WHY GENDER MATTERS: THE WAGE DISCRIMINATION BETWEEN PRIMARY AND SPECIALTY CARE PHYSICIANS

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Abstract

The phenomenon of wage discrimination between primary care physicians and specialty care physicians has produced a disparity in the quantity of each physician that reduces the effectiveness of healthcare in the United States. In order to understand why such a disparity exists, this study investigates the wage determinants for each physician and if these determinants influence the choice of a physician to specialize or not. Using data from the 2004/2005 Community Tracking Survey, this study uses regression analysis to determine the value of the determinants of physician income. This study finds that not only is there an income gap between physicians, but there also exists a gender gap among each type of physician.

KEYWORDS: (Income Gap, Gender Discrimination, Wage Determinants)

Acknowledgments

Thank you to the Business and Economics department fro providing me with the knowledge to explore the wage determinants of physician income, and particularly Kevin Rask for inspiring the topic of this thesis.

ON MY HONOR, I HAVE NEITHER GIVEN NOR RECEIVED
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Introduction

In past years, graduating students looking to become physicians focus on becoming specialists, as it is a higher paying job that exudes flashy job titles, rather than primary care physicians. This trend of specialization is more prevalent as the number of primary care physicians decreases and reduces the potential candidates to specialized medical jobs. The most influential determinants of physicians' decisions to specialize revolve around the job itself and the present wealth gap between specialists and primary care physicians. Whether each job opportunity promotes a challenging field of work for the individual or surgical opportunities constitutes some of the many determinants that are examined when physicians decide to specialize, but one of the main factors that cannot be discounted is the effect of income.

Attending Medical School is expensive, thus, many graduating students are looking to quickly pay back their student debts to insure their own financial liberties. With this in mind, it is obvious why physicians choose to specialize; their salaries are lucrative to say the least. But is this the only thing drawing young physicians into the specialty realm? And if so, what are the determinants of wages among physicians that draw so many of them into specialty practice over primary care? If we are to think that income truly sways the decisions of physicians, then it is worth analyzing the income differences.

One of the determinants for wage determination is gender, and it is for all professions. Before recent feminist movements, the Chief-level of staff for most corporations were stereotypically white males in dark suits, and if a woman

persisted these stigmas, she was almost always paid less. This trend has shifted where women have been granted fairer opportunities to advance in the workplace, yet wages still lag, and women are paid less on average than their male counterparts.

An examination of the male-female gap in physician earnings is essential to develop a thorough understanding of how the determinants of wages may influence the decision to choose specialty care instead of primary care. Not only will this analysis delve into the gap in earnings between men and women, but may also expose the source of why men and women choose to specialize.

This paper will investigate how gender influences the wage gap among physicians, and finally if gender is a determinant into the decision of choosing to work in specialty care or primary care.

Literature Review

Determining physician income is a complicated matter that involves a multi-faceted approach to understand the issues concerning wage determination. Firstly, I researched the wage gap that exists among specialist physicians and primary care physicians. What I found here speaks to the income inequality among these specialists and the determinants that contribute to this gap. The income gap produces an inefficient labor supply, which itself carries market problems that trickle down to the consumers of health care, which is all of us. Due to this phenomenon affecting every one, this economic problem disrupts social ways of everyday life. Secondly, the wage gap is not the only factor to income, lest we not forget about gender. Historically, women have not had equal salaries to their male counterparts. For physicians, wages are not the only factor in this decision making process. The attributes of each specialty greatly contribute to the decision of specialty care or primary care track, as well as the flexibility of the hours. On-call hours are also critical to the decision for a physician to choose his or her career path.

Wage Gap

The wage gap between primary physicians and specialty physicians has been well documented. Primary care physicians earn significantly lower incomes than other physicians (Cohen et al 1990). Some of the many facets that contribute to this gap are directly correlated with the process of becoming a specialist. Overall, specialty physicians require more education and residency practice in order to be licensed to practice on their own, and thus pass up on receiving income earlier, as if

they had chosen to become primary care physicians. The debt that specialists accrue during their educational progress increases the value of the specialists, therefore increasing their wages. In Rizzo and Blumenthal's article, *Physician labor supply: Do Income effects matter?*, one of the conclusions that they were able to make from their results "indicated that practice experience has a direct and highly significant effect on wages" (Rizzo and Blumenthal 444). Their results estimate that for each year of practice, wages will increase by 8 percent. 8 percent is significant, but not overwhelming.

A principal finding in the research has been that firm effects are substantially more important than measured personal characteristics in explaining wage variation, even when the measured personal characteristics include detailed occupational effects, which are typically interpreted as a proxy for pure personal effects (Abowd, Kramarz, and Margolis, 1999).

Productivity differentials between workers at a firm might reflect differences in skills that are specific to the firm or known only by the firm (Bishop 1987).

In order to measure experience, some sense of time of practice must be observed. One unit in which this can be measured is via clinical hours logged per week per physician. Vaughn, DeVrieze, Reed, and Schulman (2010) investigated this difference between specialty physicians and primary care physicians by analyzing a national survey from 2005. Their comparison used cardiologists as a point of reference for all specialty physicians compared to family practice physicians, which represented primary care physicians. They found that specialty physicians, cardiologists, worked 17.8 percent more hours than their primary care physician

counterparts. What they concluded was that, "For present-value wealth potential to be equal, primary care physicians would have to work 90 percent more hours, at the same hourly rate, than they currently do" (Vaughn et al., 2010). In other words, they pay scale among physicians is unequal such that primary care physicians need to almost double their hours worked in order to make up the difference in pay that arises from a 17.8 percent difference in initial hours worked. They also determined, "In the base-case analysis, cardiologists generated much more wealth than those on any other career track, even after repaying the high level of accumulated debt and starting the career later (Vaughn et al., 2010). By comparing a multitude of career tracks including MBA graduates, Physician Assistants, and college graduates, Vaughn et al. were able to analyze the wealth value of each career track. Ultimately, the take-away is the monumental difference in the amount of possible wealth acquired for each type of physician. Vaughn et al. compare the value of career wealth and suggest that specialty physicians, cardiologists, will earn 2.1 times the earnings of primary care physicians. Even though primary care physicians are predicted to accrue a career wealth near $2.5 million, the difference between primary care physicians and specialty physicians is striking, and deserves a discussion to analyze how the wage determinants differ among primary care physicians and specialty care physicians. Vaughn et al. conclude that:

> "Over their lifetimes, primary care physicians earn lower incomes-and accumulate considerably less wealth-than their specialist counterparts. This gap influences medical students, who are choosing careers in primary care in declining numbers. The wealth gap is substantial; narrowing it would require substantial reductions in specialists' practice income or increases in primary care physicians' practice income, or both, of more than $100,000 a year" (2010).

No longer does this wage gap solely influence the physicians receiving pay and deciding their career tracks, but also impacts the patients and the availability of the doctors that they can potentially visit. A concern at stake here is the long-term care of patients. With specialty care, the physician is only needed while a given problem arises, such as a broken bone or a minor surgery. In comparison to specialty care, primary care physicians have a regular clientele that periodically visits during the year, but visits with the doctor over many years so that overall health can be monitored.

Lasser, Woolhandler, and Himmelstein (2008) investigate the impact of government policy on generating income differentials among specialists and the effect if the income gap among physicians. A key point that they bring up is how the income gap puts the whole health care system at risk. Lasser et al. conclude:

> "Even lower-paid US physicians earn far more than the average American, making it difficult to generate a groundswell of public sympathy for the financial plight of primary care doctors. Yet the income inequality between specialists and generalists unbalances the health care system and ultimately puts patients at risk. If fewer medical trainees are attracted to primary care, patients will be left without physicians to coordinate their care and to follow them longitudinally" (2008).

This concern stems from the pay unbalance that is drawing more and more medical students away from primary care toward the more lucrative specialty care. Inequality among physician income is reducing the primary care work force, thus leaving citizens scrambling to find alternative care. For example, Lasser et al. note that The American Geriatrics Society estimates there are 7,600 certified primary care physicians in the United States despite a need for approximately 20,000 geriatricians (Lasser et al., 2008). Is there a correlation for this need and the fact that geriatricians are the lowest paid specialty? The sanctity of health care should

not depend on the income for physicians, but rather based on the need of the people. It is selfish and irresponsible to deprive the people of what they need in regards to physician income.

The result of this unbalance is presented by Sivey, Scott, Witt, Joyce, and Humphreys (2012). They mention how wage differences exist due to barriers of entry, but result in "market imperfections [that] can contribute to an inefficient supply of doctors across specialties lading to sub-optimal health outcomes and high health care costs" (Sivey et al., 2012). Even though this is a predicted outcome, the possibility of inefficient health care that could result in poor care is alarming. The wage gap among physicians has is concerning to not only those directly involved, but it has spread to those in need of healthcare and the availability of doctors that are able to provide care for these people.

Gender Gap

When determining physician income, specialty care compared to primary care is not the only primary factor, but also how gender influences pay structures. There has historically been unequal pay between men and women across many professions. Gender discrimination is significant among physicians and has been widely studied. Theurl and Winner (2010) observed a unique set of data from 2000 to 2004 that reported physician earnings in an unnamed Austrian province and found a significant gender gap in average earnings. In their study, women were paid on average 31% less than their male counterparts. With this in mind, Theurl and Winner note, "In qualitative terms, these results are well in accordance with previous studies, suggesting that discrimination might be a robust and persistent

phenomenon in the physician labor market" (Theurl and Winner, 2010). Rizzo and Blumenthal noted a similar observation in their study where, "The results for the full sample indicate that female physicians have significantly lower wages than males" (Rizzo and Blumenthal 1994). This evidence supports the notion that gender is a very important determinant when distinguishing physician income, especially for specialty physicians. Sloan (1974) indicates that women are less likely to enter into a surgical specialty than to be a primary care physician. The evident gender gap influences both the choice of career track and the pay scale for physicians.

This chapter provides a look at the determinants of physician income in order to contextualize the motivation for this study. This study will build on the models found in previous research to explore the factors that influence income determination. The next chapter will discuss the theoretical framework to investigate the determinants of physician income.

Theory

Theurl and Winner (2010) investigated the male versus female gap in their investigation by sorting their findings to compare men and women, but their model employed reported incomes, hours worked, experience, specialty, and personal characteristics. This model is appropriate because it takes into account the effects of experience through age and practice with regard to specialty, which develops a well-rounded estimation for each individual to fully observe how these characteristics determine wage. Rizzo and Blumenthal had a similar study in 1994, but rather focused on the determinants of wage rather than the gender gap. They used a lot of overlapping variables that were present in Theurl and Winner's experiment, but included regional characteristics into their model. I thought this was appropriate as urbanization may play a part in determining physician income, especially if there is a lack of physicians in rural areas, which could contribute to inflated wages. In both of these models, the log of the reported income was used as the dependent variable in order to measure the effects of each variable in percentages rather than numerical amounts. This is helpful because we do not have to take into account inflation for these investigations as they happened in 1994 and 2010, which would drastically affect the value of a dollar. By synthesizing these models, it will be possible to develop a robust model that can provide evidence for how gender and specialty or primary care act as wage determinants because this exact study has not been done before, but specialization and gender have been studied before.

Rizzo and Blumenthal's model was constructed to estimate the earnings of all self-employed physicians in their data set. The following equation is their model:

$$lnWage = \alpha PracYr + \beta Specialty + \gamma Married + \delta Female + \theta Daysnotworked * Appointments \quad (1)$$

This model provides a foundation for the model tested here, building on Rizzo and Blumenthal (1993). Their explanatory variables focused on experience, specialty, personal characteristics, and regional characteristics. Their study found the expected negative coefficient for "FEMALE" and some interesting coefficients for the various "Specialty" roles they observed. This study shows how, typically, choosing a career as a specialty physician increases wages anywhere from 29% to 59%, relative to a primary care physician. Ultimately, Rizzo and Blumenthal's model reveals the importance of experience, specialty, personal and regional characteristics as explanatory variables.

Theurl and Winner (2010) incorporate the aspects pertinent to the gender gap. One of the particular aspects from their model that was interesting was the incorporation of the age-squared term. They find that age carries a positive coefficient and that age squared carries a negative coefficient in their regressions. Therefore, there is a positive but diminishing impact of a physician's work experience on annual earnings. Thus, a physician's income will increase from year to year, but the magnitude of these increases will decrease over time.

Furthermore, the analysis of this model was a measurement of experience, specifically how they incorporated squared age and then divided that number by 100. Also, it is particularly interesting to include the variable "Days not worked*Appointments". This variable seemed to capture the effect of how days off could increase productivity, while the services by appointment piece captured the productivity of the physician while in the office. It could also justify the demand for the number of the physicians in one practice. Many of the other categories in this model overlapped with that of Rizzo and Blumenthal, such as the specialty characteristics, personal characteristics, and experience. Just like that in Rizzo and Blumenthal's model, physicians who worked as a specialist received positive coefficients to increase their income.

Theurl and Winner's article supports this notion that there will be a gender gap in income for physicians; therefore we should expect a negative coefficient on the gender variable.

This chapter provides an insight to the previously existing models used to determine physician income. The next chapter will describe the data set used in this analysis.

Data and Descriptive Statistics

The sample of data used in this analysis comes from the 2004/2005 Community Tracking Survey (CTS), which is a large-scale investigation about changes in American Healthcare. The survey gathered information regarding ethnicity, year began practicing medicine, net income from practicing medicine, specialty, practice type, number of hours worked in medically related activity during the last complete week of work, and the number of hours spent providing charity care in the last month. There are 6,628 observations and 16 variables from the survey. But, incomplete CTS surveys resulted in omitted data for some variables, which in turn forced reduced the sample size to 1952 total physicians. The survey was given at 60 CTS locations across the nation; 51 metropolitan areas and 9 nonmetropolitan areas, which provides us with a representation of the nation as a whole. The data tells us the population of the location from the CTS survey, but it lacks definition of the regional characteristics. Instead, we can compare large metropolitan regions to smaller and nonmetropolitan regions. Table 1 in Appendix A provides the summary statistics for the variables.

The categorical variables in this survey are MSACAT that describes the population of the region that the physician works in,

Gender2 is the gender of the physician,

GENSUB is the specialty of the physician,

OWNPR is the ownership status of the practice relative to the physician,

PRCTYPE is the type of practice that the physician works at,

HISP is the physician's Hispanic origins,

and RACE is whether or not the physician is white or ethnic. MSACAT is divided into three sections, where a 1 designates a large metropolitan area, defined by a population greater than 200,000 people, a 2 designates a small metropolitan area, which has a population less than 200,000 people, and a 3 designates a nonmetropolitan area. Gender is dichotomous variable with men represented by a zero and women represented by a 1. HISP and RACE are similar to Gender2, where a one indicates a positive response to questions about Hispanic origins and not being Caucasian. GENSUB indicates whether the physician works in specialty care or primary care, denoted by a 1 and 2 respectively. In this study, income is the dependent variable and the determinants of income are the explanatory variables. The physicians self reported their incomes from 2003 and range from $0 to $400,000, with a mean income of $97,382.78. This spread arises given that some of the physicians work as a charitable act, explaining the value of $0, and the specialty care physicians have the highest incomes, reaching a maximum of $400,000 in 2003. The mean of $97,382.78 is a better representation of the physicians as a whole because there are far more primary care physicians than there are specialty care physicians, 1759 and 193 correspondingly.

In this study, participants were categorized by numbers where a zero indicated a male and a one indicated a female. This allowed for the variable “Gender2” to specifically represent women, as men were denoted by a zero, thus having no impact on the coefficient of the Gender2 variable.

A similar assumption was made for race, as this is not an ordinary cluster of individuals, physicians are highly intelligent and will receive high wages (Abowd et

al., 1999). The coefficient on experience will be incredibly positive, and the coefficients on race and gender will be statistically different from zero, yet they will not have a magnitude similar to that of experience.

Ultimately, this investigation was limited by the total variables available, but was able to construct a model that developed a similar identity for each participant by observing personal characteristics through gender and race, and experience through years-worked-squared, years worked, and hours of medical work performed weekly, as well as a leisure component of weeks not worked. This last variable will tell us the effect of taking time off, and if doing so increases worker productivity through an analysis of total received income. This study will employ a similar strategy to that of the aforementioned authors to compose a model with explanatory variables of experience and personal characteristics to predict income. The coefficients on the explanatory variables will show us the potential discrimination against women and how it differs among primary care physicians and specialty care physicians.

Finally, Appendix A concludes with the pair-wise correlations among variables. As expected, the correlation table suggests a strongly negative correlation among income and gender, specifically being a female, and a strong positive correlation among income and hours of medical work in the last complete week of the month.

Results

Regression Analysis

The purpose of this thesis is to analyze the effect of specialization, and particularly how specialization affects the determinants of physician income. The equation tested in this analysis is:

$$Incomet = Gender2 + HRSMED + YRSWRKD + WKSnotWRKD + RACE + \varepsilon \quad (2)$$

This study investigates the coefficients on the variables, thus providing evidence of how each explanatory variable determines income for physicians. The following regressions will sort the data into two categories; primary care physicians and specialty care physicians, marked by GENSUB = 1 and GENSUB = 2 respectively. It is essential to categorize the analysis by type of physician, separating primary care physicians from specialty care physicians in order to analyze how the determinants for each type of physician differ.

Primary Care Physicians

-> GENSUB = 1

Source	SS	df	MS		
Model	1.1392e+12	6	1.8987e+11	Number of obs =	1759
Residual	8.0772e+12	1752	4.6103e+09	F(6, 1752) =	41.18
				Prob > F =	0.0000
				R-squared =	0.1236
				Adj R-squared =	0.1206
Total	9.2164e+12	1758	5.2426e+09	Root MSE =	67899

INCOMET	Coef.	Std. Err.	t	P>|t|	[95% Conf.	Interval]
Gender2	-30857.56	3638.337	-8.48	0.000	-37993.5	-23721.62
HRSMED	596.9349	113.6074	5.25	0.000	374.1145	819.7552
yrswrk2	-90.55751	12.29816	-7.36	0.000	-114.6781	-66.4369
YRSWRKD	4017.796	515.3745	7.80	0.000	3006.982	5028.61
WKSnotWRKD	-862.5152	303.6457	-2.84	0.005	-1458.061	-266.9691
RACE	528.7813	949.5073	0.56	0.578	-1333.505	2391.068
_cons	98040.03	10123.83	9.68	0.000	78183.98	117896.1

This first regression is pertinent to primary care physicians, and the next regression will be pertinent to specialty care physicians.

Specialty Care Physicians

-> GENSUB = 2

Source	SS	df	MS		
Model	5.3559e+11	6	8.9265e+10	Number of obs =	193
Residual	1.3033e+12	186	7.0072e+09	F(6, 186) =	12.74
				Prob > F =	0.0000
Total	1.8389e+12	192	9.5777e+09	R-squared =	0.2913
				Adj R-squared =	0.2684
				Root MSE =	83709

INCOMET	Coef.	Std. Err.	t	P>|t|	[95% Conf.	Interval]
Gender2	-70068.88	13829.56	-5.07	0.000	-97351.83	-42785.94
HRSMED	1545.378	399.2948	3.87	0.000	757.6497	2333.107
yrswrk2	-132.5721	47.74024	-2.78	0.006	-226.7541	-38.39014
YRSWRKD	5013.778	2022.904	2.48	0.014	1022.992	9004.564
WKSnotWRKD	-1801.341	1188.009	-1.52	0.131	-4145.045	542.3622
RACE	4077.55	3748.823	1.09	0.278	-3318.128	11473.23
_cons	77416.6	38069.1	2.03	0.043	2313.873	152519.3

Before we can draw conclusions from these models, it is important to check these models for errors that may cause bias in the coefficient estimates. Just like before, it is necessary to perform a RESET test for omitted variables and a White test for heteroskedasticity. The results of these specification tests can be found in Appendix C. The RESET test produced a F-statistic of 4.55, which is still above the significant value of 2.1. Even though this result alerts of omitted variable bias, the reduction of this value confirms that the models are more precise when sorted by type of physician and an overall better fit. Finally, the White test produced a chi-squared value of 155.14, thus heteroskedasticity is still present in these models. In Appendix B the histogram charts the density of the residuals. If the residuals are normally

distributed, then there is no heteroskedasticity. The histogram is not normal as we expected, and is skewed to the right. Once again, it will be necessary to use a robust model to account for the heteroskedastic errors. The sorted, robust models are as follows:

Primary Care Physicians

```
-> GENSUB = 1

Linear regression                               Number of obs =    1759
                                                F(  6,  1752) =   42.39
                                                Prob > F      =  0.0000
                                                R-squared     =  0.1236
                                                Root MSE      =   67899
```

INCOMET	Coef.	Robust Std. Err.	t	P>|t|	[95% Conf.	Interval]
Gender2	-30857.56	3478.7	-8.87	0.000	-37680.4	-24034.72
HRSMED	596.9349	124.871	4.78	0.000	352.0231	841.8467
yrswrk2	-90.55751	14.71128	-6.16	0.000	-119.411	-61.704
YRSWRKD	4017.796	562.6898	7.14	0.000	2914.182	5121.41
WKSnotWRKD	-862.5152	285.3777	-3.02	0.003	-1422.232	-302.7986
RACE	528.7813	976.6035	0.54	0.588	-1386.65	2444.212
_cons	98040.03	9987.375	9.82	0.000	78451.6	117628.5

Specialty Care Physicians

```
-> GENSUB = 2

Linear regression                               Number of obs =     193
                                                F(  6,   186) =   13.54
                                                Prob > F      =  0.0000
                                                R-squared     =  0.2913
                                                Root MSE      =   83709
```

INCOMET	Coef.	Robust Std. Err.	t	P>|t|	[95% Conf.	Interval]
Gender2	-70068.88	12654.08	-5.54	0.000	-95032.85	-45104.92
HRSMED	1545.378	420.7642	3.67	0.000	715.2949	2375.462
yrswrk2	-132.5721	43.70038	-3.03	0.003	-218.7842	-46.35999
YRSWRKD	5013.778	1879.544	2.67	0.008	1305.812	8721.743
WKSnotWRKD	-1801.341	1188.178	-1.52	0.131	-4145.38	542.6974
RACE	4077.55	3544.073	1.15	0.251	-2914.196	11069.3
_cons	77416.6	38271.1	2.02	0.045	1915.372	152917.8

Results

In the model predicting income for primary care physicians, there may be a lot of variation among the reported incomes due to the person effects for highly skilled workers (Abowd et al., 1999), therefore it is not surprising to have a relatively low R-squared value in this model.

One of the surprising aspects of these regressions are the coefficients for the constants for primary care physicians and specialty care physicians. Yes, the two confidence intervals overlap, therefore it cannot be claimed that they are statistically significantly different, yet their averages are shocking. What is shocking is how the constant for primary care physicians is greater than that of specialty care physicians, it was expected to be the other way around. The conclusion to draw here is that primary care physicians on average receive a higher initial income than specialty care physicians. This is where the rest of the coefficients factor in and construct the wealth gap between the two different types of physicians.

Firstly, the coefficient for "HRSMED", the hours of medically related work per work, is greater on average for specialty care physicians than primary care physicians. This means that the determinant for time spent performing medicine is greater for specialty care physicians than primary care physicians. In a sense, their time is more valuable. The coefficients on "YRSWRKD" support this notion that specialty care physicians are rewarded for their experience more lucratively than primary care physicians. Again, the confidence intervals overlap for these

coefficients, but on average this phenomenon holds true. The negative coefficients on “YRSWRK2”, years-worked-squared, prove the increasing, yet diminishing returns of experience. Because of these factors, it is likely that there is more income growth potential over time for specialty care physicians than there is for primary care physicians.

One other difference between the two types of physicians that is fascinating are the coefficients on “WKSNOTWRKD”. The assumption that these estimations would be purely negative; meaning that time away from work would always decrease pay. This was true for primary care physicians, where the interval of coefficients was strictly negative, but not the case for specialty care physicians. On average, specialty care physicians lost nearly $1800 per week that they did not work, but the interval for this coefficient does cross zero. Therefore, it is not statistically different from zero, such that there is no guaranteed discount in income for taking time off for specialty care physicians. Primary care physicians are in higher demand because more people are more likely to need to visit one of these physicians for a common illness, whereas specialty care physicians are needed for more complex instances.

In order to compare the gender discrimination among primary and specialty care physicians we must examine the coefficient and confidence intervals for the variable “Gender2”. For the robust model estimating income for primary care physicians, the coefficient on “Gender2” is -30,857.56 with an interval of -24,034.72 to -37,680.40. On average, primary care physicians who are women will be docked $30,857.56 for their gender, but receive between $24,034.72 and $37,680.40 less

than their male counterparts. Compared to the constant, 98,040.03, which is an indicator to base pay, this discrimination is nearly one-third of their salary. When we analyze the robust model for specialty care physicians, the income discount for females increases in monetary value. The coefficient on "Gender2" in this model is -70,068.88, with an interval of -45,104.92 and -95,032.85. For specialty care physicians, women on average make $70,068.88 less than males. Relative to the constant, 77.416.60, base pay, gender discrimination for female specialists is approximately 90%. Rather than women being docked 90% of their pay, men are receiving wages nearly twice that of women.

There is no doubt that gender discrimination is prevalent among physician income determinants, but the magnitude of discrimination is interesting to compare between primary and specialty care physicians. It is worth noting that the confidence intervals for "Gender2" do not overlap between the two categories, thus the coefficients are statistically significantly different. In dollars, women are guaranteed to face more gender discrimination for income by choosing to become a specialty care physician. It may be argued that female specialty care physicians will still earn more than female primary care physicians, but it is guaranteed that the specialist will be discounted more so than the primary care physician.

Conclusion

This thesis tested and analyzed whether there was a statistically significant wage gap present between primary care physicians and specialty care physicians. Within these findings, the data was also analyzed in order to determine if wage discrimination was present that diminished the pay of women compared to men.

After working with the acquired data set, there was strong evidence for a gender gap among physicians. Policy implementations should be proposed that reward females throughout their medical school studies as an incentive to become a physician. This alone will not eliminate the gender gap, therefore it is necessary to police the incomes among male and female physicians in order to reduce the gender gap. The gender gap could further be reduced if the companies paying the physicians had more reason to care about this differential. One scenario that could combat this would be to fine the companies who continue to discriminate against females with their incomes. This would incentivize the people responsible for allocating wages to diminish the gender gap.

As for the wage gap among physicians, similar programs would have to become policy so the influence of the wage gap on medical students could be reduced. Vaughn et al. suggest that, "debt forgiveness or bonus payments could provide incentives for new graduates to choose primary care" (2010). It is important to diminish the influence of the wage gap via similar incomes because the number of primary care physicians in supply is lower than the demand for such physicians. The alternative plan to this is to increase the wages of primary care physicians. Sivey et al. found that in order to reduce the wage gap through pay increases to primary care physicians, it would take at least a $50,000 pay bump to cover the differential (2012). This would hopefully diminish the wage gap and increase the supply of primary care physicians.

Ultimately, it is more important to focus on the gender gap, given the recent activity in the population concerning equal rights and activism. This plan could

generate more traction among policy makers and be more likely to gain support by the legislators that could make this possible. By eliminating the gender gap among physicians, it is likely that legislators would follow suit and refocus their efforts as to reduce the wage gap in hopes to balance the demand and the lacking supply of primary care physicians in the United States.

Appendix A

Table 1 – Summary Statistics

Variable	Obs	Mean	Std. Dev.	Min	Max
MSACAT	6628	1.298431	.6757012	1	3
GENDER	6628	1.27927	.4486742	1	2
YRBGN	6628	1988.354	10.59406	1945	2004
GENSUB	1981	1.099445	.2993338	1	2
WKSWRK	6606	47.00545	5.275998	0	52
HRSMED	6628	52.3185	15.84817	6	168
HRFREE	6628	7.0344	16.17745	0	400
ASIAPT	6628	5.602067	8.565182	0	100
BLCKPT	6628	18.99291	20.07382	0	100
HISPPT	6628	14.89884	17.76675	0	98
OWNPR	6628	2.18271	.8651092	1	3
PRCTYPE	6628	2.721334	1.777256	1	6
NPHYS	5461	49.30178	162.7021	1	997
INCOMET	6622	171954.2	97382.78	0	400000
HISP	6607	.0514606	.220952	0	1
RACE	6535	6.222647	1.535472	1	9

Table 2 – Variable Descriptions

Variable Name	Variable Type	Length	Start	End
OWNPR	Numeric	2.0	128	129

Question: C1

Are you a full owner, a part owner, or not an owner of this practice?

Value	Count	Cum	Percent	CumPct
1: Full owner	1,985	1,985	29.9	29.9
2: Part owner	1,447	3,432	21.8	51.8
3: Not an owner	3,196	6,628	48.2	100.0

Variable Name	Variable Type	Length	Start	End
PRCTYPE	Numeric	2.0	144	145

Question: N/A

Description: Physician's practice type is categorized into one of six classifications. Constructed from responses to questions C2, C3, C3a, C3b, C3c, C3d and C9.

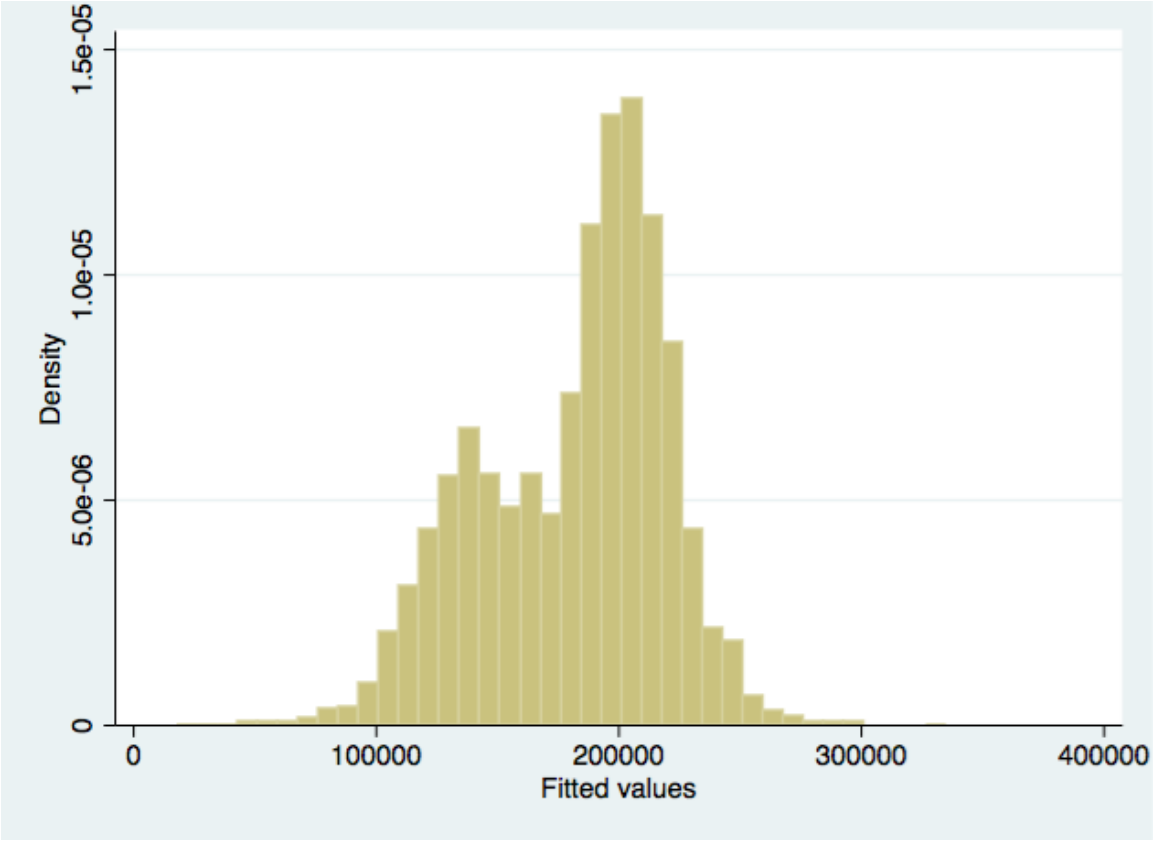
Value	Count	Cum	Percent	CumPct
1: Solo/2 Physcn	2,215	2,215	33.4	33.4
2: Group >= 3 Physcn	1,928	4,143	29.1	62.5
3: HMO	292	4,435	4.4	66.9
4: Medical School	631	5,066	9.5	76.4
5: Hospital Based	806	5,872	12.2	88.6
6: Other	756	6,628	11.4	100.0

Table 3 – Pair-Wise Correlations

	INCOMET	Gender2	HRSMED	yrswrk2	YRSWRKD	WKSnot~D	RACE
INCOMET	1.0000						
Gender2	-0.2702	1.0000					
HRSMED	0.2535	-0.2056	1.0000				
yrswrk2	-0.0333	-0.2319	-0.1394	1.0000			
YRSWRKD	0.0226	-0.2480	-0.1123	0.9526	1.0000		
WKSnotWRKD	-0.0777	0.0947	-0.0929	-0.0433	-0.0800	1.0000	
RACE	-0.0290	0.0614	-0.0150	-0.0552	-0.0702	0.0288	1.0000

Appendix B

Histogram of the Errors



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