Pets in Vests: The Relationship Between State Policy and Service Dog Fraud

Abstract

Over recent decades, the use of service dogs amongst disabled individuals has steadily grown in the United States. In conjunction, there is a marked increase in individuals falsely claiming their pet is a service dog. These fake service dogs lack proper training and threaten the safety and wellbeing of legitimate service dog handlers. Our current federal policies regarding service animals are vague and difficult to enforce. As a result, some states have enacted policies to curb this concerning trend, but these policies are easily undermined and also difficult to enforce due in part to the lack of strong federal policy regarding service dog fraud. To extract state-level policy data, I individually reviewed each state's service animal legislation. I collected survey and demographic data of service dog handlers from the world's largest service dog organization, Canine Companions for Independence. I use a difference-in-differences analysis to explore the relationship between state-level policy and the incidence of service dog fraud. I also observe the secondary impacts of encounters with fraudulent service dogs. I find that state-level policy is not positively associated with a reduction in service dog fraud. However, the prevalence of fraudulent service dog encounters varies depending on if a service dog is placed with a child versus an adult. Additionally, females tend to be denied access to public facilities with their service dogs more than males. Finally, despite an increase in policy enactment, the prevalence of fraudulent service dog encounters grew.

Keywords: Service Dog; Service Dog Fraud; Disability Policy

PETS IN VESTS: THE RELATIONSHIP BETWEEN STATE POLICY AND SERVICE DOG FRAUD

Introduction

In the past decade, the use of service dogs has become more common among individuals with disabilities. In conjunction, there is a marked increase in individuals falsely claiming their pet is a service dog (1-4). Legitimate service dogs are trained to perform tasks to mitigate one's disability and can assist a multitude of individuals with both physical and cognitive disabilities. Service dogs also have positive social, psychological, and functional impacts on their handlers, and go as far as improving their overall quality of life (1, 11, 13). With a service dog, handlers experience more social interactions and are avoided less in public (14-21). In the home, service dogs help handlers carry out daily tasks, reducing their reliance on others for help and increasing their sense of independence (1, 9, 10, 13, 16, 17, 22). Finally, handlers report having higher self-esteem, feeling more content and more capable, worrying about health less, having better control of anxiety, feeling less lonely and depressed, and feeling less irritable (1, 16, 22, 23).

Fraudulent service dogs (FSDs), which are often pets with a vest on, consume resources that should be exclusively available to individuals with disabilities, such as special seating at an event or on an airplane. FSDs also secure benefits and privileges for their owner, particularly public access with the dog to places pets are not allowed. Because FSDs lack formal training to meet the demands of working in high energy, public environments they often misbehave, sometimes reacting dangerously or aggressively, putting the safety of legitimate service dog handlers and others at risk (2, 3, 5-7). These behaviors perpetuate negative perceptions of service dogs as a whole, elevate prejudicial attitudes towards real handlers, increase skepticism

regarding a dog's legitimacy, and increase public access issues, which often disproportionately affect individuals with invisible disabilities (3, 8).

Because service dogs are such a valuable resource, it is imperative that our policies effectively protect their use by the disability community. The federal policies that currently exist under the Americans with Disabilities Act are extremely vague. For example, if it is not immediately evident the dog is a service dog (e.g. guiding a blind handler or the handler is confined to wheelchair) a public entity is allowed to ask only two questions in order to confirm the dog is a service dog: "Is this dog is a service animal?" and "What tasks is the dog trained to perform?" (ADA Title III, 2010). There is no training standard, no paperwork required, and no identifying article a service dog must wear. As a consequence, any individual can gain public access with their pet by simply referring to the dog as a "service dog." Because of this, we rely on business owners, clerks, security guards, receptionists, and building mangers to be "gatekeepers" and make judgements that decide to either allow or disallow a service dog access. However, these individuals are not experts on service dog policy, and it is naïve to expect them to effectively take on this role. As a result of their limited knowledge, true handlers often face scrutiny about their dog's legitimacy and encounter access issues (2).

States are now attempting to address this rapid increase in fraud, but there is variation in their implementation and their policies are difficult to enforce due in part to the lack of strong federal policy (24). Currently, 31 states have active fraud policies, 8 of which were added in 2018 and 3 thus far in 2019. These policies vary in terms of their definitions of service dog fraud, how they penalize service dog fraud, and whom the laws apply to. This paper is the first to empirically explore the relationship between state level policies and the prevalence of encountering a FSD. The incidence of service dog fraud's secondary consequences: skepticism

towards legitimate service dogs, issues with access in public places, and if FSDs impact legitimate service dogs' work, are also analyzed.

Information Gathering

This study used data from the world's largest provider of service dogs, Canine Companions for Independence (CCI). CCI is a non-profit organization that breeds, raises, trains, and provides highly trained service dogs to adults, children, and veterans with disabilities at no cost to the recipient. CCI serves individuals in all states, and provides three categories of dogs: service dogs, skilled companions, and hearing dogs. Service dogs are placed with adults with physical disabilities to help enhance their independence. Some of the tasks a service dog can perform include pulling a manual wheelchair, pushing buttons for elevators or automatic doors, and assisting with business transactions by transferring money, receipts, and packages. Hearing dogs, which are a type of service dog, are placed with adults who are deaf or hard of hearing. They are trained to alert their handler to noises by nudging their leg or arm. Some of the sounds hearing dogs are trained to alert to include a doorbell, an alarm clock, someone calling their handlers name, or a smoke alarm. Skilled companions, which are also a type of service dog, are placed with children or adults with physical or developmental disabilities who do not live independently. These dogs work under the guidance of a facilitator, who is typically a parent, spouse, or caregiver, who is responsible for caring for the dog and customizing their training needs to the recipient. All dogs are Golden Retrievers, Labrador Retrievers, or Golden Retriever-Labrador crossbreeds.

Service Dog Handlers

In order to be considered for a service dog, CCI requires individuals to fill out an application. These applications included questions about demographic information as well as questions about one's disability, lifestyle, and personality, which I abstracted for study in this research using Qualtrics Survey Software. Most questions in the service dog, hearing dog, and skilled companion applications were identical, but some varied in the wording or format (but inquired about the same topics). Please see Appendix A for copies of the questions used from each application.

State Policy

To compile state policy data, I used Westlaw research database to search each state's active statutes regarding service animals and identify if there was a proclamation about misrepresenting a service dog. If the effective date was not included in the passed legislation, I searched the bill. If it was still absent, I reviewed the state's laws regarding when legislation goes into effect. I also reviewed the state's policy previous to the passing of the current legislation to be sure there was not a fraud policy already active before the passage of the most recent legislation. I did not code a law as active if the policy went into effect the same year the survey was administered in order to allow for adequate time for the law to have an impact. I created a binary variable to indicate if a policy is active during the year 2014 or 2018. Because each survey respondent indicated what state they reside in, I was able to merge the state level policy data to each survey response according to the state the individual resides in.

Fraudulent Service Dogs

CCI administered a voluntary survey to their service dog recipients in 2014 and in 2018 in order to better understand their experiences with service dog fraud. The 2018 survey included

more questions (24) than the 2014 survey (12). To maintain consistency, I only recorded responses from identical questions from both surveys. Appendix B presents a list of these questions. CCI utilized SurveyMonkey® to send a survey link via email, and 516 individuals responded in 2014 and 834 did in 2018. Each of these responses had a unique survey identification number. If the respondent identified his or herself, I was able to merge their survey responses with their application data. Due to missing identifying information on the surveys and missing information in applications, I was able to identify 239 respondents from 2014 and 459 respondents from 2018. 109 respondents answered both surveys.

Data

Independent Variables

My predictive variables included individual level demographic characteristics of service dog handlers which included their sex, age, race, income, and residential demographic. I also noted if the service dog they utilize is a hearing dog, service dog, or skilled companion. Each of these were binary variables except age. In terms of their disability, I accounted for if their condition was progressive, if they used mobility equipment, if they required assistance with activities of daily living (ADLs), and if they suffered from any kind of paralysis in their limbs. These binary variables served as indicators regarding how apparent their disability may be to others. Lastly, I observed if they primarily use public transportation and how important it is for them to take their service dog into public, as these lifestyle preferences may increase their susceptibility to encountering a FSD. At the state level, I utilized a binary indicator to observe if fraud policy was active or not active. Please see Appendix C for a detailed explanation of how each variable was coded.

In terms of service dog use, a little over half of the sample (53%) used a service dog, and approximately one fourth (24%) used skilled companions and (22%) hearing dogs. A substantial amount of handlers (67%) feel that public access with their service dog is very important to them. Finally, in terms of disability, approximately half of the sample (48%) has a progressive condition or requires assistance with ADLs (47%). A large majority (89%) at least occasionally used mobility equipment, and 28% experienced some form of paralysis in their limbs. Only 14% primarily used public transportation.

Dependent Variables

I created binary variables from five questions on CCI's fraud survey. These variables indicate if a handler encountered a FSD; if the handler encountered 10 or more FSDs; if the handler had been denied access or asked to leave a public establishment; if the handler's service dog had been bitten or snapped at by a FSD; and if the handler's service dog had been distracted by a FSD. Please see Appendix C for a detailed explanation of how each variable was coded.

Statistical Analysis

To understand the relationship between state level policy and service dog fraud, I employed probit regressions and difference-in-differences analyses. I first employ standard probit regression models to measure the relationship between state policy and my five outcomes of interest:

$$\Pr\left[y_{ist} = 1\right] = \Phi(\beta_0 + \beta_1\theta_{st} + \beta_2\chi_{it} + \varepsilon_{ist} \geq \mu)$$

Where $\Phi(.)$ corresponds to the standard normal distribution, θ_{st} is the state level policy, χ_{it} is a vector of individual level economic and demographic variables, and ε_{ist} is the error term. I then use the difference method to calculate the marginal effects in order to observe the relationship between the independent variables and the probability of the outcome occurring. The marginal effects represent the increase in the baseline probability an outcome is going to occur. It should be noted some individuals did not answer questions about every outcome, so my sample size slightly varies between outcomes. However, the variation is so small (maximum 7 responses) that I do not expect the differences in responses to affect my results.

After employing the standard probit, I employ difference-in-differences models in order to measure the relationship between state policy and my outcomes of interest. Including an indicator variable for state allows me to estimate the differences of within state variation, and I assume there are parallel trends.

$$\Pr[y_{ist} = 1] = \Phi(\beta_0 + \beta_1\theta_{st} + \beta_2\chi_{it} + \tau_t + \eta_s + \varepsilon_{ist} \geq \mu)$$

Where $\Phi(.)$ corresponds to the standard normal distribution, θ_{st} is the state level policy experienced by the individual in that year, χ_{it} is a vector of individual level economic and demographic variables, τ_t represents a set of year indicator variables, η_s is a set of state indicator variables, and ε_{ist} is the error term. Again, I calculate the marginal effects using the difference method and determine the probability the outcome will occur based on each independent variable. Alaska, Arkansas, Delaware, South Dakota, North Dakota, and Wyoming are not in my sample, which slightly reduces my number of observations in my difference-in-differences analyses to lower than those in the standard probit models.

Lastly, I conduct a sensitivity analysis where I remove the variables measuring income and equipment use from the explanatory variables, since these two are primarily responsible for reducing my sample size. For example, when measuring the relationship between policy and probability of encountering an FSD, the sample sizes increase to 642 and 615 compared to 398 and 379 previously. I employ the same previous standard probit models and difference-in-differences models and observe if the outcomes change with a larger sample.

Results

Summary statistics for the explanatory and dependent variables are presented separately in Table 1 and Table 2 and I provided a breakdown of demographic variables in Table 3. The majority of service dog handlers in this sample were white females. A breakdown of the demographic variables shows just how striking the disproportion of white handlers compared to others is. 580 handlers were white, only 49 were "other" (Asian/Pacific Islander, American Indian, and "other"), and only five handlers were African American. Additionally, these service dog handlers primarily lived in the suburbs, and 60% had more than $60,000, in income (the approximate median household income in the United States).

The most striking average outcome was whether or not an individual has encountered a FSD. Almost everyone (90%) had, and almost one-third (31%) had encountered ten or more. Half of the handlers had been denied or asked to leave or had their dog distracted by a FSD, but only 29% had their dog bitten or snapped at. The difference-in-means test results indicated that there were no statistically significant differences between the averages of my outcome variables in states with policy versus without. Additionally, the averages of the outcomes were very similar to one another, regardless of the enforcement or absence of FSD policy.

In 2014, only 12 states had fraud policies active. There was no immediately evident pattern or similar characteristics amongst the states with active policies. Between 2014 and 2018, 8 states added fraud policies. This growth in policy enactment signifies that this issue was gaining attention. Figures 1 and 2 illustrate the states with policy in 2014 and in 2018.

For each outcome, the marginal effects from the standard probit and difference-in-differences models are presented alongside one another (Tables 5-9). Table 5 shows that state policy is not associated with whether or not a handler encounters a FSD. Notably, hearing dogs are removed from this set of models because having a hearing dog compared to a service dog perfectly predicts encountering a FSD. Additionally, being white compared to other races is associated ($p<.05$) with a decrease in probability of encountering a FSD in both the probit regression and difference-in-differences analysis (-.19 and -.22, respectively). If one's condition is progressive there is slight (0.09) percentage point increase in an association with encountering a FSD ($p<.05$), but only in the difference-in-differences analysis. If public access is very important to the handler there is a significant ($p<.01$) relationship with an increase in encountering a FSD in both models, and the magnitude is slightly larger in the difference-in-differences model (0.12). Lastly, if the year is 2018 rather than 2014, there is a significant association ($p<.05$) with an increase in encountering a FSD.

[Table 5]

Table 6 presents the association between state policy and encountering ten or more FSDs. Similar to encountering a FSD in general, race, importance of public access, and year are associated with encountering ten or more FSDs. Being white as opposed to other races is

strongly associated ($p<.01$) with a decrease in encountering ten or more FSDs in both models (-0.17 and -0.22). If public access is very important to the handler, there is a significant association ($p<.05$) with an increase in encountering ten or more FSDs in the standard probit but not in the difference-in-differences analysis. 2018 is also associated ($p<.05$) with a twelve percentage point increase in encountering more FSDs than in 2014. Finally, without accounting for the state and year fixed effects, the standard probit finds that when policy is in effect there is a significant association ($p<.01$) with an increase (0.14) in encountering 10 or more FSDs. However, the difference-in-differences model does not find a significant relationship between policy and ten or more encounters. This relationship will be addressed further in the discussion.

[Table 6]

When exploring the relationship between policy and a FSD distracting a legitimate service dog (Table 7) the outcomes for significant variables are identical between the standard probit and difference-in-differences analysis. If the handler has a progressive condition and if public access is very important to the handler, there is a strong association ($p<.01$) with an increase (0.16 and 0.21, respectively) in their dog being distracted by an FSD. This suggests that there are not substantial characteristics of the state and year that affect these variables' associations. 2018, however, is associated with an increase in FSDs distracting service dogs, which supports the notion this problem is has risen in between 2014 and 2018.

[Table 7]

Table 8 presents the associations between state policy and a FSD snapping at or biting a legitimate service dog. Utilizing a skilled companion rather than a service dog is associated ($p<.05$) with a decrease (-0.21) in the probability of a FSD snapping at or biting one's legitimate service dog, and the strength of the significance is stronger in the difference-in-differences analysis ($p<0.1$). For the first time, I observe that living in a rural area compared to a suburban area or city is associated with an outcome – there is an increase in experiencing a FSD snapping at or biting a service dog, however, significance weakens ($p<.05$) and the magnitude of the association becomes smaller by two percentage points (0.13) in the difference-in-differences model. Lastly, if public access is very important there is a significant ($p<.01$) increase in experiencing snapping and biting, and the magnitudes between the standard probit and difference-in-differences model are identical (0.16).

[Table 8]

When measuring denial of access or being asked to leave a public establishment (Table 9), state policy is not associated with access issues. However, each variable that had a statistically significant association in the standard probit maintained or strengthened significance in the difference-in-differences model, and the directions of the relationships were consistent. There are sizeable magnitudes among these associations. Utilizing a skilled companion as opposed to a service dog is associated with a decrease in access issues by 25 percentage points ($p<.05$). The magnitude of this association is slightly larger (7 percentage points) in the difference-in-differences model than in the standard probit (-0.18). When the handler is female rather than male, the association with being denied or asked to leave increases by 11 percentage

points ($p<.05$). Lastly, if public access is very important to the handler or if he or she requires assistance with ADLs, there is an association ($p<.01$) association with an increase in access issues in both model types for both outcomes. The magnitudes are identical (15 percentage points) between models for "requires assistance with ADLs," and only one point higher in the difference-in-differences analysis (22 percentage points) than the standard probit for "public access is very important." The largest associations in these models are 22 (public access) -25 percentage points (using skilled companion).

[Table 9]

Finally, there were some notable changes that occurred when the variables income and use of equipment were removed. These results for tables 10-15 can be found in Appendix D. The most striking change occurred with hearing dog associations. When examining the relationship between policy and being denied access or asked to leave (Table 10), a hearing dog compared to a service dog became significantly associated with an increase in access issues. However, in measuring associations between policy and snapping at or biting and encountering ten or more FSDs (Table 14 and Table 12), hearing dogs became associated with a decrease in these outcomes. Additionally, in measuring the relationship between the probability of a FSD encounter (Table 11), hearing dogs were no longer omitted from the analysis.

The most changes in one set of models were in those that estimated the relationship between policy and encountering ten or more FSDs. Utilizing a hearing dog or skilled companion compared to a service dog became significantly associated with a decrease in encountering ten or more FSDs (Table 12). Age also became significantly associated with a

decrease in encountering multiple FSDs and being white compared to other races lost much of its statistical power (Table 12). Lastly, in measuring the relationship between policy and a FSD distracting a legitimate service dog (Table 13), utilizing a skilled companion and age became associated with a decrease in distraction issues, although age's association was extremely small (-0.0047). Other than for type of dog utilized, the sensitivity analysis did not drastically change the associations between the explanatory variables and outcomes.

Discussion

The state level policies enacted to curb service dog fraud did not have significant relationships with reducing the probability of encountering a FSD, reducing issues with access, or reducing the instance of FSDs distracting or biting and snapping at legitimate service dogs. Because state and federal policies are so difficult to enforce, these results are not particularly unexpected. However, state policy was strongly associated with an increase in encountering ten or more FSDs, but not when state and year fixed effects were accounted for. This suggests that service dog policy in general was not effective at curbing these problems. Additionally, because the relationship between policy and encountering ten or more FSDs lost its significance when state and year fixed effects were added, this suggests that there were unique patterns and characteristics in geography and time that were necessary to consider.

It is also notable that the policies were not associated with the probability of encountering a FSD in general, but were positively associated with the number of encounters. This may be because in states where the problem was particularly extreme it prompted the state to enact policy, but it is difficult to distinguish the direction of this relationship.

Type of service dog was also consistently associated with issues service dog handlers encounter. Utilizing a skilled companion as opposed to a service dog was associated with a decrease in access issues and a FSD snapping at or biting one's service dog. This may be because skilled companions require a facilitator to be present in order to have public access. This facilitator may be more apt to recognize a FSD and protect and advocate accordingly, which may reduce the negative interactions with FSDs.

Time was also associated with an increase in the probability of these outcomes. Despite the fact there were more policies in effect in 2018, the 2018 indicator variable was associated with encountering a FSD is general and encountering ten or more FSDs. Because the volume of FSDs is growing as time persists and more individuals become aware of loopholes, this pattern was expected. Additionally, this further supports the notion that policy is ineffective at curbing fraud, because even as more policies are adopted the problem persists.

When public access with a service dog was very important to the handler, there was an association with an increase in every outcome. This is not particularly unexpected. When handlers disclose that having a service dog in public with them is very important, one may expect that being in public is a part of their daily lives. Increased time in public may increase their probability of running into a FSD and experiencing these issues. However, it is disconcerting that individuals who seek out a service dog to improve their experience in public places are the individuals who more often encounter barriers to public access and problems with FSDs.

Race and gender were associated with outcomes in three models. Being white compared to other races was associated with encountering a FSD and encountering ten or more FSDs, but was not associated with any of the other outcomes. Being female was associated with being

asked to leave or denied access more than males. This suggests that females' experiences with gatekeepers are different from males'. There is not an immediate explanation for these two outcomes, but they are interesting nonetheless, especially since white females represent the majority of the sample.

Finally, the general demographics of the service dog handlers in this sample are interesting. The overwhelming majority of handlers were white, and there was no obvious reason why. The sample was also mostly female and consisted of more high-income individuals. This suggests that service dogs may be marketed, or more available as a resource, to these individuals. Perhaps disabled individuals who are white, high earners, or female have a stronger desire to utilize a service dog in order to mitigate their disability. It is also possible that because owning a dog can be costly, service dogs are not as financially accessible for low-income individuals. Additionally, it is worth further exploration as to why more diverse populations do not utilize service dogs at the same rate as white individuals. Nonetheless, the characteristics of this sample are noteworthy and certainly motivate further inquiry regarding the characteristics of service dog handlers in general, how organizations market service dogs, and how handlers come to the decision to seek out a service dog in order to mitigate their disability.

Limitations

Due to the nature of the data, there are multiple limitations worth noting. First, all service dog handlers received dogs from the same organization, CCI, which may make these results difficult to generalize. The survey was also administered by CCI and was not scientifically validated. However, these surveys are currently the only data available regarding this topic. Moving forward, I plan to provide CCI with a scientifically valid survey to distribute.

Taking the survey was voluntary. Because service dog fraud is an aggravating phenomenon, those who were affected may have been more apt to take the survey. There is also a limited sample size because many respondents did not identify themselves, which may have limited the representative nature of my sample. Additionally, I did not have two samples from before the policies were enacted. As such, I had to assume parallel trends in my data and was not able to test for them.

I also did not account for the differences between types of state policies. In the future I plan to create an index that accounts for attributes of the penalties (financial, community service, and imprisonment). I will also account for how comprehensive the laws are in addressing all aspects of fraud, including in housing and elsewhere, and if policies that address denial of access to service dogs are present. This may provide an indication of what types of policies are more effective than others.

Conclusion

State policies were not associated with a decrease in encountering a FSD, or the negative experiences that coincide with these encounters. It appears that these policies are difficult to enforce, which may be the driving factor undermining their effectiveness. However, the enactment of these laws signals that policymakers are acknowledging that this is a growing problem and that FSDs may harm legitimate service dog handlers.

It is especially unfortunate that service dog handlers who are most motivated to use their dog to enhance their independence in public report the highest frequency of FSD encounters. These handlers also more commonly experience the associated behavioral problems of encounters. Raising awareness of how FSDs negatively impact the rights of individuals with

disabilities is important and should prompt states to require more education surrounding disability policy for those in the position to act as a gatekeeper. Service dogs are a beneficial resource for individuals with disabilities, and it is vital to protect exclusive access to this resource so that these individuals can enjoy public access and a quality of life similar to those without disabilities.

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Table 1: Explanatory Variable Means and Standard Deviations

	Mean	S.D.
State Has Policy Active	0.66	0.47
Service Dog	0.53	0.50
Skilled Companion	0.24	0.43
Hearing Dog	0.22	0.42
Handler is Female	0.60	0.49
Recipient Age	40.0	20.5
Caucasian	0.83	0.38
Earn More Than 60,000	0.60	0.49
Condition is Progressive	0.48	0.50
Have some form of "Plegia"	0.28	0.45
Primary Form of Transportation is Public	0.14	0.34
Requires Assistance with ADLs	0.47	0.50
Uses Mobility Equipment	0.89	0.32
Live in a Rural Area	0.18	0.38
Public Access is Very Important	0.67	0.47
Observations	698	

Summary statistics of explanatory variables at the individual level derived from Canine Companions for Independence applications.

Table 2: Dependent Variable Means and Standard Deviations

	Mean	Standard Deviation
Encountered FSD	0.90	0.31
Encountered 10 or More FSD	0.31	0.46
Been Denied Access or Asked to Leave	0.49	0.50
Service Dog has Been Distracted	0.50	0.50
Service Dog has Been Bitten or Snapped at	0.29	0.45
Observations	698	

Summary statistics of explanatory variables at the individual level derived from a Canine Companions for Independence survey.

Table 3: Race, Residential Demographic, Income, and Gender Break-Out of Sample

	Frequency
Caucasian	580
African American	5
Hispanic	28
Other	49
Live in a City	162
Live in Suburbs	402
Live in Rural Area	124
Income Under $15,000	50
Income $15,000 - $19,999	17
Income $20,000 - $29,999	35
Income $30,000 - $39,999	43
Income $40,000 - $49,999	34
Income $50,000 - $59,999	43
Income $60,000 - $74,999	67
Income $75,000 - $99,999	104
Income $100,000 - $149,999	104
Income $150,000 and Over	63
Male	279
Female	419

Break-out of explanatory variables at the individual level derived from Canine Companions for Independence Applications.

Table 4: Means Test Between States with Fraud Policy and States Without

	Mean without Policy	Mean with Policy	Difference	p-value	t-statistic
Denied or Asked to Leave	0.46	0.50	-0.04	0.37	-0.90
Encountered FSD	0.90	0.89	0.01	0.80	0.25
Encountered 10 or More FSD	0.26	0.33	-0.07	0.06	-1.89
Been Bitten or Snapped at	0.28	0.29	-0.01	0.74	-0.33
Distracted	0.46	0.52	-0.06	0.12	-1.54

State level fraud policy data are derived from each state's public code. If a state mentions misrepresentation of an assistance dog it is considered to have active fraud policy.

Table 5: Probit and Difference in Differences Marginal Effects of State Policy on FSD Encounters

	Probit Model Marginal Effects	Dif-n-Dif Model Marginal Effects
State Has Policy Active	0.0017	-0.070
	(0.05)	(-0.62)
Skilled Companion	0.00013	0.030
	(0.00)	(0.39)
Hearing Dog	0	0
	(.)	(.)
Handler is Female	0.029	-0.000078
	(0.82)	(-0.00)
Recipient Age	-0.00047	-0.00044
	(-0.37)	(-0.29)
Caucasian	-0.19**	-0.22**
	(-2.34)	(-2.19)
Earn More Than 60,000	0.028	0.027
	(0.76)	(0.58)
Condition is Progressive	0.061	0.091**
	(1.57)	(2.00)
Have some form of "Plegia"	0.037	0.062
	(0.99)	(1.42)
Primary Transportation is Public	0.049	0.056
	(0.94)	(0.90)
Requires Assistance with ADLs	-0.036	-0.069
	(-1.02)	(-1.58)
Uses Mobility Equipment	-0.069	-0.084
	(-1.12)	(-1.14)
Live in a Rural Area	0.038	0.041
	(0.80)	(0.68)
Public Access is Very Important	0.10***	0.12***
	(3.08)	(3.04)
yr2018		0.097**
		(2.22)
Number of Observations	387	313

Standard probit and difference-in-differences results where the dependent variable is if an assistance dog handler has encountered a fake service dog. Dependent variable is derived from a Survey of Canine Companions for Independence (CCI) assistance dog handlers administered by CCI. Other individual level characteristics are derived from CCI applications. Policy data compiled by author.
* p<0.10, ** p<0.05, *** p<0.01

Table 6: Probit and Difference in Differences Marginal Effects of State Policy on Encountering Ten or More FSDs

	Probit Model Marginal Effects	Dif-n-Dif Model Marginal Effects
State Has Policy Active	0.14***	0.20
	(2.82)	(1.22)
Skilled Companion	-0.088	-0.085
	(-0.96)	(-0.85)
Hearing Dog	-0.080	-0.25
	(-0.56)	(-1.52)
Handler is Female	-0.0073	0.024
	(-0.14)	(0.44)
Recipient Age	-0.00060	-0.00046
	(-0.32)	(-0.23)
Caucasian	-0.17***	-0.21***
	(-2.65)	(-3.07)
Earn More Than 60,000	-0.048	0.0035
	(-0.95)	(0.06)
Condition is Progressive	-0.033	-0.020
	(-0.60)	(-0.34)
Have some form of "Plegia"	-0.037	-0.044
	(-0.68)	(-0.73)
Primary Transportation is Public	0.037	0.016
	(0.56)	(0.23)
Requires Assistance with ADLs	-0.087*	-0.10*
	(-1.77)	(-1.92)
Uses Mobility Equipment	0.11	0.10
	(1.27)	(1.12)
Live in a Rural Area	0.039	0.015
	(0.64)	(0.22)
Public Access is Very Important	0.12**	0.11*
	(2.27)	(1.83)
yr2018		0.12**
		(2.08)
Number of Observations	393	362

Standard probit and difference-in-differences results where the dependent variable is if an assistance dog handler has encountered ten or more fake service dogs. Dependent variable is derived from a Survey of Canine Companions for Independence (CCI) assistance dog handlers administered by CCI. Other individual level characteristics are derived from CCI applications. Policy data compiled by author.

* p<0.10, ** p<0.05, *** p<0.01

Table 7: Probit and Difference in Differences Marginal Effects of State Policy on FSD Distracting Working Dog

	Probit Model Marginal Effects	Dif-n-Dif Model Marginal Effects
State Has Policy Active	0.073	-0.019
	(1.40)	(-0.12)
Skilled Companion	-0.097	-0.054
	(-1.02)	(-0.54)
Hearing Dog	0.066	0.039
	(0.43)	(0.23)
Handler is Female	0.042	0.024
	(0.80)	(0.46)
Recipient Age	-0.0029	-0.0029
	(-1.48)	(-1.44)
Caucasian	-0.071	-0.078
	(-1.00)	(-1.08)
Earn More Than 60,000	0.011	-0.018
	(0.21)	(-0.32)
Condition is Progressive	0.16***	0.16***
	(2.93)	(2.77)
Have some form of "Plegia"	0.051	0.071
	(0.88)	(1.19)
Primary Transportation is Public	-0.084	-0.11
	(-1.21)	(-1.49)
Requires Assistance with ADLs	-0.0014	-0.056
	(-0.03)	(-1.02)
Uses Mobility Equipment	-0.086	-0.036
	(-0.97)	(-0.39)
Live in a Rural Area	0.092	0.082
	(1.42)	(1.16)
Public Access is Very Important	0.21***	0.21***
	(3.95)	(3.90)
yr2018		0.100*
		(1.75)
Number of Observations	399	384

Standard probit and difference-in-differences results where the dependent variable is if a fake service dog has distracted a legitimate assistance dog. Dependent variable is derived from a Survey of Canine Companions for Independence (CCI) assistance dog handlers administered by CCI. Other individual level characteristics are derived from CCI applications. Policy data compiled by author.
* p<0.10, ** p<0.05, *** p<0.01

Table 8: Probit and Difference in Differences Marginal Effects of State Policy on FSD Snapping at or Biting Working Dog

	Probit Model Marginal Effects	Dif-n-Dif Model Marginal Effects
State Has Policy Active	0.062	0.0011
	(1.29)	(0.01)
Skilled Companion	-0.14*	-0.21**
	(-1.65)	(-2.09)
Hearing Dog	-0.0043	-0.23
	(-0.03)	(-1.37)
Handler is Female	0.077	0.075
	(1.62)	(1.41)
Recipient Age	-0.00085	-0.0020
	(-0.48)	(-0.98)
Caucasian	-0.029	0.0020
	(-0.45)	(0.03)
Earn More Than 60,000	0.0037	0.00053
	(0.08)	(0.01)
Condition is Progressive	0.0051	0.035
	(0.10)	(0.60)
Have some form of "Plegia"	-0.088	-0.082
	(-1.64)	(-1.35)
Primary Transportation is Public	0.012	-0.013
	(0.19)	(-0.17)
Requires Assistance with ADLs	0.028	-0.0065
	(0.58)	(-0.11)
Uses Mobility Equipment	0.069	0.075
	(0.80)	(0.79)
Live in a Rural Area	0.15***	0.13**
	(2.71)	(2.01)
Public Access is Very Important	0.16***	0.16***
	(3.00)	(2.63)
yr2018		0.084
		(1.49)
Number of Observations	399	339

Standard probit and difference-in-differences results where the dependent variable is if a fake service dog has snapped at or bitten a legitimate assistance dog. Dependent variable is derived from a Survey of Canine Companions for Independence (CCI) assistance dog handlers administered by CCI. Other individual level characteristics are derived from CCI applications. Policy data compiled by author.

* p<0.10, ** p<0.05, *** p<0.01

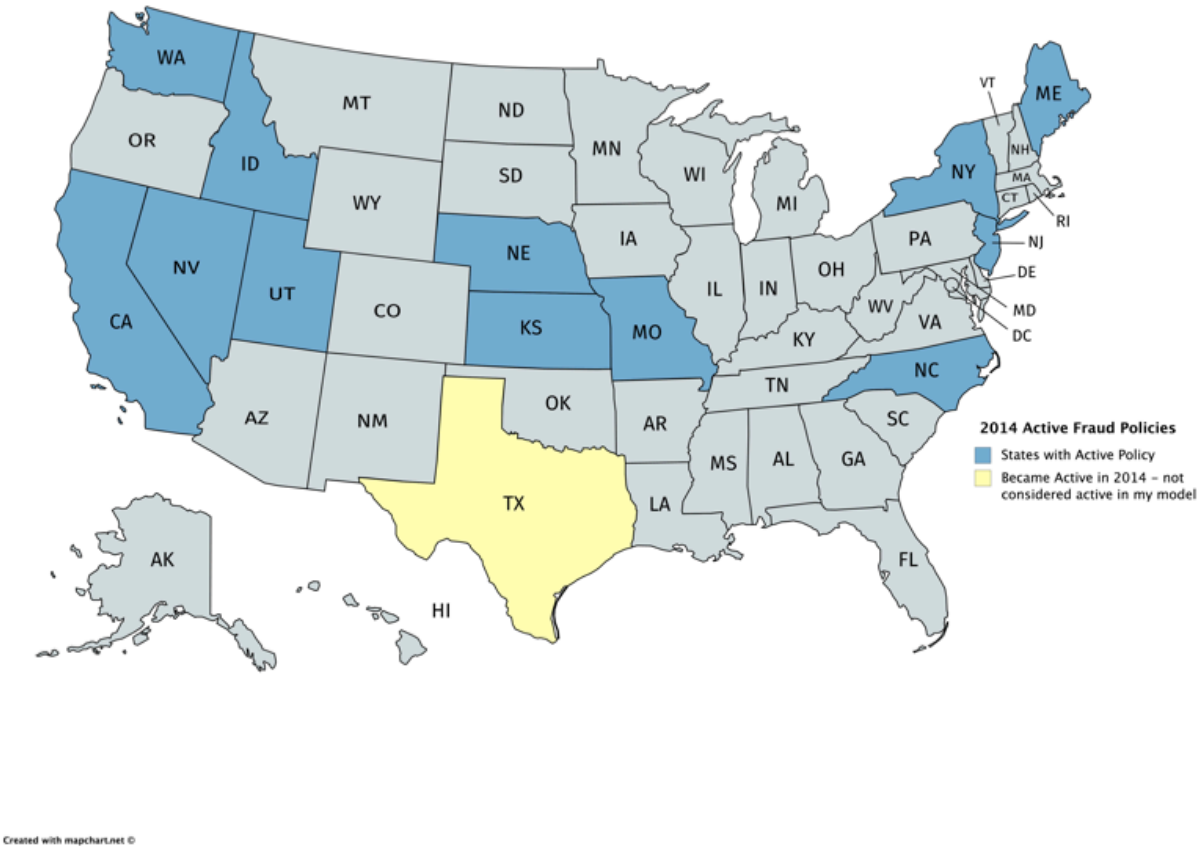
Table 9: Probit and Difference in Differences Marginal Effects of State Policy on Being Denied Entry or Asked to Leave

	Probit Model Marginal Effects	Dif-n-Dif Model Marginal Effects
State Has Policy Active	0.084	-0.22
	(1.61)	(-1.37)
Skilled Companion	-0.18**	-0.25**
	(-1.97)	(-2.44)
Hearing Dog	0.13	0.13
	(0.89)	(0.74)
Handler is Female	0.092*	0.11**
	(1.79)	(2.11)
Recipient Age	-0.0024	-0.0027
	(-1.22)	(-1.33)
Caucasian	-0.088	-0.093
	(-1.26)	(-1.29)
Earn More Than 60,000	0.062	0.043
	(1.16)	(0.76)
Condition is Progressive	0.021	0.013
	(0.36)	(0.21)
Have some form of "Plegia"	-0.029	-0.017
	(-0.50)	(-0.28)
Primary Transportation is Public	-0.040	-0.096
	(-0.57)	(-1.31)
Requires Assistance with ADLs	0.15***	0.15***
	(2.82)	(2.75)
Uses Mobility Equipment	-0.0017	-0.063
	(-0.02)	(-0.69)
Live in a Rural Area	-0.028	-0.062
	(-0.43)	(-0.89)
Public Access is Very Important	0.21***	0.22***
	(4.09)	(3.91)
yr2018		0.083
		(1.43)
Number of Observations	398	379

Standard probit and difference-in-differences results where the dependent variable is if an assistance dog handler has been denied access or asked to leave a public establishment. Dependent variable is derived from a Survey of Canine Companions for Independence (CCI) assistance dog handlers administered by CCI. Other individual level characteristics are derived from CCI applications. Policy data compiled by author.

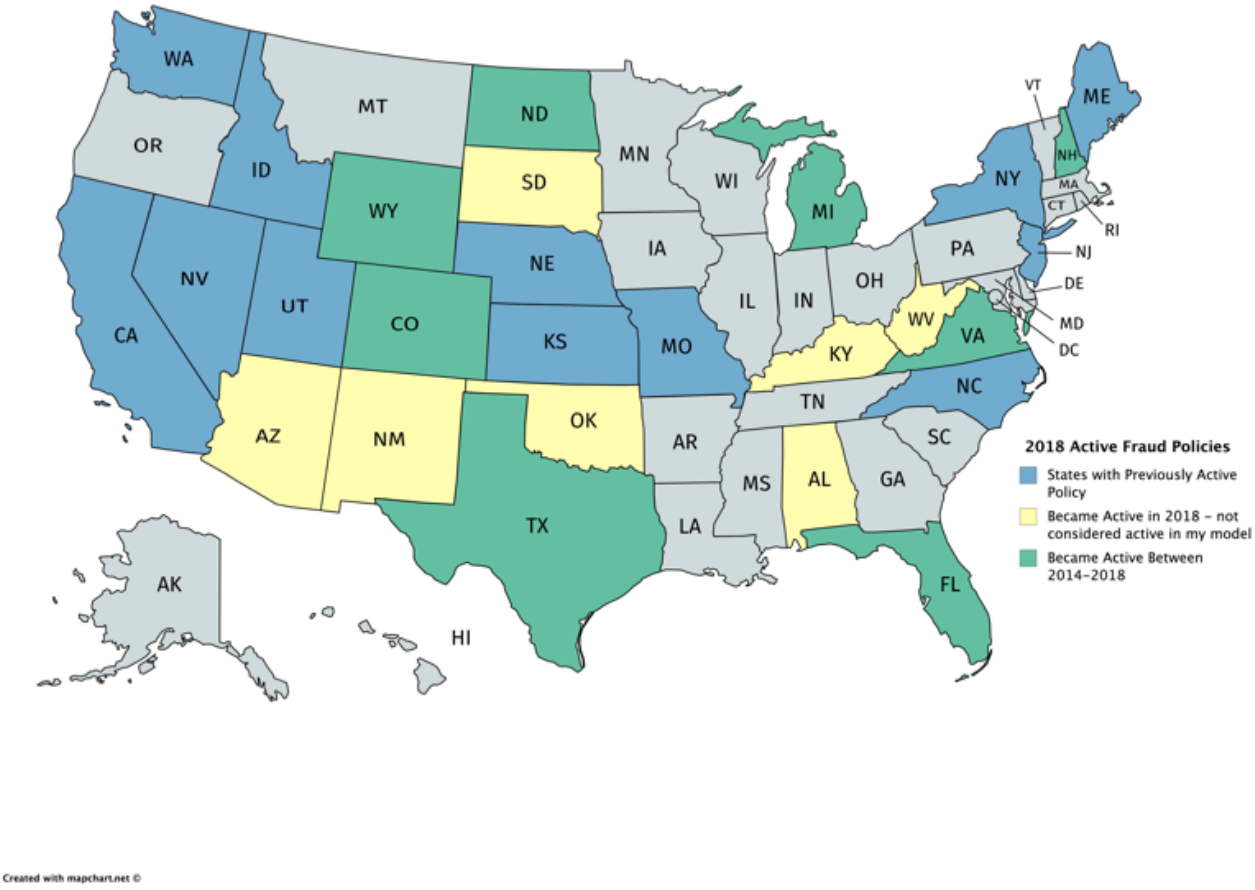
* p<0.10, ** p<0.05, *** p<0.01

Figure 1: 2014 Map of U.S. Fraud Policy



States in yellow added assistance dog fraud policy in 2014. I do not consider them to be a state with active policy in 2014 because survey respondents may have completed the survey before the policy went into effect. For the purposes of my model, 12 states have active fraud policy in 2014.

Figure 2: 2018 Map of U.S. Fraud Policy



States in yellow added assistance dog fraud policy in 2018. I do not consider them to be a state with active policy in 2018 because survey respondents may have completed the survey before the policy went into effect. Green states added assistance dog fraud policy between 2014 and 2018, and blue states had assistance dog fraud active in 2014. For the purposes of my model, 20 states have active fraud policy in 2018.

Appendix A

Examples of the Canine Companions for Independence Service Dog Application Questions Data Were Recorded From

Gender: ☒ **Male** ☐ **Female**

Date of Birth: 11/10/51

II. ETHNICITY

This information is *optional* and will be used for statistical purposes only. It will *not* be considered in evaluating applications for an assistance dog.

Ancestry or ethnic origin: (For example: Hawaiian, Italian, African-American, Mexican, Norwegian, Cambodian, Dominican, French Canadian, Haitian, Korean)

☐ African American
☑ Caucasian
☐ Two or more races
☐ American Indian
☐ Hispanic
☐ Asian/ Pacific Islander
☐ Other: _____

III. ANNUAL FAMILY INCOME

This information is *optional* and will be used for statistical purposes only. It will *not* be considered in evaluating applications for an assistance dog.

☐ Under $15,000 ☐ $15,000-$19,999 ☐ $20,000-$29,999 ☐ $30,000-$39,999
☐ $40,000-$49,999 ☐ $50,000-$59,999 ☐ $60,000-$74,999 ☐ $75,000-$99,999
☐ $100,000-$149,000 ☐ $150,000 & over

Do you live in: ☐ the city ☐ the suburbs ☐ a rural area ☐ other: _____

Is your disability progressive? ☐ **yes** ☐ **no**

Functional Level:

☐ Quadriplegic ☐ Paraplegic ☐ Hemiplegic ☐ Other: _____

Regularly Need Assistance With:

☐ ADLs
☐ Eating
☐ Writing
☐ Other (specify below)

Equipment:

☐ Ambulatory ☐ Non-ambulatory ☐ Cane ☐ Crutches ☐ Leg brace(s) ☐ Manual wheelchair ☐ Orthotics (AFOs or CFOs)	☐ Power wheelchair ☐ Prosthesis ☐ Scooter ☐ Stroller ☐ Walker ☐ Other _____ ☐ Require assistance with mobility

What is your primary means of transportation? Please indicate all types if more than one.

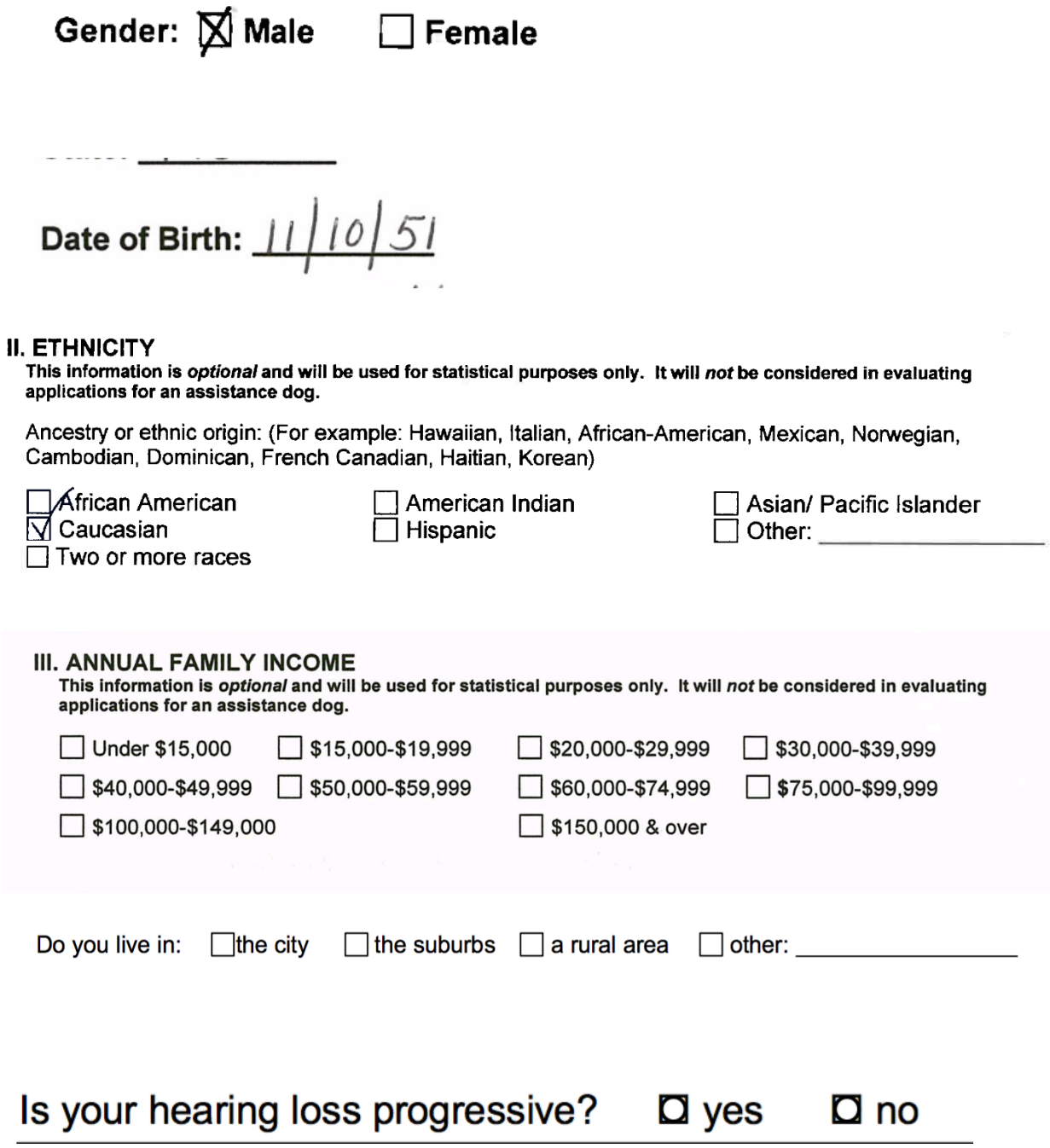
☐ own auto, drive self ☐ own auto, others drive ☐ van with lift
☐ public transportation ☐ other:

How important is it for you to have an assistance dog accompany you in public settings like restaurants, banks, stores and other public businesses?

☐ very important ☐ somewhat important ☐ not important

Explain:

Figure 2. Examples of the Canine Companions for Independence Hearing Dog Application Questions Data Were Recorded From



Gender: ☒ Male ☐ Female

Date of Birth: 11/10/51

II. ETHNICITY

This information is *optional* and will be used for statistical purposes only. It will *not* be considered in evaluating applications for an assistance dog.

Ancestry or ethnic origin: (For example: Hawaiian, Italian, African-American, Mexican, Norwegian, Cambodian, Dominican, French Canadian, Haitian, Korean)

☐ African American ☐ American Indian ☐ Asian/ Pacific Islander
☒ Caucasian ☐ Hispanic ☐ Other: _____
☐ Two or more races

III. ANNUAL FAMILY INCOME

This information is *optional* and will be used for statistical purposes only. It will *not* be considered in evaluating applications for an assistance dog.

☐ Under $15,000 ☐ $15,000-$19,999 ☐ $20,000-$29,999 ☐ $30,000-$39,999
☐ $40,000-$49,999 ☐ $50,000-$59,999 ☐ $60,000-$74,999 ☐ $75,000-$99,999
☐ $100,000-$149,000 ☐ $150,000 & over

Do you live in: ☐ the city ☐ the suburbs ☐ a rural area ☐ other: _____

Is your hearing loss progressive? ☐ yes ☐ no

Regularly Need Assistance With:

- ☐ ADLs
- ☐ Eating
- ☐ Writing
- ☐ Other (specify below)

Do you require any adaptive equipment to assist you with mobility (i.e., cane, crutches, walker, wheelchair, scooter, etc.)? ☐ Yes ☒ No

If yes, please describe:

What is your primary means of transportation? Please indicate all types if more than one.

☐ own auto, drive self ☐ own auto, others drive ☐ van with lift

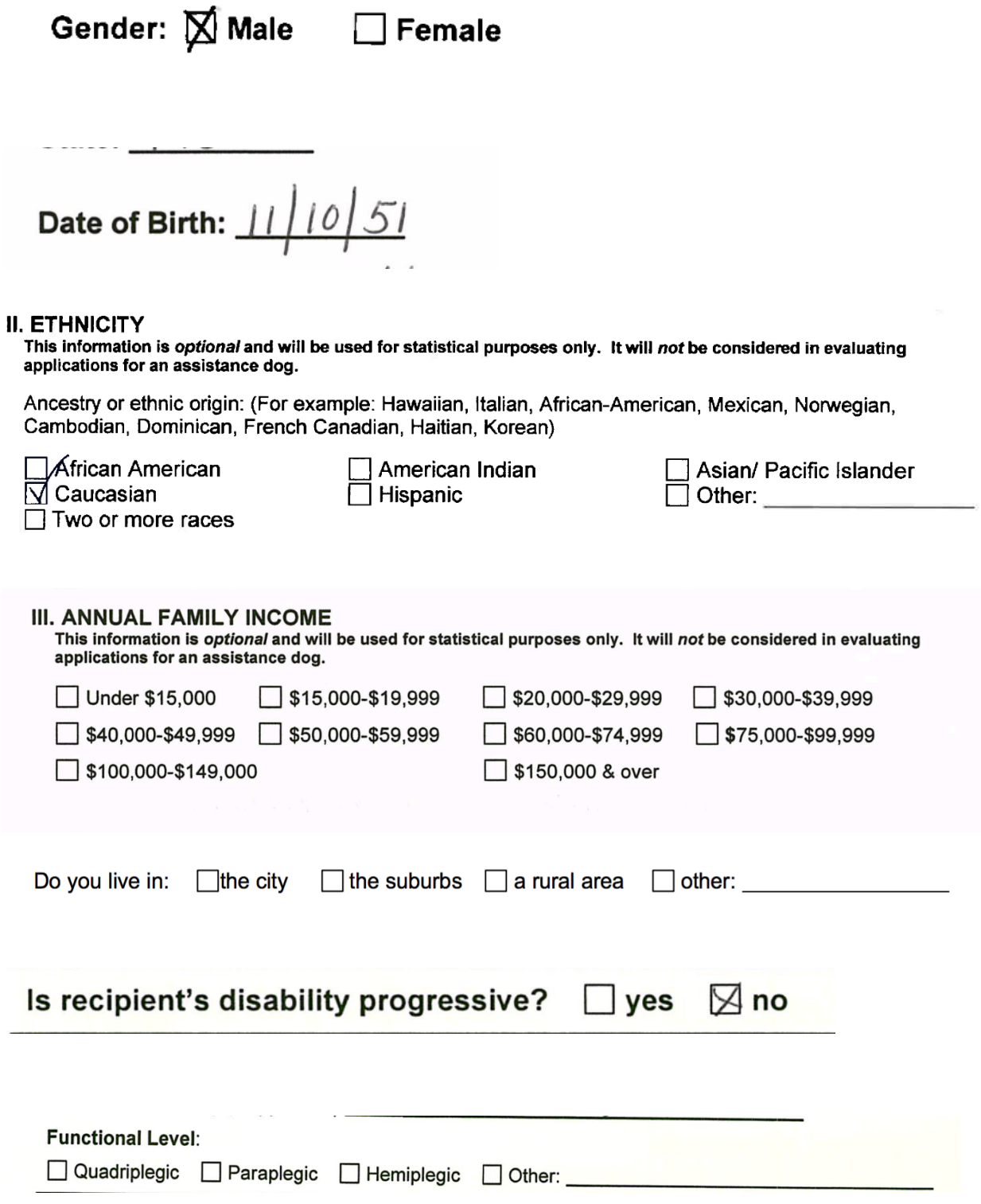
☐ public transportation ☐ other:

How important is it for you to have a Hearing Dog accompany you in public settings like: restaurants, banks, stores and other public businesses? ☐ very important ☑ somewhat important ☐ not important

Explain:

I would feel more comfortable having the dog travel with me.

Figure 3: Examples of the Canine Companions for Independence Skilled Companion Application Questions Data Were Recorded From



Gender: ☒ Male ☐ Female

Date of Birth: 11/10/51

II. ETHNICITY

This information is *optional* and will be used for statistical purposes only. It will *not* be considered in evaluating applications for an assistance dog.

Ancestry or ethnic origin: (For example: Hawaiian, Italian, African-American, Mexican, Norwegian, Cambodian, Dominican, French Canadian, Haitian, Korean)

☐ African American ☐ American Indian ☐ Asian/ Pacific Islander
☑ Caucasian ☐ Hispanic ☐ Other: _____
☐ Two or more races

III. ANNUAL FAMILY INCOME

This information is *optional* and will be used for statistical purposes only. It will *not* be considered in evaluating applications for an assistance dog.

☐ Under $15,000 ☐ $15,000-$19,999 ☐ $20,000-$29,999 ☐ $30,000-$39,999
☐ $40,000-$49,999 ☐ $50,000-$59,999 ☐ $60,000-$74,999 ☐ $75,000-$99,999
☐ $100,000-$149,000 ☐ $150,000 & over

Do you live in: ☐ the city ☐ the suburbs ☐ a rural area ☐ other: _____

Is recipient's disability progressive? ☐ yes ☒ no

Functional Level:

☐ Quadriplegic ☐ Paraplegic ☐ Hemiplegic ☐ Other: _____

Regularly Need Assistance With:

☐ ADLs
☐ Eating
☐ Writing
☐ Other (specify below)

Equipment:

☐ Ambulatory ☐ Non-ambulatory ☐ Cane ☐ Crutches ☐ Leg brace(s) ☐ Manual wheelchair ☐ Orthotics (AFOs or CFOs)	☐ Power wheelchair ☐ Prosthesis ☐ Scooter ☐ Stroller ☐ Walker ☐ Other _____ ☐ Require assistance with mobility

What is the applicant's primary means of transportation? Please indicate all types if more than one.

☐ own auto, drive self ☐ own auto, others drive ☐ van with lift

☐ public transportation ☐ other:

How important is it for the recipient (with facilitator) to have an assistance dog accompany him/her in public settings like: restaurants, banks, stores and other public businesses?

☐ very important ☑ somewhat important ☐ not important

Explain:

Appendix B

Q1. Have you encountered a fake, questionable or uncontrolled service dog during your time as a Canine Companions graduate?

Q2. If yes, how many times?

Q3. Has an uncontrolled or fake “service dog” (with or without a vest) ever snapped at, bitten or otherwise been distracted or made your Canine Companions assistance dog uncomfortable while at a business or other public establishment where pet dogs are not allowed?

Q4. Have you ever been asked to leave a business or denied entry with your Canine Companions Dog?

Q10. Please enter your contact information (optional).

Appendix C

Gender

To observe gender, I created a binary variable representing if the applicant was either male or female, indicated on their application.

Income

Income was recorded in ten ranges: Under $15,000; $15,000 - $19,999; $20,000 - $29,999; $30,000 - $39,999; $40,000 - $49,999; $50,000 - $59,999; $60,000 - $74,999; $75,000 - $99,999; $100,000 - $149,000; and $150,000 and over. I created a binary variable that represented whether the applicant reported a household income up to $60,000 or over $60,000. I chose this value because the median household income in the United States hovered around $60,000 during this time period {, 2018 #29}.

Age

A question asking the applicant to disclose his or her age was not on every application. Some versions of the applications asked date of birth instead, and sometimes asked both. If age was reported, I was able to compute the applicant's age in 2014 and 2018 by referring to the date the application was signed. Using the signed date, I knew his or her age that given year. To derive age, I then measured the difference in years between signing the application and the years 2014 and 2018. I added those differences in years to the applicant's recorded age on the application to decipher their age when they responded to the 2014 and 2018 survey(s), respectively. If date of birth was disclosed, I was able to derive age by subtracting the year the applicant was born from the years 2014 and 2018.

Residential Demographic

Residential demographic was reported as "rural," "suburbs," "city," or "other, please explain." If other was explained as a college campus, military base, or college town, I coded the response as "suburbs." If other was explained as semi-rural, small town, or mountains, I coded the response as "rural." I then created a binary variable that represents if the applicant lived in a rural area or a non-rural area (city or suburbs).

Progressive Disability

I created a binary variable that represents if the applicant has a progressive disability or a non-progressive disability, based on their answer "yes" or "no."

"Plegia"

When asked about functional level, applicants were given four options: Quadriplegic, Paraplegic, Hemiplegic, or Other. If an applicant selected any of these boxes, I coded them as having a form of "-plegia." If an applicant selected other and described a functional level that did not include a form of paralysis in their limbs or a region of the body, then I coded their response as a non-selection. If an applicant selected other and recorded a form of "-plegia" that was not provided in the options, I coded them as having a form of "-plegia." I created a binary variable for individuals with a form of "-plegia" who selected one of the functional levels versus those who did not indicate one of these functional levels. Coding in this way assumes that if someone did not select one of the options then they do not have a form of "-plegia."

Mobility Equipment
When asked about mobility, the applicant can choose amongst 10 types of assistive equipment (walker, wheelchair, crutches, cane, etc.), as well as "other." The applicant can also choose "ambulatory" or "non-ambulatory." They are not confined to choosing only one option. If the applicant chooses any type of equipment, even if they also check ambulatory, I code a binary variable which represents that they use some kind of mobility equipment. Because I cannot decipher how often the individual uses that equipment, I decided that if they use equipment at all, regardless of how often, it is noted.

Assistance with ADLs
Creating the variable that reflects if the applicant needs regular assistance with activities of daily living also derives its value from a question that offers multiple options. The applicant can select activities of daily living (ADLs), eating, writing, or other. Because these are all technically ADLs, I code a binary variable that represents if the applicant chose any of the options. If the applicant chooses "other" and describes an activity that is not an ADL, such as riding a bike, I code the response as a non-response. Similar to coding the variable "-plegia" I assume that if none of the options are chosen the individual does not require regular assistance with ADLs.

Primary Transportation
When asked about primary means of transportation, "public transportation" is an option to select. If the applicant selects public transportation as a response, even if they choose other modes of transportation too, I code a binary variable that represents that they primarily use public transportation. If the applicant chooses any of the other options without selecting public transportation as well, they are coded as not primarily using public transportation.

Importance in Public
Lastly, the applicant is asked how important it is for them to have their dog accompany them into public settings like restaurants, stores, banks, or other public businesses. The applicant can choose "not important," "somewhat important," or "very important." I create a binary variable that represents if the individual chose "very important." If they chose "not important" or "somewhat important" then the binary value is a 0.

Encountered a FSD
Both surveys began by asking "Have you encountered a fake, questionable or uncontrolled service dog during your time as a Canine Companions graduate?" I created a binary variable that represents whether or not the respondent said "yes" or "no." If the respondent answered "I don't know" I coded the response as missing. If a respondent indicated they had encountered a FSD a certain number of times in the next question but simultaneously had a missing value when asked if they had ever encountered a FSD, I replaced the missing value to represent that they have encountered a FSD. Additionally, if the respondent had a missing value when asked about encountering a FSD, but responded that their dog has been bitten, snapped at, or distracted by a FSD in a later question, I replaced the missing value to represent that they have encountered a FSD.

Number of Encounters
The surveys asked how many times an individual encountered a FSD. In the 2014 survey, the respondent could answer with an open-ended number. However, in the 2018 survey, the respondents were given a selection of four ranges: once, 2-4, 5-9, or 10 or more. To measure the prevalence of encountering a FSD, I chose to separate the responses into two groups: have encountered ten or more or have encountered less than ten, and created a binary variable coded accordingly.

Bitten, Snapped at, or Distracted
If a recipient has encountered a FSD, the 2014 survey asked if the FSD has distracted, bitten, or snapped at their working service dog. The 2018 survey also included "vocalized" in this same question. However, the respondent was able to check all that apply, so I disregarded if vocalized was chosen in 2018. I also combined the questions about being bitten and snapped at into one variable representing if their service dog has been bitten *or* snapped at. Bitten or snapped at was coded as a binary variable depending on the response "yes" or "no," and so was distracted.

Denied or Asked to Leave
The last variable of interest from the surveys represents if the recipient has been denied entry to a business or been asked to leave. Their response of "yes" or "no" was coded as a binary variable to represent if they have or have not, but this variable does not decipher which specific incident occurred.

Appendix D

Table 10: Sensitivity Analysis Omitting Equipment and Income - Probit and Difference in Differences Marginal Effects of State Policy on Being Denied Entry or Asked to Leave

	Probit Model Marginal Effects	Dif-n-Dif Model Marginal Effects
State Has Policy Active	0.060	-0.11
	(1.48)	(-1.00)
Skilled Companion	-0.11	-0.18**
	(-1.61)	(-2.42)
Hearing Dog	0.14**	0.15***
	(2.48)	(2.60)
Handler is Female	0.10***	0.11***
	(2.58)	(2.61)
Recipient Age	-0.0013	-0.0015
	(-0.89)	(-0.98)
Caucasian	-0.014	-0.047
	(-0.27)	(-0.87)
Condition is Progressive	0.078*	0.071
	(1.77)	(1.59)
Have some form of "Plegia"	0.033	0.027
	(0.66)	(0.54)
Primary Transportation is Public	-0.043	-0.077
	(-0.73)	(-1.29)
Requires Assistance with ADLs	0.11**	0.11**
	(2.36)	(2.36)
Live in a Rural Area	0.0027	-0.0018
	(0.05)	(-0.03)
Public Access is Very Important	0.18***	0.17***
	(4.54)	(4.02)
yr2018		0.051
		(1.14)
Number of Observations	642	615

Sensitivity analysis where "Earn More Than 60,000" and "Uses Mobility Equipment" are not included. Standard probit and difference-in-differences results where the dependent variable is if an assistance dog handler has been denied access or asked to leave a public establishment. Dependent variable is derived from a Survey of Canine Companions for Independence (CCI) assistance dog handlers administered by CCI. Other individual level characteristics are derived from Canine Companions for Independence applications. Policy data compiled by author. * p<0.10, ** p<0.05, *** p<0.01

Table 11: Sensitivity Analysis Omitting Equipment and Income - Probit and Difference in Differences Marginal Effects of State Policy on FSD Encounters

	Probit Model Marginal Effects	Dif-n-Dif Model Marginal Effects
State Has Policy Active	-0.0042	-0.11
	(-0.16)	(-1.33)
Skilled Companion	-0.015	-0.043
	(-0.33)	(-0.80)
Hearing Dog	0.052	0.054
	(1.33)	(1.20)
Handler is Female	0.023	0.011
	(0.92)	(0.37)
Recipient Age	-0.00092	-0.0013
	(-0.98)	(-1.18)
Caucasian	-0.17***	-0.17***
	(-3.03)	(-2.78)
Condition is Progressive	-0.0040	-0.0034
	(-0.14)	(-0.10)
Have some form of Plegia	0.019	0.020
	(0.64)	(0.59)
Primary Transportation is Public	0.018	0.024
	(0.46)	(0.52)
Requires Assistance with ADLs	-0.027	-0.035
	(-0.95)	(-1.05)
Live in a Rural Area	0.034	0.025
	(1.00)	(0.60)
Public Access is Very Important	0.079***	0.093***
	(3.20)	(3.16)
yr2018		0.13***
Number of Observations	643	526

Sensitivity analysis where "Earn More Than 60,000" and "Uses Mobility Equipment" are not included in the analysis. Standard probit and difference-in-differences results where the dependent variable is if an assistance dog handler has encountered a fake service dog. Dependent variable is derived from a Survey of Canine Companions for Independence (CCI) assistance dog handlers administered by CCI. Other individual level characteristics are derived from CCI applications. Policy data compiled by author.

* p<0.10, ** p<0.05, *** p<0.01

Table 12: Sensitivity Analysis Omitting Equipment and Income - Probit and Difference in Differences Marginal Effects of State Policy on Encountering Ten or More FSDs

	Probit Model Marginal Effects	Dif-n-Dif Model Marginal Effects
State Has Policy Active	0.11***	-0.0054
	(2.79)	(-0.05)
Skilled Companion	-0.17**	-0.21***
	(-2.53)	(-2.83)
Hearing Dog	-0.13**	-0.19***
	(-2.48)	(-3.29)
Handler is Female	-0.035	-0.0085
	(-0.93)	(-0.21)
Recipient Age	-0.0025*	-0.0033**
	(-1.79)	(-2.17)
Caucasian	-0.086*	-0.083*
	(-1.80)	(-1.68)
Condition is Progressive	0.037	0.028
	(0.91)	(0.64)
Have some form of "Plegia"	-0.017	-0.021
	(-0.36)	(-0.43)
Primary Transportation is Public	0.0052	-0.0098
	(0.10)	(-0.17)
Requires Assistance with ADLs	-0.082*	-0.081*
	(-1.94)	(-1.80)
Live in a Rural Area	0.037	0.054
	(0.79)	(1.07)
Public Access is Very Important	0.12***	0.12***
	(3.06)	(2.72)
yr2018		0.13***
		(2.96)
Number of Observations	635	587

Sensitivity analysis where "Earn More Than 60,000" and "Uses Mobility Equipment" are not included in the analysis. Standard probit and difference-in-differences results where the dependent variable is if an assistance dog handler has encountered ten or more fake service dogs. Dependent variable is derived from a Survey of Canine Companions for Independence (CCI) assistance dog handlers administered by CCI. Other individual level characteristics are derived from CCI applications. Policy data compiled by author.
* p<0.10, ** p<0.05, *** p<0.01

Table 13: Sensitivity Analysis Omitting Equipment and Income - Probit and Difference in Differences Marginal Effects of State Policy on FSD Distracting Working Dog

	Probit Model Marginal Effects	Dif-n-Dif Model Marginal Effects
State Has Policy Active	0.070*	0.065
	(1.71)	(0.59)
Skilled Companion	-0.14*	-0.16**
	(-1.95)	(-2.12)
Hearing Dog	-0.030	-0.038
	(-0.52)	(-0.62)
Handler is Female	0.039	0.040
	(0.96)	(0.95)
Recipient Age	-0.0044***	-0.0047***
	(-2.94)	(-3.01)
Caucasian	-0.099*	-0.089
	(-1.86)	(-1.64)
Condition is Progressive	0.13***	0.12***
	(2.85)	(2.72)
Have some form of "Plegia"	0.044	0.043
	(0.90)	(0.85)
Primary Transportation is Public	-0.078	-0.067
	(-1.33)	(-1.12)
Requires Assistance with ADLs	-0.024	-0.032
	(-0.51)	(-0.67)
Live in a Rural Area	0.084*	0.084
	(1.66)	(1.59)
Public Access is Very Important	0.17***	0.17***
	(4.23)	(3.93)
yr2018		0.027
		(0.59)
Number of Observations	644	628

Sensitivity analysis where "Earn More Than 60,000" and "Uses Mobility Equipment" are not included in the analysis. Standard probit and difference-in-differences results where the dependent variable is if a fake service dog has distracted a legitimate assistance dog. Dependent variable is derived from a Survey of Canine Companions for Independence (CCI) assistance dog handlers administered by CCI. Other individual level characteristics are derived from Canine Companions for Independence applications. Policy data compiled by author.
* p<0.10, ** p<0.05, *** p<0.01

Table 14: Sensitivity Analysis Omitting Equipment and Income - Probit and Difference in Differences Marginal Effects of State Policy on FSD Snapping at or Biting Working Dog

	Probit Model Marginal Effects	Dif-n-Dif Model Marginal Effects
State Has Policy Active	0.027	0.025
	(0.73)	(0.26)
Skilled Companion	-0.16**	-0.17**
	(-2.46)	(-2.38)
Hearing Dog	-0.076	-0.13**
	(-1.45)	(-2.36)
Handler is Female	0.035	0.048
	(0.94)	(1.26)
Recipient Age	-0.0015	-0.0013
	(-1.13)	(-0.94)
Caucasian	-0.0058	0.010
	(-0.12)	(0.21)
Condition is Progressive	0.079*	0.069*
	(1.94)	(1.67)
Have some form of "Plegia"	-0.028	-0.020
	(-0.61)	(-0.43)
Primary Transportation is Public	0.034	0.040
	(0.67)	(0.75)
Requires Assistance with ADLs	-0.0076	-0.026
	(-0.18)	(-0.59)
Live in a Rural Area	0.11**	0.11**
	(2.45)	(2.44)
Public Access is Very Important	0.15***	0.14***
	(3.82)	(3.45)
yr2018		0.047
		(1.15)
Number of Observations	644	613

Sensitivity analysis where "Earn More Than 60,000" and "Uses Mobility Equipment" are not included in the analysis. Standard probit and difference-in-differences results where the dependent variable is if a fake service dog has snapped at or bitten a legitimate assistance dog. Dependent variable is derived from a Survey of Canine Companions for Independence (CCI) assistance dog handlers administered by CCI. Other individual level characteristics are derived from CCI applications. Policy data compiled by author.
* p<0.10, ** p<0.05, *** p<0.01