the case in the admissions model. The primary distinction of the retention demand function relative to the admissions demand function is the inclusion of UNM academic information (UNM GPA, UNM cumulative credit hours, UNM semester credit hours, academic major). Although we include information on the students major in the admissions model, most students are undecided about their major during the admissions decision and those who have already chosen a major are very likely to change it, this is less likely to be the case further along in their degree. Thus, academic major is a more substantial predictor on the retention margin relative to the admission margin.

6.2. Intensive Margin:

For intensive margin we analyze the 'intensity' of enrollment, which in HE is the number of credit hours enrolled. We estimate a demand model for credit hours and obtain the coefficient for

price elasticity of credit hour enrollment. We use an integer-based count model, specifically, a negative binomial model (a generalization of the Poisson regression) of the following functional form:

$$\mathbf{Count}(\mathbf{Credithours_{is}}|\mathbf{P_{is}}, \mathbf{X_{is}}, \boldsymbol{\gamma_t}, \boldsymbol{\lambda_h}) = \boldsymbol{\alpha} + \boldsymbol{\delta} * \mathbf{P_{is}} + \mathbf{B'X_{is}} + \boldsymbol{\gamma_t} + \boldsymbol{\lambda_h} + \boldsymbol{\varepsilon_{it}} \quad (4)$$

$\mathrm{Credithours_{is}}$ is count variable for the number of credit hours that individual i is enrolled for in semester s. $\mathbf{P_{it}}$ is the net price measure for individual i in time t. The price elasticity of credit hour enrollment, which is the percentage change in credit hours due to a change in $\mathbf{P_{it}}$, is shown as δ. $\mathbf{X_{it}}$ is a vector of individual level covariates. The vector $\mathrm{X_{is}}$ includes variables for race/ethnicity, gender, age, UNM GPA, ACT Score, and major. New Mexico high school fixed effects and year fixed effects are given by $\boldsymbol{\lambda_h}$ and $\boldsymbol{\gamma_t}$, respectively.

7. Results

Results for each analysis will follow in the same order as described in section 6. Admissions results for in-state and out-of-state students are reported below, followed by results from the retention analysis for both the intensive and extensive margins. Several sub-analyses, including results partitioned by household income, an analysis including substitution price indexes based on relevant in-state and out-of-state competitors, and an analysis into part-time students, conclude this section.

7.1. Admissions Analysis

We begin our regression analysis by estimating price elasticity of enrollment by year of application. Demand displays greater responsiveness to price changes when the initial price is high compared to when initial prices are low. Thus, a decade of consistent tuition increases could mean

consistently larger elasticity. Table 3 presents the price elasticity of enrollment estimates for Net Price 1 for in-state students by year of application. We do not find consistent elasticity increases matching tuition raises which implies that net price remains in a low-price region on the demand curve despite a decade of tuition increases. All years from 2009-2018 demonstrate inelastic demand and all estimated elasticities are statistically significant at the 1 percent level. The only year that demonstrates a sizable jump in the responsiveness of enrollment is 2018, the price elasticity of enrollment for 2018 is -0.519 ($p<0.01$); this means that a 1 percent increase in price will be associated with a 0.519 percent decline in enrollment. This coefficient is twice the magnitude of all previous years albeit remains considerably price inelastic ($|E|<1$). Table 3 indicates that enrollment demand demonstrates low responsiveness (inelastic) to net prices for in-state students. The out-of-state student estimates for net price 1 (presented in Table 4) demonstrate much higher responsiveness relative to in-state students. Price elasticity of enrollment estimates for out-of-state students are greater than 1 for all sample years. This demonstrates price elastic enrollment demand ($|E|<1$), and that any increase in price will be associated with a proportionally larger fall in revenue. The magnitudes of the estimated elasticities are consistent over time, with a slight increase in responsiveness in 2018.

Table 5 and 6 present Net Price 2 elasticity estimates for in state and out-of-state students, respectively. For in-state students the elasticity for Net Price 2 display more responsiveness compared to Net Price 1, this means that applicants are more responsive to board and lodging costs relative to tuition costs. Furthermore, the two most recent years in the sample (2016-2018) demonstrate a consistent increase in the responsiveness of enrollment demand for in-state students. The year 2018 is the only instance of enrollment demand becoming price elastic with a coefficient of -1.528 ($E>1$), which means in the year 2018 a 1 percent increase in Net Price 2 is associated with a 1.528 percent decline in enrollment. This is compared to estimates of -0.534 ($|E|<1$) and -0.655

(|E|<1) in 2016 and 2017, respectively. Out-of-state applicants are also more responsiveness to board and lodging with their price elasticity of demand estimates demonstrating larger magnitudes for Net Price 2 compared to Net Price 1.

We follow this analysis by partitioning the student population by area of study to analyze possible differences in price responsiveness by type of major. This is done because of the possibility that differences in expected incomes for different degrees will create differences in willingness to pay. Despite this possibility, a lot of freshman applicants are yet to decide upon a major and those who have are very likely to change it before they graduate. Therefore, it may be too early for differences in expected incomes to impact applicant willingness to pay. Table 7 presents estimates by subject area, we find no noticeable differences by degrees other than out-of-state business majors being relatively more price responsive. We further explore differences by majors when we analyze the longitudinal data.

Students with high test scores are frequently offered merit scholarships by higher education institutes they apply to (e.g., as structured by a variety of standardized merit scholarships offered by UNM during the time frame of this analysis). To explore this dimension of net-price differentiating at UNM ,we disaggregate the sample into three categories sorted by high scoring, average scoring and low scoring applicants. The resulting price elasticity estimates are presented in Table 8. The Net Price 1 elasticities (row 1) for in-state students are all price inelastic (|E|<1). Price responsiveness declines as a student's ACT score increases, with the high scoring students the least price responsive with a coefficient of -0.128 ($p<0.01$) and low scoring group the most price responsive with an coefficient of -0.479 ($p<0.01$). This pattern also holds with Net Price 2 (row 3) with a coefficient of -0.392 ($p<0.01$) and -1.067 ($p<0.01$) for high scoring and low scoring, respectively. The low scoring group for Net Price 2 is price elastic (|E|>1) and a 1 percent increase in net price 2 will be associated with a 1.067 percent decrease in revenue. For out-of-state students (rows 2 and 4) the

high scoring and average scoring categories are similarly responsive, and the low scoring group has the highest level of responsiveness. The enrollment demand estimates for out-of-state students are price elastic ($|E|>1$), meaning any increase in price will be associated with a proportionally larger decline in revenue.

Besides merit-based aid, need is the most commonly used criteria for differential pricing. We create three categories; not needy, somewhat needy and needy and present the price elasticity of enrollment estimates for the aforementioned groups in Table 9. A notable trend is that the somewhat needy category of students is the least responsive for both in-state and out-of-state students and for both measures of net price while the needy category is the most responsive. Furthermore, somewhat needy out-of-state students are (marginally) price inelastic ($|E|<1$) with a coefficient of -0.971 ($p<0.01$), this is a rare finding for out-of-state students who in other samples have been consistently found to be price elastic ($|E|<1$). On the other hand, out-of-state needy students display very high responsiveness with a Net Price 2 coefficient of -6.80 ($p<0.01$), meaning a 1 percent increase in Net Price 2 is associated with a near 7 percent fall in this group's enrollment.

In Table 10 we emulate Curs & Singell's (2002) approach by examining students by financial aid and ACT scoring by means of a joint matrix of these categories. The matrix for in-state students estimated with the Net Price 1 measure is presented in Table 10. The group with the least price responsiveness is the somewhat-needy and high scoring applicant group with a price elasticity of enrollment coefficient of -0.088 ($p<0.01$). The second least responsive applicant group is the not needy and high scoring category, they have a coefficient of -0.115 ($p<0.01$). This finding indicates that the New Mexico applicants that are least responsive to tuition and fee raises have financial means and are high scoring on the ACT. The not needy and low scoring category demonstrates high responsiveness relative to other in-state students (coefficient of -0.564 ($p<0.01$)), while the highest price responsiveness category is the needy and low scoring group with price elasticity of enrollment

coefficient of -0.600 ($p<0.01$). Despite the variation in price responsiveness of applicant categories, all the applicant groups in Table 10 (net price 1 measure for in-state students) have price inelastic enrollment ($|E|<1$).

The matrix for out-of-state students using Net Price 1 (in Table 11) has only two applicant categories that demonstrate price inelastic enrollment. These are the somewhat needy and high scoring and the somewhat needy and average scoring categories with price responsiveness of -0.980 ($p<0.01$) and -0.932 ($p<0.01$). These groups are only marginally price inelastic ($|E|<1$) but are rare occurrence of an out-of-state applicant sample demonstrating price inelasticity highlighting that with careful identification of out-of-state applicant groups, greater willingness to pay can be extracted to increase revenue without hurting enrollment. The not needy and low scoring sample is the most price responsive with a coefficient of -10.261, this category also has a very small sample, meaning very few out-of-state students that fall with-in this category apply in the first place.

7.2. Retention Analysis

For the admissions analysis our population consisted of applicants to UNM, and the outcome variable was whether they chose to enroll. For retention analysis our focus shifts to the retention margin, applicants who have already chosen to enroll for freshman year at UNM. We estimate the likelihood that they enroll for another semester (given that they haven't graduated). The motivation behind this approach is to explore differential pricing by semester of enrollment, is it possible that those who are near degree completion are less responsive to price changes relative to those are beginning their degrees. We analyze UNM students between the years 2009-2018 and estimate price elasticity of enrollment for all semester transitions in the first five years of enrollment

We begin our regression analysis at the freshman fall to freshman spring transition, the regression estimates for in-state students using the Net Price 1 measure are presented in Table 14. The estimates are all price inelastic ($|E|<1$), but variation does exist in price responsiveness as a

student progresses from freshman to upper-classmen. Price responsiveness is highest in the early degree semesters and towards the end of a student's degree. Freshman fall and freshman spring (semester 1-2) transition has price elasticity of enrollment of -0.104 ($p<0.01$) and the freshman to sophomore transition (semester 2-3) has coefficient of -0.157 ($p<0.01$), albeit comfortably price inelastic these estimates are more responsive relative to sophomore-junior and junior-senior transitions (the middle years). This indicates that students are most conscious of the costs of attending during the beginning of their degrees, but as they progress further price considerations decline. The very low-price responsiveness continues until the transition from senior year to fifth year, when price responsiveness experiences an uptick and increases every semester then on. For the transition from 5^{th} to 6^{th} year, the price elasticity of enrollment is -0.537 ($p<0.01$). These findings indicate that the rising opportunity cost of seeking a degree have made students more conscious of price by the time they enter their 5^{th} year. Moreover, the longer they stay on post their traditional senior year, the more responsive they become to price changes.

The retention price elasticity estimates for out-of-state students are presented in Table 15 and are markedly different compared to in-state students. The freshman fall to freshman spring semester transition (semester 1-2) estimated elasticity is 0.315, which is positive and statistically significant at the 5 percent level, the next three transition elasticities are also positive and price inelastic but are statistically indistinguishable from zero. The transition elasticities switch to negative values but remain statically insignificant and price inelastic until after students enter their 5th year, after which point the estimates become very price responsive and statistically significant at the 1 percent level. The above findings indicate that out-of-state students who have already enrolled for freshman fall, thereafter, do not demonstrate a strong relationship between retention and net price, which reverses when they enter their fifth year, likely because of the increased opportunity cost in lost income due to continued enrollment.

Tables 16 presents Net Price 2 transition estimates for in-state students. Net price 2 estimates for in-state students demonstrate a similar pattern to Net Price 1 with price responsiveness highest in the beginning and also towards the end of the degree path. Only the fifth and sixth-year transitions demonstrate price elasticity of enrollment ($|E|>1$). Table 17 presents Net Price 2 estimates for out-of-state students, a very similar pattern to Net Price 1. Positive estimates in the early transitions, but no statistically significance after the freshman fall to spring transition until after the beginning of the fifth year. At this point out-of-state students become very price responsive (and price elastic). These findings suggest that out of state students do not demonstrate a relationship with both T&F and board and lodging for retention enrollment decisions, that is until they reach their fifth year of study.

We restrict our regression analysis to the full-time student sample, we define this group as the group of students registered for 12 credits hours or more. The results in Tables 18 and 19 show that full-time students demonstrate less price responsiveness than the full sample, implying that price responsiveness for the full sample is being driven by part-time students. When we analyze part-time students (credit hours 1-6) in Table 20, we find this is generally the case with a few exceptions. Net Price 1 cohort analysis for full-time students (Tables 18 and 19) demonstrate magnitudes slightly larger than part-time students for the first two transitions after which the price responsiveness looks similar until the last three semesters. At this point the price responsiveness of part-time students increases and becomes price elastic ($|E|>1$), while full-time student estimates remain very inelastic ($|E|<1$). The full-time student estimates for Net Price 2 (Table 21 and 22) demonstrate high price responsiveness during the beginning and end of the degree, but part-time students (Table 23) demonstrate very high responsiveness during the beginning period, some middle period transitions and in the last few transitions. For the last three transitions, the estimates for part-time students are grouped around a coefficient of 4, which means that a 1 percent increase in Net Price 2 will be

associated with a 4 percent decline in enrollment. Furthermore, the last three transitions have very large number of observations compared to other transitions, highlighting the reliability of these findings but also offering a hint to the cause of this high price responsiveness. College education and work function as substitutes, and part-time students in the latter transitions have likely already joined the labor force (explaining their part-time status). When net price increases it increases the opportunity cost of college relative to additional employment (this is also true for full-time students, but likely not as salient considering their lower-likelihood to be working meaningful hours compared to part-time students).

For further retention analysis we disaggregate our estimates by area of study, we create five primary subject areas; Social Sciences, Humanities, Business, Physical Sciences and Engineering. This comes with the caveat that this further sample disaggregation means even smaller samples sizes. A major advantage of analyzing price elasticity of enrollment estimates for subject areas in the retention analysis over admission estimations is that most students are undecided about their academic major during the admissions decision. But the further students' progress in their degree, the more likely they are to have decided on an expertise.

Tables 24-29 present Net Price 1 estimates with students disaggregated by semester transitions and area of study. Table 24 presents Net Price 1 estimates for students majoring in a social science, the first two transitions are negative and statistically significant at the 1 percent level, all transition thereafter are statistically indistinguishable from zero with small magnitudes, this implies that after they enroll for sophomore year net price does not have an identifiable relationship with retention among social science majors. Estimates for students majoring in a humanities subject are in Table 25, most of the elasticities are statistically indistinguishable from zero with small magnitudes, with the exception of the freshman-sophomore transition, which has a coefficient of -0.96 ($p<0.05$). Similar trends are observed for business majors, those majoring in the physical

sciences and students in the engineering department, estimates for whom are presented in Tables 26, 27 and 28, respectively. The estimates when disaggregated by subject area are smaller and statistically insignificant relative to full samples, this is may be because of fewer observations but could also imply students who have chosen a major are less price responsive compared to those who have not.

Tables 30-35 present Net Price 2 estimates with students disaggregated by semester transitions and area of study. The Net Price 2 estimates follow a similar pattern to Net Price 1, with the highest responsiveness and statistical significance demonstrated during freshman year (semester 1-2) and freshman-sophomore transitions (freshman 2-3), with the latter transition usually showing smaller magnitudes and lacking a statistical relationship. The retention estimates for social science majors are given in Table 30. The first two transitions demonstrate the most price responsive relationship with elasticities of -0.820 ($p<0.01$) and -0.856 ($p<0.01$). Despite the greater price responsiveness relative to other semester transitions these estimates are price inelastic ($|E|<1$), albeit only marginally. For the humanities (Table 31) only the first two transitions are statistically significant of which the freshman-sophomore transition (semester 2-3) demonstrates price elastic demand ($|E|>1$), with a 1 percent increase in Net Price 2 associated with a 1.383 percent decline in continued enrollment. The latter transitions are not statistically significant, smaller in magnitude and do not always show an inverse relationship. Business major retention estimates given in Table 32 are clustered around unitary elasticity ($|E|=1$) for all transitions in the first four years, they also demonstrate an inverse relationship and are statistically significant at the 1 percent level. Unlike other academic majors, business students show strong correlation between Net Price 2 and continued enrollment and high price responsiveness throughout their degree making them poor candidates for differential pricing by semester (or year) of study. Estimates for the physical sciences and engineering given in Tables 33 and 34 demonstrate the well-established pattern of high price responsiveness and statistical significance in the first two transitions and low and no noticeable

relationship after. The engineering students demonstrate price elastic magnitudes in the 5th and 6th years (|E|>1), but they are statistically indistinguishable from zero. Students in medicine-related degrees (Table 35) show an inverse relationship between Net Price 2 and continued enrollment and price elastic demand (|E|>1) throughout their degree. To summarize, most subject areas demonstrate low price responsiveness and a weak relationship between retention and net price from junior until senior year, with business school majors a prominent exception to this trend.

7.3. Intensive Margin

The intensive margin models the number of credit hours enrolled or the 'intensity' of enrollment. Table 36 presents the elasticities for Net Price 1, for in state students. We see a very similar pattern to the retention analysis, where the earliest transitions and the latter transitions demonstrating the greatest price responsiveness. All the estimates in Table 36 are price inelastic (|E|<1), statistically significant at the 1 percent level and demonstrate an inverse relationship with net price, with the price elasticity of credit hour enrollment elasticities becoming very large from the 5th year onwards. For the 4th-5th year transition a 1 percent increase in Net Price 1 is associated with a 0.615 percent decline in credit hour enrollment, despite the increase in price responsiveness the elasticities remain price inelastic. Table 37 presents estimates for out-of-state students, these students show greater price responsiveness compared to in-state students throughout their time in UNM. All the estimated elasticities are statistically significant at the 1 percent level and take a negative value. The estimates are price inelastic (|E|<1) until the 4th-5th year transition at which point they demonstrate a large jump in the price responsiveness and become price elastic (|E|>1). For the 4th-5th year transition a 1 percent increase in net price is associated with a 1.620 percent decline in student credit hour enrollment among out of state students.

Tables 38 and 39 present estimates for Net Price 2 for in-state and out-of-state students, respectively. The in-state students are price elastic (|E|>1) for the freshman-sophomore transition

and for the 4th-5th year transition and onwards. The middle transitions of the degree (sophomore-senior years) relatively less responsive and generally price inelastic (|E|<1). The out-of-state students demonstrates a similar pattern with similar magnitudes.

Table 40 presents Net Price 1 credit hour estimates for full-time in-state students. Full-time students are considerably less price responsive than the full sample. All the elasticities demonstrate an inverse relationship between Net Price 1 and credit hour enrollment and all estimates for the first four years are statistically significant at the 1 percent level. The largest price elasticity of enrollment coefficient is 0.006, which means a 1 percent increase in Net Price 1 is associated with a 0.006 percent decline in credit hour enrollment, this is a very small magnitude and serves to demonstrate the price inelasticity of demand among full-time students. The out-of-state full-time students (Table 41) demonstrate no noticeable relationship between Net Price 1 and credit hour enrollment with elasticities showing no statistical significance and very near zero. This furthers the findings that after completing freshman fall out-of-state students become very unresponsive to changes in price. The Net Price 2 estimates (Table 42) for in-state students demonstrate greater price responsiveness relative to Net Price 1 but are also very price inelastic. The elasticities cluster between -0.65 and -0.85 for freshman-junior years and experience a slight decline to around -0.50 for the senior years. All transition elasticities for the freshman-senior years are statistically significant at the 1 percent level, after senior year the elasticities demonstrate no noticeable relationship. Estimates for out-of-state full-time students (Table 43) are very similar to the Net Price 1 estimates with no statistical relationship and elasticities near zero.

7.4. Income Categories

To investigate how price elasticity of enrollment varies by household income we partition admitted applicants for admission enrollment into lower income and higher income category groups. Table 44 and 45 present in-state students estimates for ten income categories for Net Price 1 and 2,

respectively. Each income category encompasses $10,000 beginning with $0-$10,000 and ending with $90,000-$100,000. For in-state students the larger income categories ($60K-$70K, $70K-$80K, $80K-$90K and $90K-$100K) are less price responsive relative to the lower income categories ($10K-$20K, $20K-$30K, $30K-$40K and $40K-$50K), this is the case for both Net Price 1 and Net Price 2. All the elasticities are price inelastic ($|E|<1$) and statistically significant at the 1 percent level and demonstrate an inverse relationship. Students with greater household income have less budget constraints and better able to afford changes in net price, students with low household income have tighter budget constraints are more likely to respond to tuition raises and price changes. Consequently, students from wealthier household are less price responsive. Out-of-state students (Table 46 and 47) demonstrate very high price elasticity of demand with all the elasticities taking a value greater than 1 ($|E|>1$). The middle-income categories demonstrate he greatest price responsiveness with the lowest and highest categories displaying the least price responsiveness.

We create an additional set of household income groups in which each income category encompasses $25,000. The income categories are $0-$25,000, $25,000-$50,000, $50,000-$75,000, $75,000-$100,000 and $100,000-$125,000. We witness a similar trend for in-state students for whom a higher income category is associated with lower price responsiveness for both Net Price 1 and Net Price 2 (Tables 48 and 49). Tables 50 and 51 show no demonstrable pattern among out-of-state students other than all the elasticities exhibiting high price responsiveness and price elastic demand ($|E|>1$).

7.5. Substitute Price Indices

To account for competition and substitute pricing within New Mexico we included net price for four major rival institutions within New Mexico (Central New Mexico Community College, New Mexico State University, Eastern New Mexico University and New Mexico Highlands University) and weighted them by proportion of institute enrollment to state enrollment. To account for cross-

state competition we included net price for all states that border New Mexico (Utah, Arizona, Colorado and Texas) and weighted the measure by proportion of state enrollment to total US enrollment. For each of the states, weighted net prices were included as separate variables with variation coming across time and states. The net price measures for New Mexico competitors and HE in bordering states together make up the substitution price index for in-state students. We included the substitution index for in-state students and discovered that the inclusion of year fixed effects leads to all the variables from the substitution price index being dropped from the analysis because of collinearity. This was the case with both the weighted and unweighted index. These findings indicate that the inclusion of year fixed effects captures the year to year changes in the net price of competitor institutions. Table 52 presents estimates for the substitution price index included and year fixed effects excluded from the model, we find no difference in our price elasticity of enrollment elasticities.

For out of state students we created a net price index for their state of origin and weighted it by the proportion of states enrollment to national enrollment. We then matched the weighted net price of a student's state of origin to that student in the dataset. For out-of-state students we were able to use year fixed effects and substitution prices simultaneously in our model, but the elasticities for the substitute prices were so negligible, that the Net Price 1 coefficient did not change at all. These results are presented in Table 53.

8. Conclusions

Focusing on undergraduate students, this analysis investigates the price elasticity of demand for disaggregated groups of students at the University of New Mexico (a large public research university). Over the period of our analysis (2009-2018), UNM experienced fiscal deficits in 8 out of the 9 years in their budget planning cycle (which also continued on for fiscal years (FY) 2019 and 2020 [and likely FY 21] at UNM). During the same period, net prices were generally rising (to

partially replace the reductions in state support); the University also made greater use of price differentiation to help generate revenues needed to cover costs. Some changes in the rising net prices were driven by changes in NMLLS coverage. Additional incremental charges, above annual increases in base tuition, fell on upper division undergraduates. Identifying the different responsiveness to net price changes among the different student groups could allow for greater and more efficient use of price differentiation that would increase revenue and minimize any resulting decline in enrollment. Potential for differential pricing exists in multiple stages and components of a degree – at the enrollment decision of a freshman applicants and the retention decisions of existing students at different stages of their degrees. We further disaggregate our estimates by residency status, area of study, income categories and measures of ability and financial need.

For our analysis we create two net price measures: Net Price 1, which incorporates tuition and fees (minus all forms of aid); and Net Price 2, which incorporates both tuition and fees (minus all forms of aid), *and* board and lodging costs. We conduct this analysis on what we describe as both the extensive and intensive margins. On the extensive margin, we estimate the binary enrollment choice on two dimensions: (i) admissions – for which we estimate the price elasticity of enrollment for freshmen applicants; and (ii) retention – for which we estimate price elasticity of continued enrollment or enrolling for another semester (thus conditional on enrollment for freshmen fall) and is estimated for all students from freshmen fall until the end of their fifth year. For the extensive margin binary (enrollment) demand model, we estimate price elasticities, and disaggregate by test score, financial need, area of study, household income and New Mexico residency status. On the intensive margin, we model the number of credit hours enrolled, and estimate price elasticities. We disaggregate the intensive margin price elasticity estimates by area of study, full time status and New Mexico residency status.

The extensive margin (enrollment) estimates for in-state students are generally unresponsive to price changes and demonstrate price inelastic demand (relative unresponsiveness in proportional terms to increasing prices), with applicants more responsive to board and lodging price changes (net price 2) relative to tuition changes. Out-of-state student enrollment demonstrates high price responsiveness and price elastic demand (greater relative responsiveness in proportional terms to increasing prices) and also exhibits greater responsiveness to board and lodging costs (net price 2) relative to tuition (net price 1). When disaggregated by ACT test scores, the high-scoring group is least responsive to price changes and when disaggregated by need, the somewhat needy group is the least responsive to price changes. For test score and need disaggregation, the student population that is both high scoring and somewhat needy is the only out-of-state admissions sample that demonstrates price inelasticity. Results suggests a variety of improved (net price) financial aid approaches targeted at out-of-state students could be effective at increasing enrollment.

In the retention analysis, for in-state students the early degree period and later degree period (fifth year plus, when many scholarships may lapse) demonstrate the greatest price responsiveness, albeit all are price inelastic. Out-of-state students demonstrate a weak relationship between net price and enrollment after the first year, implying that once they complete their first year and decide to continue enrollment, price changes do not significantly influence their enrollment decisions thereafter.

For the student credit hour cohort analysis, we again witness high price responsiveness towards the beginning of the degree and after the fourth year, the estimates demonstrate a sharp increase in price responsiveness in the fifth year and after, with the estimates sometimes demonstrating price elasticity of demand.

Lastly, full-time students demonstrate a general trend of being less responsive to net price changes relative to part-time students on both the extensive and intensive margins. For example, for

part-time students taking 0-6 credit hours, we find significant price elasticity in the net price 2 measure.

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Table 2A: Descriptive Statistics – University of New Mexico In-state Applicants

	Full Sample	Social Science	Humanities	Physical Sciences	Business School	Engineering
Dependent Variables						
Net Price 1	1761.8 (2250.74)	1817.2 (2260.53)	1544.03 (1997.78)	1645.77 (2276.94)	2014.49 (2328.03	1785.27 2291.59)
Net Price 2	13947.81 (5450.12)	14044.46 (5434.18)	13443.82 (5266.97)	13542.78 (5691.46)	14589.65 (5262.08)	14127.18 (5382.47)
Independent Variables						
White	0.24 (0.43)	0.22 (0.42)	0.29 (0.45)	0.27 (0.45)	0.24 (0.43)	0.26 (0.44)
Hispanic	0.43 (0.5)	0.46 (0.5)	0.38 (0.49)	0.42 (0.49)	0.45 (0.5)	0.42 (0.49)
Black	0.02 (0.13)	0.02 (0.14)	0.01 (0.12)	0.01 (0.12)	0.02 (0.15)	0.01 (0.12)
Native American	0.05 (0.22)	0.05 (0.21)	0.06 (0.23)	0.04 (0.19)	0.04 (0.19)	0.05 (0.21)
Asian	0.03 (0.17)	0.02 (0.13)	0.01 (0.11)	0.06 (0.23)	0.02 (0.15)	0.04 (0.2)
Female	0.59 (0.49)	0.67 (0.47)	0.58 (0.49)	0.65 (0.48)	0.47 (0.5)	0.2 (0.4)
High School GPA	3.4 (0.47)	3.32 (0.46)	3.36 (0.49)	3.58 (0.45)	3.4 (2.53)	3.46 (0.47)
Highest ACT Score	22.13 (4.39)	21.65 (4.23)	22.41 (4.15)	24.1 (4.53)	21.59 (3.92)	23.71 (4.59)
Household Income	85701.68 (148116.7)	75571.84 (76732.95)	85225.77 (85432.07)	104442.5 (195738.8)	91010.37 (158302.3)	95376.15 (172198.4)
Mother High School Dipl.	0.37 (0.48)	0.38 (0.48)	0.35 (0.48)	0.31 (0.46)	0.39 (0.49)	0.34 (0.47)
Mother Bachelors Deg.	0.48 (0.5)	0.44 (0.5)	0.53 (0.5)	0.55 (0.5)	0.47 (0.5)	0.52 (0.5)
Mother Graduate Deg.	0.07 (0.25)	0.08 (0.27)	0.05 (0.22)	0.06 (0.24)	0.06 (0.23)	0.07 (0.25)
Father High School Dipl.	0.37 (0.48)	0.39 (0.49)	0.38 (0.48)	0.31 (0.46)	0.38 (0.49)	0.33 (0.47)
Father Bachelors Deg.	0.49 (0.5)	0.46 (0.5)	0.5 (0.5)	0.6 (0.49)	0.5 (0.5)	0.56 (0.5)
Father Graduate Deg.	0.06 (0.24)	0.07 (0.26)	0.06 (0.25)	0.05 (0.21)	0.05 (0.22)	0.05 (0.23)
N	37,479.00	4,232.00	2,016.00	2,980	4,095.00	2,684.00

Notes: Column 1 is the combined 2009-2018 admission sample for in-state applicant. Columns 2, 3, 4, 5, 6 are the combined 2009-2018 subject area admissions sample for in-state applicants. Parent education categories are binary (1=Yes and 0=No) and exclusive, representing highest earned degree.

Table 2B: Descriptive Statistics – University of New Mexico Out of State Applicants

	Full Sample	Social Science	Human-ities	Physical Sciences	Business School	Engineering
Net Price Measures						
Net Price 1	17784.93 (5817.08)	17681.59 (5396.07)	17748.65 (5547.3)	17627.91 (6103.72	17627.91 (6103.72)	18037.77 (5764.57)
Net Price 2	32447.02 (6514.33)	32446.87 (5632.33)	32311.6 (6056.38)	32359.54 (6452.58	32359.54 (6452.58)	32755.73 (6483.48)
Independent Variables						
White Proportion	0.3 (0.46)	0.24 (0.43)	0.36 (0.48)	0.32 (0.47)	0.32 (0.47)	0.34 (0.48)
Hispanic	0.26 (0.44)	0.3 (0.46)	0.21 (0.41)	0.24 (0.43)	0.24 (0.43)	0.25 (0.43)
Black	0.04 (0.21)	0.05 (0.22)	0.03 (0.17)	0.05 (0.22)	0.05 (0.22)	0.04 (0.19)
Native American	0.05 (0.22)	0.04 (0.2)	0.04 (0.19)	0.04 (0.2)	0.04 (0.2)	0.04 (0.21)
Asian	0.03 (0.16)	0.02 (0.13)	0.02 (0.13)	0.05 (0.22)	0.05 (0.22)	0.03 (0.17)
Female	0.57 (0.5)	0.67 (0.47)	0.59 (0.49)	0.62 (0.49)	0.62 (0.49)	0.24 (0.43)
High School GPA	3.54 (5.19)	3.45 (2.87)	3.62 (3.71)	3.69 (3.13)	3.69 (3.13)	3.94 (12.03)
Highest ACT Score	23.45 (4.84)	22.91 (4.58)	23.63 (4.47)	25.22 (4.93)	25.22 (4.93)	25.11 (4.92)
Household Income	105658.9 (163264.9)	89639.47 (101872.9)	122377.4 (330343.3)	120190.7 (113835.5)	120190.7 (113835.5)	111836.5 (106741.7)
Mother High School Dipl.	0.3 (0.46)	0.36 (0.48)	0.28 (0.45)	0.27 (0.44)	0.27 (0.44)	0.26 (0.44)
Mother Bachelors Deg.	0.53 (0.5)	0.46 (0.5)	0.58 (0.49)	0.6 (0.49)	0.6 (0.49)	0.59 (0.49)
Mother Graduate Deg.	0.08 (0.26)	0.08 (0.27)	0.05 (0.22)	0.06 (0.24)	0.06 (0.24)	0.07 (0.26)
Father High School Dipl.	0.3 (0.46)	0.33 (0.47)	0.3 (0.46)	0.27 (0.44)	0.27 (0.44)	0.24 (0.42)
Father Bachelors Deg.	0.57 (0.49)	0.52 (0.5)	0.58 (0.49)	0.64 (0.48)	0.64 (0.48)	0.65 (0.48)
Father Graduate Deg.	0.06 (0.23)	0.07 (0.25)	0.06 (0.23)	0.04 (0.2)	0.04 (0.2)	0.05 (0.23)
N	7,872	908	574	859	859	1,205

Notes: Column 1 is the combined 2009-2018 admission sample for out-of-state applicant. Columns 2, 3, 4, 5, 6 are the combined 2009-2018 subject area admissions sample for out-of-state applicants. Parent education categories are binary (1=Yes and 0=No) and exclusive, representing highest earned degree.

Table 3: Price Elasticity of Demand Estimates Using Net Price 1 – Year of Application (In-state)

Years	**2009**	**2010**	**2011**	**2012**	**2013**
	(1)	**(2)**	**(3)**	**(4)**	**(5)**
Net Price 1 (IS)	-0.171***	-0.142***	-0.156***	-0.216***	-0.183***
	(0.018)	(0.016)	(0.017)	(0.019)	(0.018)
N	3,139	3,495	3,719	3,855	3,827
	2014	**2015**	**2016**	**2017**	**2018**
	(6)	**(7)**	**(8)**	**(9)**	**(10)**
Net Price 1 (IS)	-0.116***	-0.208***	-0.178***	-0.180***	-0.519***
	(0.015)	(0.020)	(0.019)	(0.020)	(0.036)
N	3,700	3,957	3,903	4,126	3,757

Notes: Probit regressions with data from the 2009 to 2018 UNM admission data.
*** Significant at 1% level ** at 5% level * at 10% level

Table 4: Price Elasticity of Demand Estimates Using Net Price 1 – Year of Application (Out-of-state)

Years	**2009**	**2010**	**2011**	**2012**	**2013**
	(1)	**(2)**	**(3)**	**(4)**	**(5)**
Net Price 1 (OS)	-1.589***	-1.326***	-1.469***	-1.578***	-2.292***
	(0.257)	(0.234)	(0.242)	(0.258)	(0.280)
N	432	621	672	741	778
	2014	**2015**	**2016**	**2017**	**2018**
	(6)	**(7)**	**(8)**	**(9)**	**(10)**
Net Price 1 (OS)	-1.626***	-2.188***	-1.366***	-1.703***	-2.240***
	(0.253)	(0.269)	(0.192)	(0.256)	(0.354)
N	846	956	1,252	884	689

Notes: Probit regressions with data from the 2009 to 2018 UNM admission data.
*** Significant at 1% level ** at 5% level * at 10% level

Table 5: Price Elasticity of Demand Estimates Using Net Price 2 – Year of Application (In-state)

Years	**2009**	**2010**	**2011**	**2012**	**2013**
	(1)	**(2)**	**(3)**	**(4)**	**(5)**
Net Price 2 (IS)	-0.415***	-0.346***	-0.372***	-0.591***	-0.418***
	(0.042)	(0.039)	(0.041)	(0.049)	(0.045)
N	3,137	3,495	3,717	3,856	3,826
	2014	**2015**	**2016**	**2017**	**2018**
	(6)	**(7)**	**(8)**	**(9)**	**(10)**
Net Price 2 (IS)	-0.493***	-0.585***	-0.534***	-0.655***	-1.528***
	(0.045)	(0.050)	(0.050)	(0.059)	(0.098)
N	3,697	3,956	3,900	4,126	3,757

Notes: Probit regressions with data from the 2009 to 2018 UNM admission data.
*** Significant at 1% level ** at 5% level * at 10% level

Table 6: Price Elasticity of Demand Estimates Using Net Price 2 – Year of Application (Out-of-state)

Years	**2009**	**2010**	**2011**	**2012**	**2013**
	(1)	**(2)**	**(3)**	**(4)**	**(5)**
Net Price 2 (OS)	-2.936***	-2.408***	-2.643***	-2.691***	-3.824***
	(0.461)	(0.401)	(0.418)	(0.433)	(0.459)
N	432	620	672	740	775
	2014	**2015**	**2016**	**2017**	**2018**
	(6)	**(7)**	**(8)**	**(9)**	**(10)**
Net Price 2 (OS)	-2.987***	-3.804***	-2.437***	-2.975***	-3.776***
	(0.432)	(0.469)	(0.327)	(0.437)	(0.623)
N	847	955	1,251	884	688

Notes: Probit regressions with data from the 2009 to 2018 UNM admission data.
*** Significant at 1% level ** at 5% level * at 10% level

Table 7: Price Elasticity of Demand Estimates – Area of Study

Categories	**Social Sciences (1)**	**Humanities (2)**	**Hard Sciences (3)**	**Business School (4)**	**Engineering (5)**
Net Price 1 (IS)	-0.237***	-0.141***	-0.192***	-0.255***	-0.165***
	(0.020)	(0.023)	(0.018)	(0.026)	(0.018)
N	4,234	2,019	4,094	2,682	4,195
Net Price 1 (OS)	-1.168***	-1.203***	-1.495***	-2.438***	-2.090***
	(0.245)	(0.280)	(0.228)	(0.379)	(0.222)
N	908	574	859	603	1,204
Net Price 2 (IS)	-0.626***	-0.395***	-0.606***	-0.645***	-0.464***
	(0.049)	(0.060)	(0.047)	(0.064)	(0.049)
N	4,232	2,019	4,095	2,682	4,194
Net Price 2 (OS)	-2.106***	-2.115***	-2.686***	-4.068***	-3.429***
	(0.428)	(0.468)	(0.392)	(0.622)	(0.363)
N	907	574	859	604	1,203

Notes: Probit regressions with data from the 2009 to 2018 UNM admission data.
*** Significant at 1% level ** at 5% level * at 10% level

Table 8: Price Elasticity of Demand Estimates – ACT Score Groups

Categories	**High Scoring[a] (1)**	**Average Scoring (2)**	**Low Scoring (3)**
Net Price 1 (IS)	-0.128***	-0.249***	-0.479***
	(0.008)	(0.010)	(0.028)
N	13,289	18,882	5,307
Net Price 1 (OS)	-1.752***	-1.691***	-2.890***
	(0.115)	(0.125)	(0.352)
N	3,688	3,344	835
Net Price 2 (IS)	-0.454***	-0.672***	-1.213***
	(0.025)	(0.025)	(0.062)
N	13,289	18,883	5,307
Net Price 2 (OS)	-2.987***	-2.896***	-4.686***
	(0.192)	(0.210)	(0.574)
N	3,688	3,345	835

Notes: Probit regressions with data from the 2009 to 2018 UNM admission data.
*** Significant at 1% level ** at 5% level * at 10% level
[a]High Scoring– ACT Score of 24 and above, Average Scoring – ACT score between 17 and 23, Low Scoring – ACT Score below 17

Table 9: Price Elasticity of Demand Estimates – Need

Categories	**Not Needy (1)**	**SW Needy (2)**	**Needy (3)**
Net Price 1 (IS)	-0.167***	-0.121***	-0.330***
	(0.014)	(0.014)	(0.011)
N	10,956	7,028	19,490
Net Price 1 (OS)	-2.211***	-0.971***	-3.928***
	(0.141)	(0.112)	(0.323)
N	2,576	2,779	2,510
Net Price 2 (IS)	-0.498***	-0.376***	-0.773***
	(0.041)	(0.044)	(0.022)
N	10,957	7,029	19,489
Net Price 2 (OS)	-3.562***	-1.911***	-6.800***
	(0.233)	(0.196)	(0.555)
N	2,575	2,782	2,509

Notes: Probit regressions with data from the 2009 to 2018 UNM admission data.
*** Significant at 1% level ** at 5% level * at 10% level

Table 10: Need-Scoring Matrix for NM Residents – Net Price 1

Categories	**Not Needy (1)**	**SW Needy (2)**	**Needy (3)**
High Scoring[a]	-0.115***	-0.088***	-0.205***
	(0.013)	(0.017)	(0.017)
N	5,937	2,802	4,546
Average Scoring	-0.482***	-0.152***	-0.316***
	(0.041)	(0.022)	(0.014)
N	4,443	3,561	10,876
Low Scoring	-0.564***	-0.252***	-0.600***
	(0.127)	(0.076)	(0.037)
N	574	665	4,067

Notes: Probit regressions with data from the 2009 to 2018 UNM admission data.
*** Significant at 1% level ** at 5% level * at 10% level
[a]High Scoring– ACT Score of 24 and above, Average Scoring – ACT score between 17 and 23, Low Scoring – ACT Score below 17

Table 11: Need Ability Matrix for Out-of-State Students – Net Price 1

Categories	**Not Needy (1)**	**SW Needy (2)**	**Needy (3)**
High Scoring	-2.302***	-0.980***	-3.582***
	(0.185)	(0.182)	(0.581)
N	1,722	1,247	717
Average Scoring	-3.029***	-0.932***	-4.057***
	(0.357)	(0.164)	(0.455)
N	777	1,271	1,298
Low Scoring	-10.261	-2.362***	-4.521***
	(56.710)	(0.587)	(0.948)
N	71	261	498

Notes: Probit regressions with data from the 2009 to 2018 UNM admission data.
*** Significant at 1% level ** at 5% level * at 10% level
[a]High Scoring– ACT Score of 24 and above, Average Scoring – ACT score between 17 and 23, Low Scoring – ACT Score below 17

Table 12: Need Ability Matrix for NM Residents – Net Price 2

Categories	**Not Needy (1)**	**SW Needy (2)**	**Needy (3)**
High Scoring	-0.532***	-0.330***	-0.525***
	(0.050)	(0.056)	(0.036)
N	5,937	2,802	4,546
Average Scoring	-1.552***	-0.622***	-0.802***
	(0.139)	(0.079)	(0.030)
N	4,444	3,563	10,874
Low Scoring	-1.915***	-0.927***	-1.411***
	(0.433)	(0.261)	(0.073)
N	574	664	4,068

Notes: Probit regressions with data from the 2009 to 2018 UNM admission data.
*** Significant at 1% level ** at 5% level * at 10% level
[a]High Scoring– ACT Score of 24 and above, Average Scoring – ACT score between 17 and 23, Low Scoring – ACT Score below 17

Table 13: Need Ability Matrix for Out-of-State Students – Net Price 2

Categories	**Not Needy (1)**	**SW Needy (2)**	**Needy (3)**
High Scoring	-3.783***	-1.863***	-6.409***
	(0.305)	(0.322)	(1.027)
N	1,722	1,247	715
Average Scoring	-4.882***	-1.876***	-7.060***
	(0.639)	(0.295)	(0.790)
N	776	1,273	1,296
Low Scoring	-4.766***	-4.338***	-8.479***
	(1.516)	(1.024)	(1.723)
N	76	262	496

Notes: Probit regressions with data from the 2009 to 2018 UNM admission data.
*** Significant at 1% level ** at 5% level * at 10% level
[a]High Scoring– ACT Score of 24 and above, Average Scoring – ACT score between 17 and 23, Low Scoring – ACT Score below 17

Table 14: Price Elasticity of Demand Estimates – Net Price 1: Cohort Analysis (In-state)

Years	**Semester 1-2**	**Semester 2-3**	**Semester 3-4**	**Semester 4-5**	**Semester 5-6**
	(1)	**(2)**	**(3)**	**(4)**	**(5)**
Net Price 1 (IS)	-0.104***	-0.157***	-0.054***	-0.070***	-0.009
	(0.013)	(0.017)	(0.011)	(0.014)	(0.011)
N	30,243	25,622	22,387	19,238	17,872
	Semester 6-7	**Semester 7-8**	**Semester 8-9**	**Semester 9-10**	**Semester 10-11**
	(6)	**(7)**	**(8)**	**(9)**	**(10)**
Net Price 1 (IS)	-0.038**	-0.041***	-0.184***	-0.312***	-0.537***
	(0.015)	(0.014)	(0.039)	(0.058)	(0.076)
N	15,459	14,748	12,407	8,993	5,965

Notes: Probit regressions with data from the 2009 to 2018 UNM admission data.
*** Significant at 1% level ** at 5% level * at 10% level

Table 15: Price Elasticity of Demand Estimates – Net Price 1: Cohort Analysis (Out-of-state)

Years	**Semester 1-2** **(1)**	**Semester 2-3** **(2)**	**Semester 3-4** **(3)**	**Semester 4-5** **(4)**	**Semester 5-6** **(5)**
Net Price 1 (OS)	0.315**	0.135	0.045	-0.137	-0.087
	(0.160)	(0.168)	(0.146)	(0.175)	(0.174)
N	3,010	2,424	1,959	1,556	1,402
	Semester 6-7 **(6)**	**Semester 7-8** **(7)**	**Semester 8-9** **(8)**	**Semester 9-10** **(9)**	**Semester 10-11** **(10)**
Net Price 1 (OS)	-0.164	-0.254	-0.742	-1.606***	-3.353***
	(0.226)	(0.239)	(0.550)	(0.579)	(1.112)
N	1,070	1,003	731	410	238

Notes: Probit regressions with data from the 2009 to 2018 UNM admission data.
*** Significant at 1% level ** at 5% level * at 10% level

Table 16: Price Elasticity of Demand Estimates – Net Price 2: Cohort Analysis (In-state)

Years	**Semester 1-2** **(1)**	**Semester 2-3** **(2)**	**Semester 3-4** **(3)**	**Semester 4-5** **(4)**	**Semester 5-6** **(5)**
Net Price 2 (IS)	-0.835***	-0.977***	-0.632***	-0.717***	-0.570***
	(0.088)	(0.097)	(0.087)	(0.102)	(0.100)
N	30,554	25,868	22,587	19,409	18,027
	Semester 6-7 **(6)**	**Semester 7-8** **(7)**	**Semester 8-9** **(8)**	**Semester 9-10** **(9)**	**Semester 10-11** **(10)**
Net Price 2 (IS)	-0.752***	-0.860***	-0.954***	-1.283***	-2.299***
	(0.117)	(0.117)	(0.192)	(0.256)	(0.331)
N	15,595	14,879	12,552	9,102	6,074

Notes: Probit regressions with data from the 2009 to 2018 UNM admission data.
*** Significant at 1% level ** at 5% level * at 10% level

Table 17: Price Elasticity of Demand Estimates – Net Price 2: Cohort Analysis (Out-of-state)

Years	**Semester 1-2**	**Semester 2-3**	**Semester 3-4**	**Semester 4-5**	**Semester 5-6**
	(1)	**(2)**	**(3)**	**(4)**	**(5)**
Net Price 2 (OS)	1.062**	0.477	0.285	-0.303	-0.160
	(0.483)	(0.501)	(0.447)	(0.518)	(0.532)
N	3,010	2,424	1,959	1,556	1,402
	Semester 6-7	**Semester 7-8**	**Semester 8-9**	**Semester 9-10**	**Semester 10-11**
	(6)	**(7)**	**(8)**	**(9)**	**(10)**
Net Price 2 (OS)	-0.312	-0.633	-1.656	-4.182***	-9.276***
	(0.663)	(0.692)	(1.352)	(1.480)	(3.045)
N	1,070	1,003	731	410	238

Notes: Probit regressions with data from the 2009 to 2018 UNM admission data.
*** Significant at 1% level ** at 5% level * at 10% level

Table 18: Price Elasticity of Demand Estimates – Net Price 1: Full-Time Student Cohort Analysis (In-state)

Years	**Semester 1-2**	**Semester 2-3**	**Semester 3-4**	**Semester 4-5**	**Semester 5-6**
	(1)	**(2)**	**(3)**	**(4)**	**(5)**
Net Price 1 (IS)	-0.116***	-0.150***	-0.018*	0.004	0.046***
	(0.013)	(0.017)	(0.010)	(0.012)	(0.010)
N	29,401	24,579	21,282	20,343	16,828
	Semester 6-7	**Semester 7-8**	**Semester 8-9**	**Semester 9-10**	**Semester 10-11**
	(6)	**(7)**	**(8)**	**(9)**	**(10)**
Net Price 1 (IS)	0.027**	0.026**	-0.034	-0.250***	-0.452***
	(0.014)	(0.013)	(0.038)	(0.059)	(0.078)
N	14,608	13,617	11,272	7,442	5,097

Notes: Probit regressions with data from the 2009 to 2018 UNM admission data.
*** Significant at 1% level ** at 5% level * at 10% level

Table 19: Price Elasticity of Demand Estimates – Net Price 1: Full-Time Student Cohort Analysis (Out-of-state)

Years	**Semester 1-2**	**Semester 2-3**	**Semester 3-4**	**Semester 4-5**	**Semester 5-6**
	(1)	**(2)**	**(3)**	**(4)**	**(5)**
Net Price 1 (OS)	0.232	0.237	0.349**	0.057	0.253
	(0.161)	(0.190)	(0.173)	(0.211)	(0.197)
N	2,784	2,260	1,747	1,451	1,321
	Semester 6-7	**Semester 7-8**	**Semester 8-9**	**Semester 9-10**	**Semester 10-11**
	(6)	**(7)**	**(8)**	**(9)**	**(10)**
Net Price 1 (OS)	-0.076	0.157	-0.660	-1.167	-3.727***
	(0.263)	(0.270)	(0.615)	(0.771)	(1.279)
N	984	847	544	291	184

Notes: Probit regressions with data from the 2009 to 2018 UNM admission data.
*** Significant at 1% level ** at 5% level * at 10% level

Table 20: Price Elasticity of Demand Estimates – Net Price 1: Part-Time Student Cohort Analysis (In-state)

Years	**Semester 1-2**	**Semester 2-3**	**Semester 3-4**	**Semester 4-5**	**Semester 5-6**
	(1)	**(2)**	**(3)**	**(4)**	**(5)**
Net Price 1	0.013	-0.188	-0.011	-0.115	0.301***
	(0.137)	(0.122)	(0.077)	(0.115)	(0.074)
N	2,772	4,037	2,685	2,614	2,097
	Semester 6-7	**Semester 7-8**	**Semester 8-9**	**Semester 9-10**	**Semester 10-11**
	(6)	**(7)**	**(8)**	**(9)**	**(10)**
Net Price 1	-0.113	0.021	-1.119***	-0.928***	-1.135***
	(0.126)	(0.092)	(0.120)	(0.122)	(0.134)
N	1,868	1,901	4,817	4,059	3,560

Notes: Probit regressions with data from the 2009 to 2018 UNM admission data.
*** Significant at 1% level ** at 5% level * at 10% level

Table 21: Price Elasticity of Demand Estimates – Net Price 2: Full-Time Cohort Analysis (In-state)

Years	**Semester 1-2** **(1)**	**Semester 2-3** **(2)**	**Semester 3-4** **(3)**	**Semester 4-5** **(4)**	**Semester 5-6** **(5)**
Net Price 2 (IS)	-1.036***	-1.049***	-0.395***	-0.342***	-0.077
	(0.090)	(0.099)	(0.089)	(0.104)	(0.100)
N	29,401	24,579	21,282	18,160	16,828
	Semester 6-7 **(6)**	**Semester 7-8** **(7)**	**Semester 8-9** **(8)**	**Semester 9-10** **(9)**	**Semester 10-11** **(10)**
Net Price 2 (IS)	-0.334***	-0.301***	-0.174	-0.979***	-1.883***
	(0.116)	(0.117)	(0.194)	(0.261)	(0.336)
N	14,608	13,617	11,272	7,442	5,097

Notes: Probit regressions with data from the 2009 to 2018 UNM admission data.
*** Significant at 1% level ** at 5% level * at 10% level

Table 22: Price Elasticity of Demand Estimates – Net Price 2: Full-Time Cohort Analysis (Out-of-state)

Years	**Semester 1-2**	**Semester 2-3**	**Semester 3-4**	**Semester 4-5**	**Semester 5-6**
	(1)	**(2)**	**(3)**	**(4)**	**(5)**
Net Price 2 (OS)	0.845*	0.796	1.245**	0.312	0.901
	(0.487)	(0.565)	(0.550)	(0.637)	(0.627)
N	2,784	2,260	1,747	1,451	1,321
	Semester 6-7	**Semester 7-8**	**Semester 8-9**	**Semester 9-10**	**Semester 10-11**
	(6)	**(7)**	**(8)**	**(9)**	**(10)**
Net Price 2 (OS)	-0.068	0.506	-1.820	-2.771	-10.132***
	(0.783)	(0.804)	(1.518)	(1.868)	(3.428)
N	984	847	544	291	184

Notes: Probit regressions with data from the 2009 to 2018 UNM admission data.
*** Significant at 1% level ** at 5% level * at 10% level

Table 23: Price Elasticity of Demand Estimates – Net Price 2: Part-Time (0-6 CH) Retention Estimates (In state)

Years	**Semester 1-2**	**Semester 2-3**	**Semester 3-4**	**Semester 4-5**	**Semester 5-6**
	(1)	**(2)**	**(3)**	**(4)**	**(5)**
Net Price 2	-1.022	-1.227**	-0.508	-0.847	0.864**
	(0.774)	(0.541)	(0.417)	(0.528)	(0.410)
N	2,772	4,037	2,685	2,614	2,097
	Semester 6-7	**Semester 7-8**	**Semester 8-9**	**Semester 9-10**	**Semester 10-11**
	(6)	**(7)**	**(8)**	**(9)**	**(10)**
Net Price 2	-1.435***	0.074	-3.826***	-4.494***	-4.016***
	(0.505)	(0.461)	(0.460)	(0.611)	(0.544)
N	1,868	1,901	4,817	4,059	3,560

Notes: Probit regressions with data from the 2009 to 2018 UNM admission data.
*** Significant at 1% level ** at 5% level * at 10% level

Table 24: Price Elasticity of Demand Estimates – Net Price 1: Cohort Analysis (Social Sciences)

Years	**Semester 1-2** **(1)**	**Semester 2-3** **(2)**	**Semester 3-4** **(3)**	**Semester 4-5** **(4)**	**Semester 5-6** **(5)**
Net Price 1	-0.132***	-0.105***	0.002	0.006	0.023
	(0.031)	(0.032)	(0.020)	(0.021)	(0.023)
N	3,107	2,925	2,780	2,863	2,738
	Semester 6-7 **(6)**	**Semester 7-8** **(7)**	**Semester 8-9** **(8)**	**Semester 9-10** **(9)**	**Semester 10-11** **(10)**
Net Price 1	0.008	0.041	0.011	0.159	0.127
	(0.026)	(0.030)	(0.060)	(0.151)	(0.185)
N	2,678	2,362	1,530	926	475

Notes: Probit regressions with data from the 2009 to 2018 UNM admission data.
*** Significant at 1% level ** at 5% level * at 10% level

Table 25: Price Elasticity of Demand Estimates – Net Price 1: Cohort Analysis (Humanities)

Years	**Semester 1-2**	**Semester 2-3**	**Semester 3-4**	**Semester 4-5**	**Semester 5-6**
	(1)	**(2)**	**(3)**	**(4)**	**(5)**
Net Price 1	-0.053	-0.096**	-0.008	-0.002	0.038
	(0.033)	(0.047)	(0.034)	(0.033)	(0.033)
N	1,515	1,456	1,426	1,475	1,436
	Semester 6-7	**Semester 7-8**	**Semester 8-9**	**Semester 9-10**	**Semester 10-11**
	(6)	**(7)**	**(8)**	**(9)**	**(10)**
Net Price 1	0.052	0.081**	0.000	0.010	0.115
	(0.032)	(0.035)	(0.075)	(0.225)	(0.231)
N	1,410	1,286	900	591	316

Notes: Probit regressions with data from the 2009 to 2018 UNM admission data.
*** Significant at 1% level ** at 5% level * at 10% level

Table 26: Price Elasticity of Demand Estimates – Net Price 1: Cohort Analysis (Business)

Years	**Semester 1-2**	**Semester 2-3**	**Semester 3-4**	**Semester 4-5**	**Semester 5-6**
	(1)	**(2)**	**(3)**	**(4)**	**(5)**
Net Price 1	-0.048*	-0.052*	0.041	0.018	0.038
	(0.027)	(0.029)	(0.025)	(0.030)	(0.034)
N	2,539	2,566	2,405	2,330	1,940
	Semester 6-7	**Semester 7-8**	**Semester 8-9**	**Semester 9-10**	**Semester 10-11**
	(6)	**(7)**	**(8)**	**(9)**	**(10)**
Net Price 1	0.041	0.107**	-0.013	-0.578*	-0.444
	(0.036)	(0.043)	(0.099)	(0.302)	(0.326)
N	1,895	1,544	974	480	328

Notes: Probit regressions with data from the 2009 to 2018 UNM admission data.
*** Significant at 1% level ** at 5% level * at 10% level

Table 27: Price Elasticity of Demand Estimates – Net Price 1: Cohort Analysis (Physical Sciences)

Years	**Semester 1-2**	**Semester 2-3**	**Semester 3-4**	**Semester 4-5**	**Semester 5-6**
	(1)	**(2)**	**(3)**	**(4)**	**(5)**
Net Price 1	-0.044**	-0.043**	-0.015	-0.014	0.041**
	(0.018)	(0.018)	(0.016)	(0.018)	(0.017)
N	3,495	3,081	2,587	2,372	2,061
	Semester 6-7	**Semester 7-8**	**Semester 8-9**	**Semester 9-10**	**Semester 10-11**
	(6)	**(7)**	**(8)**	**(9)**	**(10)**
Net Price 1	0.022	0.026	0.034	-0.081	-0.216
	(0.022)	(0.028)	(0.058)	(0.161)	(0.212)
N	1,884	1,583	1,000	644	314

Notes: Probit regressions with data from the 2009 to 2018 UNM admission data.
*** Significant at 1% level ** at 5% level * at 10% level

Table 28: Price Elasticity of Demand Estimates – Net Price 1: Cohort Analysis (Engineering)

Years	**Semester 1-2**	**Semester 2-3**	**Semester 3-4**	**Semester 4-5**	**Semester 5-6**
	(1)	**(2)**	**(3)**	**(4)**	**(5)**
Net Price 1	-0.054**	-0.066***	-0.046	-0.013	0.045
	(0.027)	(0.026)	(0.028)	(0.024)	(0.029)
N	2,706	2,212	1,780	1,534	1,240
	Semester 6-7	**Semester 7-8**	**Semester 8-9**	**Semester 9-10**	**Semester 10-11**
	(6)	**(7)**	**(8)**	**(9)**	**(10)**
Net Price 1	-0.033	0.003	-0.090	-0.379*	-0.638**
	(0.035)	(0.038)	(0.084)	(0.229)	(0.303)
N	1,142	955	691	513	280

Notes: Probit regressions with data from the 2009 to 2018 UNM admission data.
*** Significant at 1% level ** at 5% level * at 10% level

Table 29: Price Elasticity of Demand Estimates – Net Price 1: Cohort Analysis (Medicine)

Years	**Semester 1-2**	**Semester 2-3**	**Semester 3-4**	**Semester 4-5**	**Semester 5-6**
	(1)	**(2)**	**(3)**	**(4)**	**(5)**
Net Price 1	-0.054**	-0.066***	-0.046	-0.013	0.045
	(0.027)	(0.026)	(0.028)	(0.024)	(0.029)
N	2,706	2,212	1,780	1,534	1,240
	Semester 6-7	**Semester 7-8**	**Semester 8-9**	**Semester 9-10**	**Semester 10-11**
	(6)	**(7)**	**(8)**	**(9)**	**(10)**
Net Price 1	-0.033	0.003	-0.090	-0.379*	-0.638**
	(0.035)	(0.038)	(0.084)	(0.229)	(0.303)
N	1,142	955	691	513	280

Notes: Probit regressions with data from the 2009 to 2018 UNM admission data.
*** Significant at 1% level ** at 5% level * at 10% level

Table 30: Price Elasticity of Demand Estimates – Net Price 2: Cohort Analysis (Social Sciences)

Years	**Semester 1-2**	**Semester 2-3**	**Semester 3-4**	**Semester 4-5**	**Semester 5-6**
	(1)	**(2)**	**(3)**	**(4)**	**(5)**
Net Price 1	-0.820***	-0.856***	-0.506*	-0.325	-0.169
	(0.250)	(0.310)	(0.305)	(0.308)	(0.333)
N	3,107	2,863	2,709	2,803	2,674
	Semester 6-7	**Semester 7-8**	**Semester 8-9**	**Semester 9-10**	**Semester 10-11**
	(6)	**(7)**	**(8)**	**(9)**	**(10)**
Net Price 1	-0.361	-0.339	-0.474	1.304	0.512
	(0.348)	(0.393)	(0.578)	(1.124)	(1.641)
N	2,608	2,223	1,450	818	406

Notes: Probit regressions with data from the 2009 to 2018 UNM admission data.
*** Significant at 1% level ** at 5% level * at 10% level

Table 31: Price Elasticity of Demand Estimates – Net Price 2: Cohort Analysis (Humanities)

Years	**Semester 1-2**	**Semester 2-3**	**Semester 3-4**	**Semester 4-5**	**Semester 5-6**
	(1)	**(2)**	**(3)**	**(4)**	**(5)**
Net Price 1	-0.979**	-1.383***	-0.290	-0.747	-0.373
	(0.406)	(0.515)	(0.503)	(0.528)	(0.558)
N	1,530	1,362	1,364	1,424	1,338
	Semester 6-7	**Semester 7-8**	**Semester 8-9**	**Semester 9-10**	**Semester 10-11**
	(6)	**(7)**	**(8)**	**(9)**	**(10)**
Net Price 1	-0.131	0.340	-0.315	0.048	0.638
	(0.573)	(0.653)	(0.844)	(1.757)	(1.951)
N	1,331	1,207	800	495	247

Notes: Probit regressions with data from the 2009 to 2018 UNM admission data.
*** Significant at 1% level ** at 5% level * at 10% level

Table 32: Price Elasticity of Demand Estimates – Net Price 2: Cohort Analysis (Business)

Years	**Semester 1-2**	**Semester 2-3**	**Semester 3-4**	**Semester 4-5**	**Semester 5-6**
	(1)	**(2)**	**(3)**	**(4)**	**(5)**
Net Price 1	-0.802***	-1.040***	-0.980***	-1.014***	-0.901***
	(0.176)	(0.179)	(0.188)	(0.195)	(0.218)
N	3,422	3,022	2,538	2,328	1,999
	Semester 6-7	**Semester 7-8**	**Semester 8-9**	**Semester 9-10**	**Semester 10-11**
	(6)	**(7)**	**(8)**	**(9)**	**(10)**
Net Price 1	-1.213***	-1.283***	-1.018**	-1.215	-1.777
	(0.229)	(0.254)	(0.469)	(0.816)	(1.405)
N	1,823	1,519	912	570	276

Notes: Probit regressions with data from the 2009 to 2018 UNM admission data.
*** Significant at 1% level ** at 5% level * at 10% level

Table 33: Price Elasticity of Demand Estimates – Net Price 2: Cohort Analysis (Physical Sciences)

Years	**Semester 1-2**	**Semester 2-3**	**Semester 3-4**	**Semester 4-5**	**Semester 5-6**
	(1)	**(2)**	**(3)**	**(4)**	**(5)**
Net Price 1	-0.044**	-0.043**	-0.015	-0.014	0.041**
	(0.018)	(0.018)	(0.016)	(0.018)	(0.017)
N	3,495	3,081	2,587	2,372	2,061
	Semester 6-7	**Semester 7-8**	**Semester 8-9**	**Semester 9-10**	**Semester 10-11**
	(6)	**(7)**	**(8)**	**(9)**	**(10)**
Net Price 1	0.022	0.026	0.034	-0.081	-0.216
	(0.022)	(0.028)	(0.058)	(0.161)	(0.212)
N	1,884	1,583	1,000	644	314

Notes: Probit regressions with data from the 2009 to 2018 UNM admission data.
*** Significant at 1% level ** at 5% level * at 10% level

Table 34: Price Elasticity of Demand Estimates – Net Price 2: Cohort Analysis (Engineering)

Years	**Semester 1-2**	**Semester 2-3**	**Semester 3-4**	**Semester 4-5**	**Semester 5-6**
	(1)	**(2)**	**(3)**	**(4)**	**(5)**
Net Price 1	-0.638**	-0.764**	-0.157	-0.358	0.360
	(0.287)	(0.297)	(0.364)	(0.419)	(0.485)
N	2,655	2,159	1,724	1,485	1,182
	Semester 6-7	**Semester 7-8**	**Semester 8-9**	**Semester 9-10**	**Semester 10-11**
	(6)	**(7)**	**(8)**	**(9)**	**(10)**
Net Price 1	-0.842*	-0.363	-1.034	-2.047	-2.739
	(0.503)	(0.604)	(0.817)	(1.308)	(2.176)
N	1,086	889	638	447	231

Notes: Probit regressions with data from the 2009 to 2018 UNM admission data.
*** Significant at 1% level ** at 5% level * at 10% level

Table 35: Price Elasticity of Demand Estimates – Net Price 2: Cohort Analysis (Medicine)

Years	**Semester 1-2**	**Semester 2-3**	**Semester 3-4**	**Semester 4-5**	**Semester 5-6**
	(1)	**(2)**	**(3)**	**(4)**	**(5)**
Net Price 1	-1.750***	-1.531***	-1.183***	-1.372***	-0.154
	(0.325)	(0.314)	(0.356)	(0.399)	(0.461)
N	2,602	2,185	1,707	1,372	965
	Semester 6-7	**Semester 7-8**	**Semester 8-9**	**Semester 9-10**	**Semester 10-11**
	(6)	**(7)**	**(8)**	**(9)**	**(10)**
Net Price 1	-0.646	-2.130***	0.296	6.026*	N/A
	(0.554)	(0.803)	(1.197)	(3.524)	N/A
N	724	486	306	179	

Notes: Probit regressions with data from the 2009 to 2018 UNM admission data.
*** Significant at 1% level ** at 5% level * at 10% level

Table 36: Price Elasticity of Demand Estimates – Net Price 1: Credit Hour Analysis (In-state)

Years	**Semester 1-2**	**Semester 2-3**	**Semester 3-4**	**Semester 4-5**	**Semester 5-6**
	(1)	**(2)**	**(3)**	**(4)**	**(5)**
Net Price 1	-0.110***	-0.214***	-0.105***	-0.155***	-0.0980***
	(0.00113)	(0.00217)	(0.00156)	(0.00212)	(0.00178)
N	30,869	26,002	22,570	19,278	17,863
	Semester 6-7	**Semester 7-8**	**Semester 8-9**	**Semester 9-10**	**Semester 10-11**
	(6)	**(7)**	**(8)**	**(9)**	**(10)**
Net Price 1	-0.136***	-0.123***	-0.615***	-0.527***	-0.858***
	(0.00205)	(0.00227)	(0.0149)	(0.0270)	(0.0495)
N	15,390	14,628	12,306	8,465	5,521

Notes: Probit regressions with data from the 2009 to 2018 UNM admission data.
*** Significant at 1% level ** at 5% level * at 10% level

Table 37: Price Elasticity of Demand Estimates – Net Price 1: Credit Hour Analysis (Out-of-state)

Years	**Semester 1-2**	**Semester 2-3**	**Semester 3-4**	**Semester 4-5**	**Semester 5-6**
	(1)	**(2)**	**(3)**	**(4)**	**(5)**
Net Price 1	-0.298***	-0.500***	-0.253***	-0.357***	-0.204***
	-0.028	(0.0485)	(0.0324)	(0.0411)	(0.0284)
N	3,135	2,544	2,067	1,653	1,480
	Semester 6-7	**Semester 7-8**	**Semester 8-9**	**Semester 9-10**	**Semester 10-11**
	(6)	**(7)**	**(8)**	**(9)**	**(10)**
Net Price 1	-0.195***	-0.220***	-1.620***	-1.162***	-2.202***
	(0.0353)	(0.0411)	(0.281)	(0.288)	(0.650)
N	1,164	1,087	852	451	271

Notes: Probit regressions with data from the 2009 to 2018 UNM admission data.
*** Significant at 1% level ** at 5% level * at 10% level

Table 38: Price Elasticity of Demand Estimates – Net Price 2: Credit Hour Analysis (In-state)

Years	**Semester 1-2**	**Semester 2-3**	**Semester 3-4**	**Semester 4-5**	**Semester 5-6**
	(1)	**(2)**	**(3)**	**(4)**	**(5)**
Net Price 1	-0.903***	-1.471***	-0.816***	-1.017***	-0.679***
	(0.0134)	(0.0229)	(0.0170)	(0.0222)	(0.0179)
N	30,869	26,002	22,570	19,278	17,863
	Semester 6-7	**Semester 7-8**	**Semester 8-9**	**Semester 9-10**	
	(6)	**(7)**	**(8)**	**(9)**	
Net Price 1	-0.777***	-0.740***	-2.864***	-2.513***	-4.314***
	(0.0195)	(0.0198)	(0.0870)	(0.149)	(0.286)
N	15,390	14,628	12,306	8,465	5,521

Notes: Probit regressions with data from the 2009 to 2018 UNM admission data.
*** Significant at 1% level ** at 5% level * at 10% level

Table 39: Price Elasticity of Demand Estimates – Net Price 2: Credit Hour Analysis (Out-of-state)

Years	**Semester 1-2**	**Semester 2-3**	**Semester 3-4**	**Semester 4-5**	**Semester 5-6**
	(1)	**(2)**	**(3)**	**(4)**	**(5)**
Net Price 1	-0.879***	-1.446***	-0.731***	-1.043***	-0.608***
	(0.0852)	(0.146)	(0.0982)	(0.125)	(0.0869)
N	3,135	2,544	2,067	1,653	1,480
	Semester 6-7	**Semester 7-8**	**Semester 8-9**	**Semester 9-10**	**Semester 10-11**
	(6)	**(7)**	**(8)**	**(9)**	**(10)**
Net Price 1	-0.555***	-0.635***	-4.176***	-3.005***	-5.941***
	(0.107)	(0.126)	(0.778)	(0.788)	(1.820)
N	1,164	1,087	852	451	271

Notes: Probit regressions with data from the 2009 to 2018 UNM admission data.
*** Significant at 1% level ** at 5% level * at 10% level

Table 40: Price Elasticity of Demand Estimates – Net Price 1: Full Time Student Credit Hour Analysis (In-state)

Years	**Semester 1-2**	**Semester 2-3**	**Semester 3-4**	**Semester 4-5**	**Semester 5-6**
	(1)	**(2)**	**(3)**	**(4)**	**(5)**
Net Price 1	-0.005***	-0.006***	-0.006***	-0.006***	-0.006***
	(0.000)	(0.001)	(0.001)	(0.001)	(0.001)
N	29,601	23,233	22,541	17,785	15,219
	Semester 6-7	**Semester 7-8**	**Semester 8-9**	**Semester 9-10**	**Semester 10-11**
	(6)	**(7)**	**(8)**	**(9)**	**(10)**
Net Price 1	-0.006***	-0.006***	-0.001	-0.000	0.003
	(0.001)	(0.001)	(0.002)	(0.005)	(0.007)
N	13,110	12,220	7,955	4,723	2,243

Notes: Probit regressions with data from the 2009 to 2018 UNM admission data.
*** Significant at 1% level ** at 5% level * at 10% level

Table 41: Price Elasticity of Demand Estimates – Net Price 1: Full Time Student Credit Hour Analysis (Out-of-state)

Years	**Semester 1-2**	**Semester 2-3**	**Semester 3-4**	**Semester 4-5**	**Semester 5-6**
	(1)	**(2)**	**(3)**	**(4)**	**(5)**
Net Price 1	-0.007	-0.002	0.004	0.001	-0.003
	(0.011)	(0.013)	(0.014)	(0.015)	(0.011)
N	2,923	2,187	1,944	1,548	2,488
	Semester 6-7	**Semester 7-8**	**Semester 8-9**	**Semester 9-10**	**Semester 10-11**
	(6)	**(7)**	**(8)**	**(9)**	**(10)**
Net Price 1	-0.002	0.010	-0.020	-0.021	0.081
	(0.017)	(0.018)	(0.037)	(0.050)	(0.076)
N	1,176	1,050	411	261	109

Notes: Probit regressions with data from the 2009 to 2018 UNM admission data.
*** Significant at 1% level ** at 5% level * at 10% level

Table 42: Price Elasticity of Demand Estimates – Net Price 2: Full Time Student Credit Hour Analysis (In-state)

Years	**Semester 1-2**	**Semester 2-3**	**Semester 3-4**	**Semester 4-5**	**Semester 5-6**
	(1)	**(2)**	**(3)**	**(4)**	**(5)**
Net Price 1	-0.072***	-0.081***	-0.070***	-0.069***	-0.075***
	(0.008)	(0.009)	(0.010)	(0.011)	(0.011)
N	26,837	20,971	19,178	15,948	15,219
	Semester 6-7	**Semester 7-8**	**Semester 8-9**	**Semester 9-10**	**Semester 10-11**
	(6)	**(7)**	**(8)**	**(9)**	**(10)**
Net Price 1	-0.059***	-0.047***	-0.025	-0.025	-0.012
	(0.011)	(0.011)	(0.019)	(0.030)	(0.046)
N	13,110	12,220	6,912	4,143	1,971

Notes: Probit regressions with data from the 2009 to 2018 UNM admission data.
*** Significant at 1% level ** at 5% level * at 10% level

Table 43: Price Elasticity of Demand Estimates – Net Price 2: Full Time Student Credit Hour Analysis (Out-of-state)

Years	**Semester 1-2**	**Semester 2-3**	**Semester 3-4**	**Semester 4-5**	**Semester 5-6**
	(1)	**(2)**	**(3)**	**(4)**	**(5)**
Net Price 1	-0.015	0.001	0.015	0.015	-0.017
	(0.037)	(0.043)	(0.045)	(0.049)	(0.052)
N	2,595	1,932	1,717	1,346	1,297
	Semester 6-7	**Semester 7-8**	**Semester 8-9**	**Semester 9-10**	**Semester 10-11**
	(6)	**(7)**	**(8)**	**(9)**	**(10)**
Net Price 1	0.010	0.031	-0.059	-0.033	0.207
	(0.055)	(0.059)	(0.114)	(0.153)	(0.284)
N	1,000	891	341	212	90

Notes: Probit regressions with data from the 2009 to 2018 UNM admission data.
*** Significant at 1% level ** at 5% level * at 10% level

Table 44: Price Elasticity of Demand Estimates – Net Price 1: Household Income Categories (In-state)

Years	**$0-$10,000 (1)**	**$10K-$20K (2)**	**$20K-$30K (3)**	**$30K-$40K (4)**	**$40K-$50K (5)**
Net Price 1	-0.285***	-0.420***	-0.339***	-0.447***	-0.438***
	(0.023)	(0.042)	(0.034)	(0.037)	(0.035)
N	4,152	2,408	2,703	2,941	2,953
	$50K-$60K (6)	**$60K-$70K (7)**	**$70K-$80K (8)**	**$80K-$90K (9)**	**$90K-$100K (10)**
Net Price 1	-0.278***	-0.248***	-0.205***	-0.227***	-0.185***
	(0.029)	(0.030)	(0.030)	(0.034)	(0.033)
N	2,457	2,096	2,020	1,945	1,835

Notes: Probit regressions with data from the 2009 to 2018 UNM admission data.
*** Significant at 1% level ** at 5% level * at 10% level

Table 45: Price Elasticity of Demand Estimates – Net Price 2: Household Income Categories (In-state)

Years	**$0-$10,000**	**$10K-$20K**	**$20K-$30K**	**$30K-$40K**	**$40K-$50K**
	(1)	**(2)**	**(3)**	**(4)**	**(5)**
Net Price 2	-0.697***	-0.854***	-0.783***	-0.905***	-0.926***
	(0.044)	(0.068)	(0.059)	(0.062)	(0.065)
N	4,152	2,408	2,703	2,941	2,953
	$50K-$60K	**$60K-$70K**	**$70K-$80K**	**$80K-$90K**	**$90K-$100K**
	(6)	**(7)**	**(8)**	**(9)**	**(10)**
Net Price 2	-0.799***	-0.616***	-0.619***	-0.639***	-0.407***
	(0.074)	(0.079)	(0.090)	(0.099)	(0.096)
N	2,457	2,096	2,020	1,945	1,835

Notes: Probit regressions with data from the 2009 to 2018 UNM admission data.
*** Significant at 1% level ** at 5% level * at 10% level

Table 46: Price Elasticity of Demand Estimates – Net Price 1: Household Income Categories (Out of State)

Years	**$0-$10,000 (1)**	**$10K-$20K (2)**	**$20K-$30K (3)**	**$30K-$40K (4)**	**$40K-$50K (5)**
Net Price 1	-1.756***	-2.152***	-2.193***	-3.064***	-2.564***
	(0.247)	(0.421)	(0.410)	(0.489)	(0.423)
N	701	407	458	491	481
	$50K-$60K (6)	**$60K-$70K (7)**	**$70K-$80K (8)**	**$80K-$90K (9)**	**$90K-$100K (10)**
Net Price 1	-2.293***	-2.022***	-2.269***	-1.568***	-2.087***
	(0.394)	(0.447)	(0.425)	(0.379)	(0.436)
N	433	428	412	377	387

Notes: Probit regressions with data from the 2009 to 2018 UNM admission data.
*** Significant at 1% level ** at 5% level * at 10% level

Table 47: Price Elasticity of Demand Estimates – Net Price 2: Household Income Categories (Out of State)

Years	**$0-$10,000 (1)**	**$10K-$20K (2)**	**$20K-$30K (3)**	**$30K-$40K (4)**	**$40K-$50K (5)**
Net Price 2	-3.049***	-3.955***	-3.962***	-5.520***	-4.463***
	(0.415)	(0.752)	(0.711)	(0.864)	(0.736)
N	701	407	458	491	481
	$50K-$60K (6)	**$60K-$70K (7)**	**$70K-$80K (8)**	**$80K-$90K (9)**	**$90K-$100K (10)**
Net Price 2	-3.750***	-3.480***	-3.856***	-2.596***	-3.524***
	(0.665)	(0.733)	(0.726)	(0.618)	(0.737)
N	433	428	412	377	387

Notes: Probit regressions with data from the 2009 to 2018 UNM admission data.
*** Significant at 1% level ** at 5% level * at 10% level

Table 48: Price Elasticity of Demand Estimates – Net Price 1: Household Income Categories (In-state)

Years	**$0-$25,000**	**$25K-$50K**	**$50K-$75K**	**$75K-$100K**	**$100K-$125K**
	(1)	**(2)**	**(3)**	**(4)**	**(5)**
Net Price 1	-0.321***	-0.414***	-0.256***	-0.195***	-0.193***
	(0.018)	(0.022)	(0.018)	(0.021)	(0.025)
N	7,868	7,284	5,600	4,752	4,008

Table 49: Price Elasticity of Demand Estimates – Net Price 2: Household Income Categories (In-state)

Years	**$0-$25,000**	**$25K-$50K**	**$50K-$75K**	**$75K-$100K**	**$100K-$125K**
	(1)	**(2)**	**(3)**	**(4)**	**(5)**
Net Price 2	-0.738***	-0.878***	-0.720***	-0.507***	-0.553***
	(0.034)	(0.039)	(0.049)	(0.060)	(0.072)
N	7,868	7,284	5,600	4,752	4,008

Table 50: Price Elasticity of Demand Estimates – Net Price 1: Household Income Categories (Out of state)

Years	**$0-$25,000**	**$25K-$50K**	**$50K-$75K**	**$75K-$100K**	**$100K-$125K**
	(1)	**(2)**	**(3)**	**(4)**	**(5)**
Net Price 1	-1.798***	-2.388***	-2.134***	-1.649***	-2.186***
	(0.189)	(0.242)	(0.251)	(0.235)	(0.299)
N	1,317	1,223	1,049	991	884

Table 51: Price Elasticity of Demand Estimates – Net Price 2: Household Income Categories (Out of state)

Years	**$0-$25,000**	**$25K-$50K**	**$50K-$75K**	**$75K-$100K**	**$100K-$125K**
	(1)	**(2)**	**(3)**	**(4)**	**(5)**
Net Price 2	-3.191***	-4.253***	-3.545***	-2.776***	-3.598***
	(0.323)	(0.422)	(0.423)	(0.390)	(0.504)
N	1,317	1,223	1,049	991	884

Table 52: Price Elasticity of Demand Estimates – Year of Application with Substitute Prices (In-state)

Years	**2009**	**2010**	**2011**	**2012**	**2013**
	(1)	**(2)**	**(3)**	**(4)**	**(5)**
Net Price 1 (OS)	-0.182***	-0.148***	-0.153***	-0.232***	-0.196***
	(0.019)	(0.017)	(0.017)	(0.020)	(0.018)
N	3,136	3,496	3,718	3,855	3,825
	2014	**2015**	**2016**	**2017**	**2018**
	(6)	**(7)**	**(8)**	**(9)**	**(10)**
Net Price 1 (OS)	-0.126***	-0.230***	-0.188***	-0.193***	-0.553***
	(0.015)	(0.021)	(0.019)	(0.021)	(0.037)
N	3,697	3,956	3,900	4,126	3,757

Notes: Probit regressions with data from the 2009 to 2018 UNM admission data.
*** Significant at 1% level ** at 5% level * at 10% level

Table 53: Price Elasticity of Demand Estimates – Year of Application with Substitute Prices (Out-of-state)

Years	**2009**	**2010**	**2011**	**2012**	**2013**
	(1)	**(2)**	**(3)**	**(4)**	**(5)**
Net Price 1 (OS)	-1.629***	-1.367***	-1.520***	-1.598***	-2.381***
	(0.263)	(0.240)	(0.247)	(0.262)	(0.287)
N	432	620	671	741	776
	2014	**2015**	**2016**	**2017**	**2018**
	(6)	**(7)**	**(8)**	**(9)**	**(10)**
Net Price 1 (OS)	-1.750***	-2.263***	-1.391***	-1.742***	-2.231***
	(0.263)	(0.276)	(0.194)	(0.260)	(0.366)
N	847	955	1,251	884	688

Notes: Probit regressions with data from the 2009 to 2018 UNM admission data.
*** Significant at 1% level ** at 5% level * at 10% level

Appendix A

Table A1: Historical List of Undergraduate Differential Tuition at the University of New Mexico

College/Major	Differential Tuition	Academic Year
College of Nursing	$156 per credit hour	2010-2011
College of Education	$125 one-time curriculum fee at admittance	2012-2013
Anderson School of Management	$10 per credit hour	2014-2015
School of Engineering	$15 per credit hour	2015-2016
Emergency Medical Services	$60 per credit hour	2017-2018

*Note: Various differentials at the Health Sciences Center not included due to the majority of programs serving graduate students. Online degree completion programs introduced tuition differentials in 2017-2018. Upper division course premiums were introduced to all students in 2017-2018. The College of Arts and Sciences introduced a $10 per credit hour tuition differential in 2019-2020.

Table A2: Semester Transition Equivalent List

Semester Transition	Semester Transition Equivalent
Semester 1-2	Freshman Fall – Freshman Spring
Semester 2-3	Freshman Spring – Sophomore Fall
Semester 3-4	Sophomore Fall – Sophomore Spring
Semester 4-5	Sophomore Spring – Junior Fall
Semester 5-6	Junior Fall – Junior Spring
Semester 6-7	Junior Spring – Senior Fall
Semester 7-8	Senior Fall – Senior Spring
Semester 8-9	Senior Spring – Fifth Year Fall
Semester 9-10	Fifth Year Fall – Fifth Year Spring
Semester 10-11	Fifth Year Spring – Sixth Year Fall

Note: List of semester transition and equivalent semester type transitions.

Table A3: List of Scholarships and Funding Included in the Net Price Measures and Value

Semester Transition	Semester Transition Equivalent	Scholarship Amount
Woodward Scholars	Institutional	$4,000 per year
UNM Scholars	Institutional	$3,000 per year
UNM Achievers	Institutional	$2,000 per year
Bridge to Success Scholarship	Institutional	$1,000 for the first semester of the freshman year
Success Grant	Institutional	$1,000 for the first semester of the freshman year
New Mexico Lottery Scholarship	State	Approximately $2,265 per semester beginning second semester.
Regent Scholarship	State	Approximately $19,854 per year. — covers full tuition, fees, and housing. *
National Merit Finalist Scholarship	State	Approximately $19,854 per year — covers full tuition, fees, and housing. *
Presidential Scholarship	State	Approximately $9,808 per year *
National African American Scholars	State	Approximately $11,000 per year *
National American Indian Scholars	State	Approximately $11,000 per year *
National Hispanic Scholars	State	Approximately $11,000 per year *
Amigo Scholarship	State	Approximate value of $15,500 per year
Pell Grant	Federal	Maximum value of $6,345 per year

Note: The scholarship/funding amounts are for academic year 2020/2021 and are subject to change each academic year.

* The tuition portion of these awards is funded in part by the Legislative Lottery Scholarship