An Explanation of the Earnings Variation across Bovine Veterinarians in Private Practice during 2014

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Abstract

The ability of society to respond to global protein demand, prevent food animal disease outbreaks, and protect public health will in part rely on the availability of rural, food animal veterinarians. The rising cost and declining net present value of the DVM degree implies that the ability to supply such veterinarians will rely on an understanding of economic incentives these professions face. The objectives of this study are to identify factors that influence bovine veterinarian income and explain variation in earnings across practitioners. Attributes and characteristics of veterinarians and their practices were collected through a 2015 American Association of Bovine Practitioners survey and then used to explain veterinarian income through statistical analysis. Results indicate that the greatest incentives exist for practice owners, specialists, and in regions with large concentrations of livestock. Additionally, establishment of a strong client base and field experience will serve private practitioners better than pursuing additional education beyond the DVM degree. These variations explain nearly half of the variation in income. Human capital measures should inform future research as the remaining variation is attributed to unobserved ability.

Keywords: veterinary, veterinarian income, practice specialization, food animal, bovine

JEL Codes: Q1, Q12

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Introduction

The demographics of the veterinary profession have changed over the past twenty-five years. While the profession was once dominated by males, new veterinarians are now greater than 80 percent female (AVMA). The highest proportion of these new graduates is companion animal practitioners in suburban areas. Because of this demographic shift, most information regarding veterinary medicine practitioners is focused on the companion animal practice. Still, roughly 5% of veterinarians practice food animal medicine (Ouedrago 2016). In contrast to the general veterinary profession, food animal veterinarians are mostly male and live almost entirely in rural areas (AABP 2015).

While companion animal practice is the predominant practice type of new veterinarians, the world population continues to grow, the world economy continues to grow, and the need for food animal services will continue to be important. Growing global food-protein demand coupled with the potential for serious zoonotic disease outbreaks and the ongoing battle against antibiotic resistance demonstrate a great present and future need for food animal veterinarians. Veterinary colleges and professional organizations like the American Veterinary Medical Association (AVMA) and the American Association of Bovine Practitioners (AABP) will play an important role to ensure that food animal veterinarians are being trained and supplied.

One of the most important aspects of supplying these veterinarians will be the incentives to choose a career in food animal medicine. Some of these incentives are intangible such as rising to the challenge of solving the protein and disease demands the world will face and engaging in the rural lifestyle. Ultimately, with the rising cost and declining net present value of

the DVM degree (Knippenberg et al. 2015), economic incentives play arguably one of the most important roles in the decision to become a food animal veterinarian.

The objective of the following study is to explain in the factors that are important in determining bovine veterinarian income to assist new veterinarians in understanding the source of economic success. What characteristics of bovine veterinarians contribute to their economic success? What can bovine veterinarians do and where can they locate that will contribute to their income? Attributes and characteristics of veterinarians and their practices were identified through a 2015 AABP survey and then used as variables for predicting veterinarian income through a statistical regression. It was hypothesized that experience, gender, practice ownership status, geographic location, and the species and volume of animals seen would have an influence on veterinarian income.

Literature Review

The supply of food animal veterinarians is a concern of livestock industry associations, food animal producers, and the government. The USDA sponsors the Veterinary Medicine Loan Repayment Program (VMLRP) to encourage veterinarians practice in rural, underserved areas. In a study of small scale livestock operations making less than $500,000 a year, a category that makes up over 90% of all U.S. farms, researchers found that there was likely a shortage of rural food animal veterinarians for small-scale operations (Beam et al 2013). The authors found that one of the biggest reasons livestock producers did not use a veterinarian was because the distance to the veterinarian was too great. Other factors were also important such as that dairy operations were more likely to use a veterinarian than were beef operations. The authors were clear to express that their results were limited to small-scale operations, and it remains unclear the extent to which veterinarian shortages affect large farm operations.

There are other indications that there may not be enough food animal veterinarians. When compared to all types of veterinarians, AABP members work on average ten more hours per week (Ouedraogo 2016). This is not directly attributable to high demand for services as these practitioners may also face more travel time to farms when compared to companion animal practitioners who practice in suburban or urban hospitals. Nonetheless, high travel times could indicate that there are not enough veterinarians in certain areas. Furthermore, it has been found that the number of animals in a county, the rurality of the county, and distance from a veterinary college will predict whether or not a county is designated to receive VMLRP funding. Even more importantly, researchers found that counties that did not receive VMLRP funding were more likely to have veterinary shortages than those that did receive funding (Wang et al 2011).

It is more difficult to determine what may be causing this potential shortage of food animal veterinarians. Income for food animal veterinarians in private practice varies greatly. In a 2007 survey of their members, the AVMA found that food animal exclusive practices had the greatest ratio of veterinarians in the highest income bracket. At the same time, this was not true of food animal predominant (mixed animal practices that mainly serve food animals) practices (Shepherd 2007). These sorts of discrepancies make it very important to understand determinants of the variation in veterinarian income.

Others have studied variation in income among different samples of veterinarians. For a sample of AVMA members, experience, gender, ownership status, type of practice (small, mixed, food, equine, etc.), and geographic location were important factors to explaining income (Knippenberg and Dicks 2015). Another study compared the net present value of different career tracks of veterinarians and found that becoming a full-time specialist or practice owner were more valuable when compared to general practice or a part-time specialist (Gordon and

Lloyd 2010). A study of laboratory animal veterinarians found geographic region, employer type, job title, and different levels of experience useful in explaining income (Gehrke and Weigler 1997). The authors had mixed results of significant coefficients in each category and suggested that those that were insignificant may have an indirect impact on income. While none of these studies looked at food animal veterinarians, they identify important variables and provide a base to consider for food animal veterinarians.

Earnings variation has been a great interest to the field of labor economics. Much has been analyzed regarding different levels of education, gender differences, college major, and other different measures of human capital. However, while some veterinarians have different backgrounds before entering the profession, we expect much of their training to be similar and the DVM degree to be a driving force of their income. To determine what factors lie beyond what has been discovered in typical labor economics research, we look to studies of earnings differentials for agricultural graduates and other professionals. Both California Polytechnic State University and Kansas State University have reported on factors that drive the earnings of their graduates. In the Cal Poly study, significant factors that affect earnings beyond education and gender included experience and involvement, whether students go on to be proprietors, work specialty sectors, and starting salary (Qenani-Petrela et al 2007). The Kansas State survey found that experience level, tenure at current position, supervisory responsibility, location, and job mobility were all significant explanations of earnings variation (Barkley et al 1999).

As agriculture becomes more integrated and large farms and firms dominate the industry, there have been important discoveries about returns to scale and what that means for employees. A study of the pork sector found that employees at large farms earned more. Beyond the human capital differences, they concluded that large farms are able to adopt more new technology and

employ more capital per worker which led to larger returns for workers (Yu et al 2007). Both the size of operations utilizing veterinarians and the practice size of the clinics themselves may find the same sorts of returns.

Still, none of the factors identified has been truly able to capture measures of worker quality and ability when determining salary and wages. We do know that earnings inequality has been increasing over time and that the most skilled workers continue to pull further away both within and across groups (Juhn et al 1993). The Bureau of Labor Statistics reports on this inequality; at the 10^{th} percentile veterinarians earn $52,530, and at the 90^{th} percentile they earn $157, 390 (Torpey 2015). They suggest that skill, job task, and performance could be driving this inequality beyond experience, education, and location. Research has confirmed this. One study called the difference an "unobserved ability" where labor demand favors the most skilled and increasing returns to skill has led to higher salaries for some (Juhn et al 1993). Others classified jobs by whether a task was abstract, routine, or manual, and found increasing returns to both abstract and routine tasks during different time periods (Altonji et al 2014). A focus group of successful veterinarians determined that there were technical and nontechnical factors associated with success. These non-technical factors consist of personality traits, abilities, and core interests, values, and motivations (Lewis and Klausner 2003). These measures of the type and quality of work indicate that more drives salary than just individual characteristics.

Materials and Methods

The American Association of Bovine Practitioners (AABP) and American Veterinary Medical Association (AVMA) sent an employment survey to the population of 2,138 member bovine practitioners in March 2015. There were 455 complete responses for a response rate of 21%. The survey asked about unemployment, job satisfaction and future outlook, competition

pressures, perceived self-competence, internships, revenue shares of certain services, and different measures of quantity for client visits in 2014. We use this survey data.

A second survey was emailed to AABP members in June 2015 regarding annual 2014 compensation. It collected information on salary and benefits, practice ownership, compensation type, and community type. The response rate was 11%. In total, 639 responses were received from the combined surveys. However, not all responses were complete, decreasing the overall sample size included in the model. There were 290 responses with all variables; two influential observations were removed from the model. Also dropped from the model were observations where equine, swine, and companion animal specialists as this study focused on bovine veterinarians.

Because of the wide range of questions and data obtained from the survey, factors that may be important in determining difference in income were selected for the income analysis. These included veterinarian work region, location size, hours worked per week, minutes per call, the type (cow-calf, feeder, stocker, dairy) of operation or species, the number of animals seen, gender, having an MBA or PhD, completing a residency, board certification, ownership status, compensation type, experience level, and average herd size. There were 46 veterinarians who graduated in 2014 included in the sample. Because they may not have worked for the entire year, a dummy variable for whether or not they graduated in 2014 was included.

An Ordinary Least Squares model was estimated to explain bovine veterinary income using STATA. Both quantitative continuous variables and qualitative dummy variables were used. Dummy variables were assigned a 1 value if the characteristic is present for the observation and 0 if it was not. There were two types of multivariate dummy variables which were compensation type and geographical region. In estimation, one of the multivariate options

is dropped to avoid perfect collinearity. The value assigned to these variables is embedded in the constant. Appendix A provides the list of variables used in the final model and the method through which they were measured. A model of the form $Y_i = \beta_0 + \beta_1 X_{1i} + \ldots + \beta_k X_{ki} + e_i$ where (i= 1, 2, …, N) was used. Y is the reported 2014 veterinary income, X represents the independent variables, β is the vector of parameters to be estimated, k corresponds to the number of parameters being estimated, e is the random error term, and N is the number of observations. A "testing down" method of estimation was used in which a base model was identified based on expectations from industry knowledge and literature review.

Starting with a large model and then removing variables ensures that the test statistics for the model retain independence; the test statistics become increasingly more restrictive (Campos et al. 2005). Essentially, the model has a broad initial specification, and potential variables are omitted until only the relevant and significant variables are included. Ten candidate models were estimated and included over 50 variables not reported here. There are a large number of potential variables relative to the number of observations and many are simply insignificant. The final model reported here is robust to alternative specifications. The reported independent variables are those that are important and they do not become important, for the most part, due to the removal of other variables. There are simply many variables that are not important, these are dropped, and the variables that are important across the alternative models are included in the final specification.

A review of the literature (specifically Knippenberg and Dicks 2015) suggested that measuring experience alone would underestimate its importance. After plotting income versus experience on the Figure 1 found in Appendix B, a squared experience variable was added to account for the rate at which experience will affect income. Due to the wide range in the number

of animals seen and the hours worked per week a similar affect was observed in these variables. Both increased income at a decreasing rate and then decreased income. Squared variables were introduced for the number of animals and number of hours worked per week.

An analysis of the highest earning veterinarians led to a better understanding of the factors affecting income. Examining the highest income practitioners, those who earned over $300,000 in 2014, we found that all owned their practice, and were male. Furthermore, most of these high-earning veterinarians earned over 75% of their income from a single species. Most of these practitioners also earned more than 50% of their income from one particular veterinary service. Thus, specialization and expertise appear to be important factors of income. A species expert was then defined as someone who earned more than 75% of their income from one species. This expert effect was included in the model and found to be significant.

Then, other variables specific to bovine veterinarians were included in the initial model to the model to determine if they added explanatory value to income both in terms of line fit and significance. These included species type, if the veterinarian specialized in a species, minutes spent per call, and dummy variables for herd size by species. Individual t-tests were performed on each parameter as well as joint F-tests. The model was analyzed in terms of fit as well, so variables needed to make a contribution to R^2. Variables were only included in the model if they were suggested in literature review and or if they added explanatory value. White's test detected heteroscedasticity and therefore robust standard errors are reported. Equation (1) represents the final model where I is 2014 income, V is a vector of veterinarian characteristics including experience, gender, ownership status, education, compensation type, hours/week, minutes per call, specialty, and number of animals seen, and P is a vector of practice characteristics including

whether or not the practice is rural, and the region. Table 1 in Appendix A lists the final variable specification. The model in concept is:

(1) $I = f(V, P)$.

Results and Discussion

The base model included geographical work region, experience, experience squared, gender, ownership status, hours worked per week, and hours squared. Then, the number of animals seen annually and animals squared was included to add understanding of volume and size of a practice. Summary statistics are included in Table 2. There is also a comparison of male and female veterinarians. On average, the male bovine veterinarians made $47,010 more than their female counterparts in 2014. Males also averaged an additional 15 years of experience which is accounted for within the regression model. Males were also more likely to own their practice. Figure 3 in Appendix B shows the breakdown of male and female practice owners and non-owners. Practice ownership appears to account for some of the difference in income. The sample was 69% male and 31% female, which is representative of the general population of food animal veterinarians. It is possible that the industry could be facing future structural change. Since 80% of veterinary school graduates are female, we expect that increasingly more females could pursue careers in food animal medicine.

There were two final regression models. Regression results are listed in Table 3A and Table 3B found in Appendix A. The first model considers just whether or not a person was a species expert while the second model compares the species type of expertise. Being an expert was significant to the first model, and on average could expect to earn an additional $14,847. Equine, companion, and hog specialists were excluded as this is an analysis of bovine veterinarians. In the second model, dairy specialization was statistically significant. Dairy

specialists on average could expect to make $12,926 more, all else constant. Although not individually significant, cow-calf specialists could expect to make slightly more than non-specialists on average. Also note that there are far less cow-calf specialists than dairy indicating that demand for this service is lower. This model had fewer observations due to incomplete survey responses, and so feedlot and stocker specializations could not be considered.

Figure 5 in Appendix B compares only the average income by species type as well as the average for the AABP sample to present expectations had incomplete responses been considered. Feeder cattle and stocker cattle specialists were considered experts if they earned more than 50% of their income from that species. This was because there were not enough observations to determine an average from those who earned more than 75% from those species alone. Considering the nature of the feedlot and stocker industries and the services those firms demand, it is not surprising that it would be difficult for a veterinarian to earn all of their income from one of these sectors alone. In the comparison, all experts except cow-calf earned more on average than the regular AABP sample. This is also not surprising considering the way in which cow-calf operations use veterinarians. Worth mentioning is that hog specialists had very high average earnings which could be due to the volume of animals that they see. We use caution in that the equine, companion, and hog specialists are veterinarians that show up in a bovine sample as they may practice limited bovine medicine. For this reason, they were excluded from the regression model and this comparison is not conclusive for all hog, equine, and companion veterinarians.

Geographical location was not as significant to bovine income as studies of other types of veterinarians. The only regions that were significant are Regions 6 and 8. These two regions are found in the heartland of the country, not surprising considering the large volume of cattle found in these states. Especially in Region 8, these veterinarians make much more on average which

we expect is due to the large concentration of feedlot and dairy operations found there. Note that geographical location was significant to Model A, but not Model B.

The other results of the two regression models are qualitatively the same. Experience and experience squared were significant. Experience increases income at a decreasing rate, and then eventually decreases at an increasing rate as veterinarians appear to begin the retirement process. This follows expectations from Figure 1 in Appendix B. Hours worked per week and hours squared were both significant. Working additional hours will increase income to a point, but beyond that point veterinarians may become weary and less efficient overall which is where the decrease occurs. The same phenomenon was observed for animals and animals squared which was significant to both models.

Gender and ownership were both significant to both models. Owning a practice increased annual income by roughly $35,000. On average, with all else held constant, being male increased income by roughly $16,000. Minutes spent per call was significant to both models as well and had an interesting relationship to gender. Male veterinarians spend on average 82 minutes per call while female veterinarians average only 58 minutes per call as represented by Figure 4 in Appendix B. As call length increases, so does income. What remains unclear is what constitutes a call. Future surveys should define this more clearly to help with interpretation. It could be that longer calls mean more animals seen or services performed and or it could mean that the veterinarian is being more thorough. It is also possible that a longer call means more services sold while on a call. We expect that there is a balanced to be achieved between efficiency and thoroughness.

Compensation type was significant to both models as well. Salary and salary with production bonuses both increased income. Having a production bonus increased income

slightly more. Hourly pay was not significant to the model and production only compensation was omitted. Finally, education levels beyond the DVM degree were included. Having a PhD, MBA, and being board certified were all insignificant in the model. It could be due to so few bovine practitioners in private practice seeking these degrees. Completing a residency significantly decreased income in Model A by about $17,000. This indicates to us that for bovine veterinarians in private practice, getting in the field experience and building a client base is more important than additional education beyond the DVM degree.

Please note that the intercept reflects the variables omitted to avoid perfect collinearity and because of this, the constant cannot be interpreted as a base income level if all else is held constant. Both regression models were jointly significant, but R^2 in both models is low (0.4762 for Model A and 0.4847 for Model B). There are clearly other factors determining slightly more than half of the income variation across bovine practitioners other than the variables used in this model and asked through the survey.

The remaining variation in income could in part be due to the quality of the individual practitioner and the amount of effort the individual devotes to their work. This is actually a "good news" story for food animal veterinarians. Only 45-50% of the variation in reported income can be explained by the available variables or treatment effects. Certainly, a portion of the remainder is quality and effort of the person receiving the income. Both of these measures could be included in future survey work. As discussed earlier, improved measurement of hours worked or billed is part of what is needed. However, respondents to future surveys may need to be linked to third-party, for certain not self-reported, measures of veterinarian quality. Measuring and sorting out the impact of practitioner quality and effort on income would be a useful exercise and useful information to future food animal veterinarians.

Conclusions

The characteristics that increased bovine veterinarian income include owning a practice, experience, and the number of animals seen. Young veterinarians should take this into consideration when making career decisions. They should seek to take every opportunity to gain experience and consider investing in their own practice. High student debt could make this difficult, but it should have high returns. Building a strong client base, especially within a certain species sector is worthwhile. Certain specialties will also have higher returns than others. Dairy specialties will likely show the greatest increase in income. Cow-calf operations may be better served by a general practitioner. Finally, although it is more difficult to specialize in feeder and stocker cattle, it may have a high pay off if one can determine the right clients and animals to serve during the remainder of their time.

The concentration of animals in an area explains why there was higher income in Regions 6 and 8. It is important for veterinarians to go where the animals are. The rural nature of many livestock operations could make it difficult to identify areas to practice with a relatively high concentration of animals. This may explain the shortages of veterinarians in certain areas. Furthermore, the above industry average hours worked per week could be due to high travel time needed to reach certain livestock operations. It would be useful to quantify the needed loan repayment subsidy required to incentivize careers in rural food animal medicine. We suspect these could differ by region and the type of practice.

Being male also significantly increased income, but some of this difference can be explained by factors indirectly related to being male. For our sample, men on average had 15 more years of experience and were more likely to own their practice. Ceteris paribus conditions are met with OLS regression but there may be other nonlinearities or interaction terms that make

sorting gender and experience difficult. This particular sector of veterinary medicine has long been male dominated, although this could change with the increasing number of females entering the profession. We cannot however, ignore the fact that males average nearly an additional 30 minutes per call which we expect increases their billable hours. Longer calls increase income and veterinarians should seek to see more animals and sell more services while they are on a call. For more conclusive results however, what constitutes a call needs a more clear definition to better understand this affect.

Finally, more than half the variation in incomes remains to be explained. Comparing fixed effects within different groups of veterinarians (general practitioners vs. specialists, low income vs. high income, owners vs. non-owners, etc.) may yield higher levels of explained variation. There may be different factors influencing the income of these groups. It would be worthy to identify whether or not there is a threshold of where veterinarians begin earning more. Further, it is likely a good idea to delve into measuring the effect of an individual's effort and quality of practice on that individual's income. Last, this study only compared income for one year. Variation in income across different years will likely improve the reliability and explanatory power of the model. There is much left to explain what makes a veterinarian economically successful over their career which will be crucial for ensuring a supply of veterinarians to meet the world's protein and food safety demand in the future.

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Appendix A

Table 1: Variable List

Characteristic	**Measurement**
2014 Veterinary Income	Survey Response
Number of Animals Seen	Annual, Survey Response
Animals Squared	Animals^2
Minutes Per Call	Minutes Per Call, SurveyResponse
Experience	2015-Survey Response for Graduation Year
Experience Squared	Experience^2
Hours Worked/Week	Weekly, Survey Response
Hours/Week Squared	Hours Worked/Week^2
Gender	1= male; 0=female
Ownership	1=owner; 0=non-owner
New Veterinarian	1= 2014 graduate; 0= graduated before 2014
Rural	1= practice in rural area; 0=practice in non-rural area
MBA	1=yes; 0=no
PhD	1=yes; 0=no
Residency	1=yes; 0=no
Board Certification	1=yes; 0=no
Compensation Type	
Salary	1=yes; 0=no
Salary+Production Bonus	1=yes; 0=no
Production Only	Omitted
Hourly	1=yes; 0=no
Region (See Map in Figure 1)	
Region 0	1=yes; 0=no
Region 1	1=yes; 0=no
Region 2	1=yes; 0=no
Region 3	1=yes; 0=no
Region 4	1=yes; 0=no
Region 5	1=yes; 0=no
Region 6	1=yes; 0=no
Region 7	1=yes; 0=no
Region 8	1=yes; 0=no
Region 9	1=yes; 0=no
Species Expert (Model A)	
One Species>75% of Income	1=yes; 0=no
Species Expert (Model B)	
Dairy>75% of Income	1=yes; 0=no
Cow-Calf>75% of Income	1=yes; 0=no
Feedlot>75% of Income	Omitted; no complete observations
Stocker>75% of Income	Omitted; no complete observations

Table 2: Summary Statistics						
Variable		*Observations*	*Mean*	*Std. Deviation*	*Min*	*Max*
Income		474	117,979	66,071	6,536	450,000
	Male	321	133,550	69,344	12,000	450,000
	Female	156	86,540	44,514	6,536	270,000
Hours/Week		571	50.5	14.8	1	112
	Male	387	51	15	1	95
	Female	188	50	15	1	112
Animals		435	17,321	64,087	0	700,000
	Male	298	21,338	72,406	0	700,000
	Female	140	8,627	38,887	0	400,000
Experience		637	22.75	15.88	0	63
	Male	443	27	15	0	63
	Female	197	12	12	0	46

Table 2A: Regression Model to Predict 2014 Bovine Veterinarian Income

	F-Statistic	8.59	
N=268	P-Value	<0.0001	
	R-Squared	0.4762	
Variable	**Parameter Estimate**	**Robust SE**	**P-Value**
Number of Animals Seen	0.45	0.2232	0.046
Animals Squared	-0.0000012	0.000000599	0.046
Minutes Per Call	153.993	66.88	0.022
Experience	4,282.81	974.60	<0.0001
Experience Squared	-83.05	22.55	<0.0001
Hours Worked/Week	2,974.72	969.92	0.002
Hours/Week Squared	-25.35	7.84	0.001
Gender	16,908.51	7,101.20	0.018
Ownership	33,425.71	7,792.99	<0.0001
New Veterinarian	-1,168.07	9,073.73	0.898
Rural	-6,975.77	8,719.86	0.425
MBA	-4813.89	16,730.94	0.774
PhD	29,386.33	28,739.18	0.308
Residency	-17766.76	9,870.63	0.073
Board Certification	-3,148.24	9,272.11	0.735
Compensation Type			
Salary	17,298.44	9,078.82	0.058
Salary+Production Bonus	20,935.79	9,555.91	0.029
Production Only	*omitted*		
Hourly	21,162.06	19,979.03	0.291
Region (See Map in Figure 1)			
Region 0	3,398.87	18,435.77	0.854
Region 1	2,138.81	15,200.23	0.168
Region 2	*omitted*		
Region 3	11,466.02	19,764.72	0.562
Region 4	12,646.23	15,072.52	0.402
Region 5	13,172.72	13,954.27	0.346
Region 6	37,172.69	16,985.63	0.03
Region 7	2,551.22	21,635.69	0.906
Region 8	50,114.62	26,897.52	0.064
Region 9	23,146.97	17,927.43	0.198
Species Expert (Model A)			
One Species>75% of Income	14,846.59	6,584.91	0.025
Constant	-83467.62	28870.85	0.004

Table 2B: Regression Model to Predict 2014 Bovine Veterinarian Income

	F-Statistic	8.07	
N=232	P-Value	<0.0001	
	R-Squared	0.4847	
Variable	**Parameter Estimate**	**Robust SE**	**P-Value**
Number of Animals Seen	0.46	0.2513	0.069
Animals Squared	-0.00000123	0.00000067	0.068
Minutes Per Call	182.9851	76.72	0.018
Experience	3,678.51	1,032.71	<0.0001
Experience Squared	-67.47	24.24	0.006
Hours Worked/Week	3,338.11	998.18	0.001
Hours/Week Squared	-28.25	7.95	<0.0001
Gender	15,378.65	7,743.35	0.048
Ownership	35,607.46	8,320.46	<0.0001
New Veterinarian	-3,346.25	10,188.32	0.743
Rural	-8,157.18	9,164.71	0.374
MBA	1009.339	17,912.97	0.955
PhD	33,356.43	29,579.17	0.261
Residency	-18502.57	12,819.01	0.15
Board Certification	-2,281.09	9,683.88	0.814
Compensation Type			
Salary	20,496.95	10,026.39	0.042
Salary+Production Bonus	23,639.25	10,367.76	0.024
Production Only	*omitted*		
Hourly	31,552.45	25,440.26	0.216
Region (See Map in Figure 1)			
Region 0	-8,177.18	20,916.57	0.696
Region 1	14,150.51	17,723.07	0.426
Region 2	-9113.693	20,974.13	0.664
Region 3	*omitted*		
Region 4	4,303.94	17,627.47	0.807
Region 5	3,846.30	16,409.81	0.815
Region 6	23,635.71	19,745.18	0.233
Region 7	-9,388.98	25,631.30	0.715
Region 8	34,165.20	31,220.74	0.275
Region 9	10,628.65	21,873.19	0.628
Species Expert (Model A)			
Dairy>75% of Income	12,926.19	7,356.49	0.08
Cow-Calf>75% of Income	12,156.91	17,091.04	0.478
Constant	-85748.31	34625.8	0.014

Appendix B

Figure 1 Source: AABP Survey

Figure 2 Source: AVMA, AABP Survey

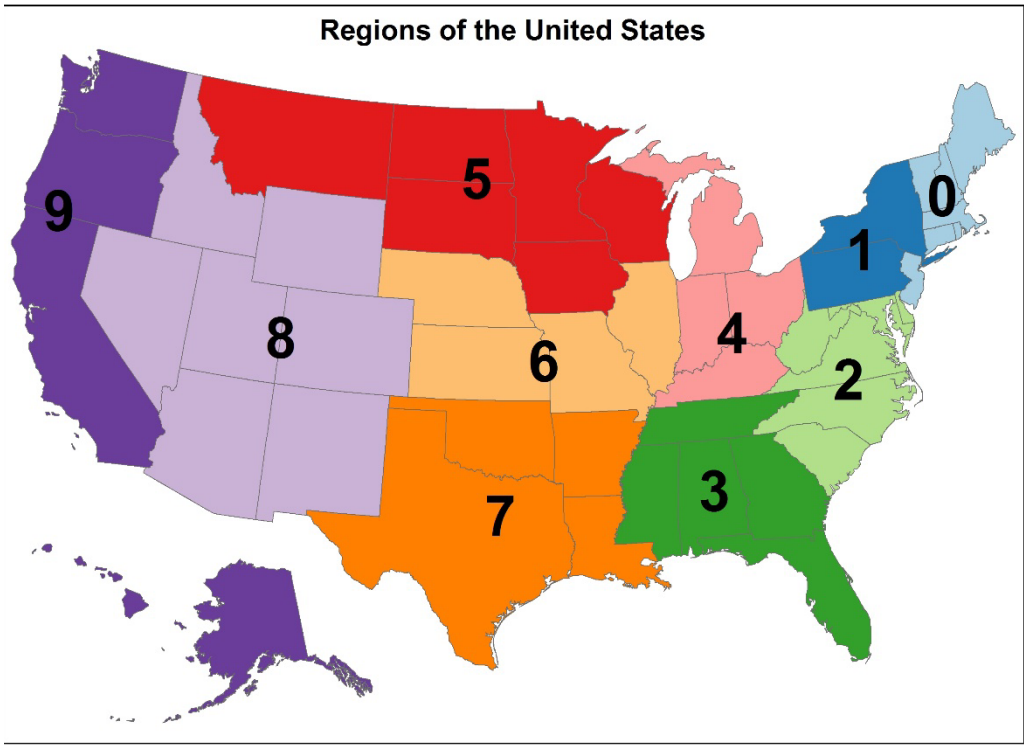

Figure 3 Source: AABP Survey

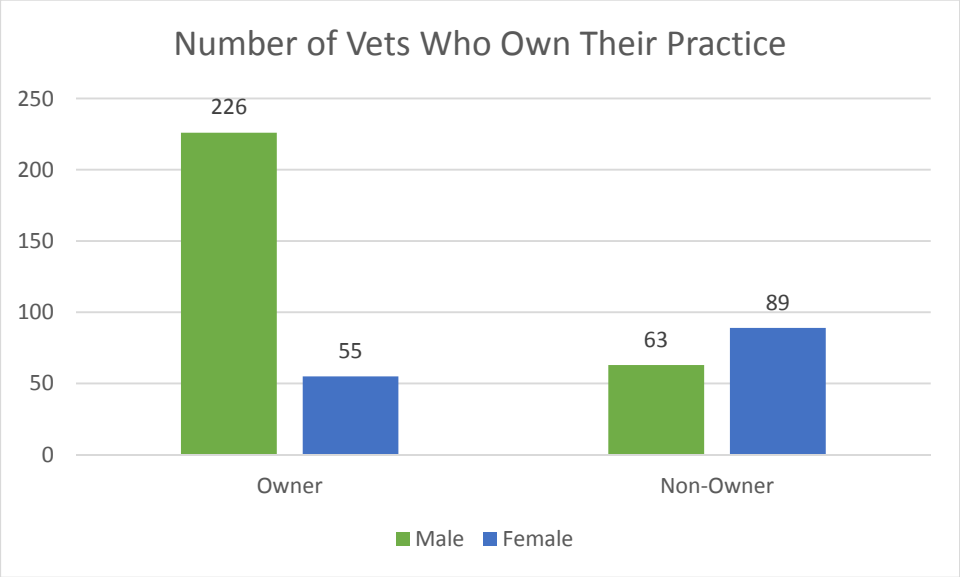

Figure 4 Source: AABP Survey

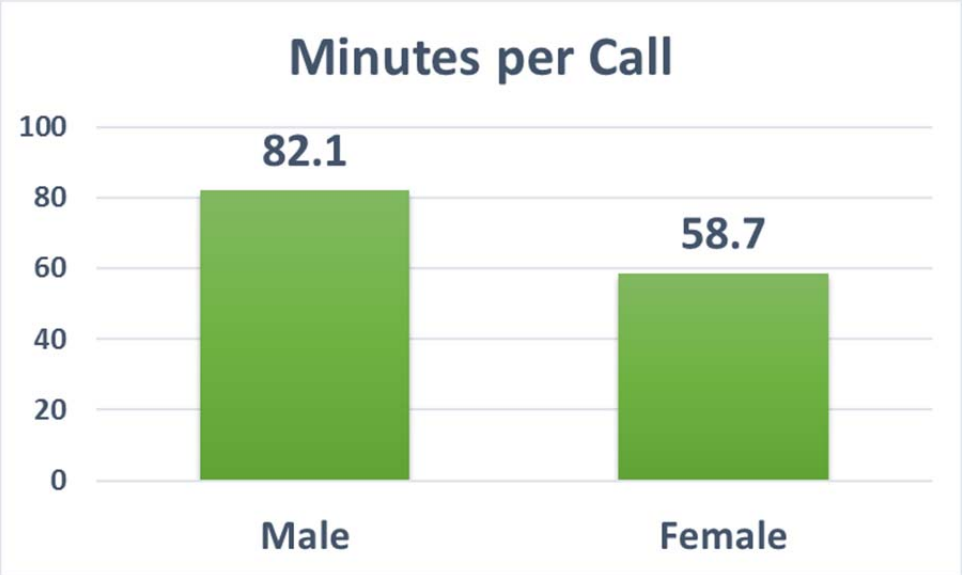

Figure 5 Source: AABP Survey