POLICY TO PROTECT FINANCIALLY VULNERABLE POPULATIONS: A LOOK AT THE 2007 MILITARY LENDING ACT

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Abstract: In this paper, I use geospatial data on payday lending storefronts to assess a landmark federal policy initiative: the 2007 Military Lending Act (MLA), which created a federal interest rate cap on consumer loans to military members. I ask whether the implementation of the MLA resulted in a reduction in the number of payday storefronts within military communities, leveraging state-level variation in payday lending laws in Colorado, Washington, and Oregon. The analysis shows that the MLA alone had virtually no impact on reducing payday loan exposure in military communities. In contrast, state-wide restrictions capping interest rates for all consumers was effective in reducing payday lender presence in all communities across the state, including military areas. These findings suggest that MLA as implemented was a misaligned policy solution and that universal social reforms may be most effective in reducing exposure to subprime financial services. I conclude with a discussion of a public alternative to payday lending – postal banking – and how this option could be enhanced to ensure military access to low-cost financial services.

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In the early 2000s, the Department of Defense (DoD) noticed a growing problem: high-interest lenders were cropping up around military bases like "bears on a trout stream" (Graves and Peterson 2005:824; Petraeus 2012). Almost overnight, predatory lending practices from a range of alternative financial service providers began to threaten the financial standing of many enlisted service members (Department of Defense 2006). After intensive lobbying by the DoD, Congress enacted the Military Lending Act in 2007, a law that designated a "Military Annual Percentage Rate" to cap fees and interest on short-term consumer loans to active duty service members at 36%. This is the first and only federal law to cap interest rates on consumer loans.

In theory, this interest rate cap should effectively limit the practice of marketing payday loans to military members. Payday lenders did make fewer payday loans to military service members after the law was passed (Fox 2012), but they also began marketing alternative high-cost loan products to service members in an effort to evade regulation and continue to profit from military borrowers (Department of Defense 2014). Whether this cap reduced military exposure to payday lenders by reducing the number of storefronts operating near bases remains unclear. Did the law get rid of the bears on the trout stream? In this project, I take advantage of state-level variation in payday lending laws and use a quasi-experimental design to isolate the impact of the Military Lending Act relative to other state-level policy changes. My findings suggest that the Military Lending Act alone did not reduce exposure to payday lending storefronts in military communities. However, in states with broader payday lending restrictions, the number of payday storefronts operating within military communities decreased as part of state-wide reductions.

This study has important implications for policy debates about high-interest lending. Spatial concentration of high-interest lenders near financially vulnerable populations can

compound socioeconomic disadvantage within communities and households (Friedline, Despard, and West 2017; Gallmeyer and Roberts 2009; Graves 2003; Melzer 2011). Reducing exposure has been an important component of many state policy efforts (see, e.g., Barth et al. 2011). My analyses indicate that policies may be most effective in protecting financial vulnerable populations if they are enacted through broader regulations and/or support the development of low-cost alternatives that apply to all consumers. I conclude with a discussion of the potential of one public alternative, postal banking, that would provide universal access to low-cost financial services through post offices. I propose extending this idea to the Military Postal Service as a way to enhance accessibility for service members.

Financial Vulnerability and Payday Lending

Credit has become a fundamental part of household finance within the United States in recent decades (Krippner 2017), but access to and the terms of credit products are highly unequal (Dwyer 2018). As credit services by banks have become increasingly limited and/or exclusionary, with credit scores and other eligibility metrics disqualifying poorer households (Fourcade & Healy 2013), payday lenders and other non-bank financial services have profited from offering costly alternatives. These credit alternatives can be seen as a form of "predatory inclusion" by providing access to credit for households that have been traditionally excluded from primary markets, but doing so in a way that can exacerbate inequality and insecurity (Seamster and Charron-Chénier 2017).

Payday lenders, which offer short-term small-dollar loans at high interest rates, seek customers who have a steady paycheck and bank account, but who experience liquidity constraints in which short-term loans may serve as a stop-gap between paychecks (Caskey 2005; Stegman 2007). Borrowers often take out these loans to cover routine living expense such as rent

and other bills (Stegman 2007, Lee and Kim 2017, Pew Charitable Trusts 2012),[2] establishing a payday clientele defined by financial uncertainty and vulnerability. Initial financial vulnerability experienced by households may be compounded by the use of payday loans; five in ten borrowers rollover payday loans at least three times because they are unable to pay back the initial loan (Lawrence and Ellihausen 2008).

State legislatures have sought to protect consumers from high-interest lending in one of two ways, either through broad policies focused on reducing access to high-interest credit within the state, like outright payday bans and state-wide interest rate caps, or via targeted restrictions on credit products like minimum loan lengths (Barth et al. 2016; Desai and Ellihausen 2017; Morgan and Strain 2008). One federal policy, known as the Military Lending Act (MLA), has also specifically targeted one population at risk of financial vulnerability – military service members. In what follows, I consider the efficacy of this targeted federal policy focused on military members relative to that of state-wide policy changes that apply to all consumers within a state. This analysis is comparable to social policy work examining whether and under what conditions targeted policy for vulnerable populations is more or less effective than providing universal services to everyone (see, e.g., Brady and Burroway 2012; Skocpol 1991; Wimer, Collyer, and Kimberlin 2018).

Military Service Members

The geographic concentration of military service members with low but steady paychecks have been a draw for payday lenders (Carrell and Zinman 2010; Graves and Peterson 2005). High-interest lending companies see military communities as good business locations and have

[2] 69% of first-time payday loan borrowers used the loan to cover a recurring expense, and just 16% used it to managed an unexpected expense (Pew Charitable Trusts 2012).

disproportionately clustered near military bases (Burkey and Simkins 2004; Carrell and Zinman 2010; Gallmeyer and Roberts 2009; Graves and Peterson 2005). There are three key reasons why payday lenders have found military towns to be a lucrative place to set up shop. First, payday lenders seek individuals who have steady employment, have access to a bank account, and have low, but stable, incomes (Lawrence and Ellihausen 2008). Many service members fit this desired customer profile. The majority of military service members are enlisted (Department of Defense 2006), and enlisted service members face significant financial constraints. Notably, their military salaries are low, with basic pay for junior enlisted troops starting at $20,000 per year and growing to just $38,000 for mid-career enlisted ranks.[3] This falls within the typical $15,000 - $40,000 income range of payday loan borrowers (see, e.g., Caskey 2005; Lawrence and Ellihausen 2008). Enlisted members often enter military service immediately after high school, are relatively young (over 45% servicemembers are under the age of 25), and typically have little experience managing household finances (Department of Defense 2006; 2014). Relative to civilians, they also are more likely to marry and have children at younger ages, and their spouses are less likely to work, which can increase financial stress in their households (Clever and Segal 2013; Hosek and Wadsworth 2013; Department of Defense 2010). Moreover, if a spouse does work a civilian job, he or she often incurs earnings penalties over time due to frequent relocations and has less than ideal employment opportunities available near military bases

[3] Annual base pay calculated using the Military Base Pay Chart for the year 2004, the first year of analysis in this paper (https://www.federalpay.org/military/history), and estimates are adjusted to 2018 dollars. Base pay remains relatively consistent between 2004 and 2009. Entry-level pay determined using E-1 rank (e.g. Army Private) for service members with two or fewer years of service, and E-5 (e.g., Army Sergeant) as mid-level rank with 12 years of service. In contrast, military officer salaries *start* at $36,000 (e.g., O-1 rank, Army 2nd Lieutenant), and they can earn over $80,000 in a mid-level position with 12 years of service (e.g., O-4 rank, Army Major). These calculations do not include basic housing and clothing allowances.

(Cooney et al. 2011). These factors can add up to create significant financial uncertainty and insecurity for these families. In 2003, an internal DoD survey showed that close to 25 percent of junior enlisted service members said that they had fallen behind in paying their rent or mortgage (Department of Defense 2006).

Second, military servicemembers may have lower risks of defaulting on payday loans, relative to civilian borrowers. Unlike most civilians, a military service member's default on financial obligations can result in direct and significant career consequences, including denial of required security clearances, court martial, and/or dishonorable discharge from military service (see Uniform Code of Military Justice 2000, Article 34). These are not empty threats; in one statement, the Navy acknowledged that the primary reason security clearances are revoked is because of a sailor's financial difficulties (US Navy Fleet and Family Support Center n.d. via Petraeus 2012). The financial expectations for servicemembers have two key implications for payday loan use. First, servicemembers short on funds may take out high-interest loans as a stop-gap to prevent other financial defaults that could bring career consequences. Second, these financial expectations may also increase the likelihood that a servicemember will resort to rolling over a payday loan as a means to avoid bouncing a check when the loan comes due, incurring additional interest and fees in the process (Department of Defense 2006).[4]

Broadly, these financial requirements tie into the military's emphasis on service members' "financial readiness," which means remaining in good financial standing such that a servicemember is able to deploy as needed. To maintain members' financial readiness, the military may choose to assist companies in following up with servicemembers who are behind on

[4] An internal DoD survey showed that, among servicemembers who use payday loans, the average use was 4.6 payday loans per year with two rollovers (Department of Defense 2006:13).

payments (Graves and Peterson 2005). As Graves and Peterson (2005:686) observe, "unlike the civilian marketplace, creditors specializing in loans to military personnel can expect a free and effective built-in pressure and tracking network to assist them in forcing payment." For payday lenders, the military's strict financial oversight of personnel means that servicemembers are more likely than civilian customers to pay them back.

Finally, the targeting of military communities is efficient. The majority of payday loan customers are civilian,[5] but the geographic density of military consumers with small paychecks and steady employment near military bases creates markets with consistent demand for high interest loans. In most cases, servicemembers live on or very near the military base (Bissel et al. 2010). The locations of military bases, as well as the number of enlisted service members working on base, are publicly available. As a result, the known geographic concentration of enlisted servicemembers in military towns is attractive for payday lenders seeking out profitable markets (Department of Defense 2006), and has resulted in clusters of payday lenders directly outside the gates of military bases (Graves and Peterson 2005; Petraeus 2012).

The take-up of payday loans and other high-interest products by military members has been difficult to quantify. An internal Department of Defense survey found that five percent of active military personnel used payday loans annually, which is on par with the average use within US (Department of Defense 2006; Pew Charitable Trusts 2012). Echoing this, Skimmyhorn (2016) finds that payday loan usage rates between military and civilians are similar conditional on socioeconomic and demographic characteristics. However, there are concerns

[5] One internal study conducted by the Consumer Credit Research Foundation, a research organization funded by payday lenders, estimated that 13% of their customers were service members (as cited in Gallmeyer and Roberts 2009 and Department of Defense 2006; original report no longer available).

about underreporting on military surveys, possibly due to social desirability bias given the explicit emphasis on good financial behavior in the military (Department of Defense 2010; 2014), and the Skimmyhorn study was based on an elective online survey that is not wholly representative of the U.S. military population. Other studies using industry data have estimated that roughly 1 in 5 active duty servicemembers were using payday loans annually in the early 2000s, three to four times that of civilian usage (Carrel and Zinman 2007; Stegman 2007; Tanik 2005).

The Military Lending Act

Though exact take-up rates are debated, payday loan usage among military members was significant enough that the Department of Defense proactively pushed for protective legislation at the federal level. The DoD (2006) overtly describes high-interest loans as predatory and harmful to service members in their report to Congress. Their primary argument centered on the fact that payday lenders inhibited financial readiness. Their case was in part motivated by Graves and Peterson's (2005) wide-reaching descriptive analysis covering twenty states that showed payday lenders disproportionately clustered near military bases in the early 2000s. The clustering was striking, it was not uncommon to have between 20 and 40 payday lender outlets crowded near the gates of military bases across the country (Graves and Peterson 2005:824). The close proximity to and "ubiquitous presence" near military bases combined with intensive marketing to servicemembers created a troubling situation for the DoD, which worried that servicemembers who were short on cash could worsen their financial readiness by using such services (Department of Defense 2006:22). This worry was not unfounded: the Navy-Marine Corps Relief Society noted that in 2001 it had given out just $5,000 in relief funds for service members caught up in high interest lending, but by 2006, that figure was up to $1.36 million (US Navy

Fleet and Family Support Center n.d. via Petraeus 2012). And, one external academic study found that the presence of payday lenders near military bases decreased performance and military readiness among service members when comparing them to service members on military bases in states where payday lenders were banned (Carrell and Zinman 2008, but see Carter and Skimmyhorn 2016, which found more limited effects).

In response to the rise of predatory lending, the DoD devoted training and resources to financial education initiatives and loan relief programs for service members, but they underscored that this would not be sufficient. They urged Congress to implement a federal interest rate cap for consumer loans to active duty service members. In late 2006, Congress passed the Military Lending Act, a law that capped interest rates and fees on consumer loan products to an annual percentage rate of 36% for active duty service members and their families. The law officially went into effect in October of 2007 (U.S. Congress 2006).

The MLA was a landmark piece of legislation; with its passage, the federal government regulated short-term, non-bank consumer loans for the first time. Prior to this, payday lenders, like all other financial service providers, had to follow broader federal regulations like the Truth in Lending Act but had not been singled out for federal regulation. The law was federally enforced by the Federal Trade Commission, and an online website was created for lending companies to verify active duty military status of customers (see https://mla.dmdc.osd.mil/mla/).

However, significant limitations remained. First, the Act narrowly defined what loans were covered by the interest rate cap. For payday loans, *short-term* was defined as a closed-ended loan that is due within 91 days, and *small-dollar* was defined as $2,000 or less (U.S.

Congress 2006).[6] So while payday lenders could no longer offer active duty service members loans under $2,000 that were due within three months, they could promote other products, including open-ended loans like lines of credit with no due date, and high-interest installments loans with longer terms. Second, the law applied only to active duty service members and their dependents; veterans and reservists did not receive protections.

Bears Still on the Trout Stream?

Whether the MLA reduced military servicemembers' exposure to high-interest lending companies is less clear. The "bears on a trout stream" metaphor, coined by Graves and Peterson (2005) and echoed in DoD testimony (Petraeus 2012), underscores that the military perceived both the loan products and the physical clustering of payday lenders as threats to the financial wellbeing of their enlisted service members. In lobbying for military protections, the DoD implicitly sought to limit the number of payday lenders operating near military bases as way to reduce the availability of their products, devoting an entire section of their report to Congress to their concerns about the spatial proximity and prevalence of payday lenders and other high interest lenders (Department of Defense 2006:10-22). This concern is reasonable given that increases in the number of alternative financial service providers within a community is associated with increases in the likelihood and frequency of use of the products, especially among lower-income households (Friedline and Kepple 2016; Melzer 2011; Pew Charitable Trusts 2012).

Given the limited loan products the MLA pertained to and its narrow target population (active duty families only), it is possible that the law also had limited effects on the numbers of

[6] The law also applied to close-ended auto title loans due within 181 days and close-ended tax refund anticipation loans, which are not examined here.

payday lenders operating near military bases. Thus far, analysis to assess impacts has been descriptive in scope. One examination of select military bases showed that some bases that had fewer payday lenders operating after the MLA, but that others had no change, and there was significant variation across states (Fox 2012). Because this analysis was descriptive, comparing counts of payday storefronts in 2012 to those in 2003, it does not fully account for confounding factors like changing demographics, urbanicity, and variation in state laws. As a result, the full effect of the MLA on storefront presence remain unknown. In this study, I implement a quasi-experimental design to study changes in the physical presence of payday lenders within military communities before and after the MLA to disentangle the effects of the MLA from state policy changes and other factors.

State Regulatory Environments

To examine the effects of the Military Lending Act, I take advantage of state-level variation in payday lending laws. With the exception of the federally mandated MLA, payday lending is primarily regulated at the state-level and variations in state laws impact the number of payday lenders operating within each state over time (Barth et al. 2016; McKernan, Ratcliffe, and Kuehn 2013). For this analysis, I study changes in payday lender activity near military bases in Colorado, Oregon, and Washington before and after the MLA. Together, these three states provide a strong comparison group. Prior to 2007, they had substantively similar regulatory environments with few payday loan laws. In 2007, they begin to differentiate: Colorado and Oregon enacted policy changes while Washington made no changes. The 2007 timing of the Colorado and Oregon policy changes coincides with the passage of the MLA and provides an opportunity to examine state policy effects, MLA effects, and their interactions.

Colorado. Colorado has had payday lenders operating within the state since the mid-1990s. For the first several years, they were largely unregulated. In 2001, the state passed a law that required all small-dollar lenders to have a license. In July 2007, the state enacted a law that required payday lenders to offer customers an installment plan if they took out four consecutive payday loans. While this law sought to restrict ballooning interest due to payday loan rollovers, it left a loophole that allowed payday lenders to work around the law by introducing "cooling off" periods to avoid consecutive loans as defined in the law (five or fewer days between loans) (PEW 2014). In 2010 the state sought to address this loophole by passing a new law that required all payday loans and other short-term consumer loans to be repayable over a six month period, essentially converting them into installment loans (Pew Charitable Trusts 2014; Colorado UCCC 2018).[7]

Oregon. Like Colorado, Oregon has required that payday lenders have a license to operate in the state since the early 2000s. In April 2006, the state legislature passed a bill that capped interest rates for all short-term consumer loans with a principle of $50,000 or less to 36% APR and established a 31-day repayment period, instead of the typical 14-day repayment period. The law did allow some fees to be added, making the maximum effective rate of a payday loan 154% APR (Oregon Division of Finance and Corporate Securities 2006). The law went into effect in July of 2007. Whereas the 2007 Colorado policy change represents a relatively weak state-wide policy change, the 2007 Oregon law represents as a strong state-level change.

Washington. Washington allowed payday lenders to operate in the state beginning in 1995. This law limited fees to 15% for the first $500 borrowed, and an additional 10% on loans

[7] Colorado has since passed another law in 2018 restricting interest rates to 36% APR on all short-term consumer loans (Svaldi and Rubino 2018).

above $500, with a maximum loan of $700. For a typical $300 loan due in 14 days, this amounted to an effective APR of 390% (Washington Department of Financial Institutions 2003). Prior to 2010, no regulations impacting the availability of payday loans were enacted. In 2010, a new law went into effect that allowed payday loan customers to convert payday loans into installment loans if they were unable to pay the amount owed. The law also prohibited individuals from taking out more than one payday loan at a time and capped the annual number of loans to eight per person. To enforce this, the state required payday lenders to check an online system to ensure that people were not attempting to take out concurrent loans and/or exceeding the yearly limit (Washington Department of Financial Institutions 2010).

Table 1 synthesizes the scope of state regulations before and after the policy implementations of 2007. I restrict my study to the years 2004 – 2009 to ensure that the 2007 policy changes were the only changes the states experienced (both Colorado and Washington implement new policies in 2010, but the effects of these new laws are not examined here).

Table 1. State Regulatory Environments between 2004 and 2009.

	Colorado	Oregon	Washington
Pre: 2004 - 2006	APR = 520%	APR = No cap, average 390%	APR = 390%
Post: 2007 State Policy Change	Installment loan offer after 4 loans	IR cap of 36% for loans under $50K + fees	No change
Post: 2007 MLA Policy Change	36% MAPR	36% MAPR	36% MAPR
Post: 2008 - 2009	No Additional Changes	No Additional Changes	No Additional Changes

Sources: Colorado Uniform Consumer Credit Code; Oregon Division of Finance and Corporate Securities; Washington Department of Financial Institutions. APR defines maximum permitted annual percentage rate; MAPR defines maximum permitted military annual percentage rate.

DATA

I combine data from the three states, the Department of Defense, and the Census to examine payday lender activity between 2004 and 2009. First, I collect historical administrative data on payday lender locations from individual state regulatory agencies. Colorado, Oregon, and Washington each require that payday lenders have a license to operate within the state, and this license must be renewed annually. Each state maintains historical records that include the address of each payday lender storefront, the date the license to operate was approved, and, if applicable, the date the license was surrendered, revoked, or expired. I geocode the address of each payday lender storefront using services from Texas A&M University. There are a total of 2,244 storefronts operating for at least one year between 2004 and 2009 across the three states.

Second, I use publicly available geographic data from the Department of Defense that identifies all locations of military installations ("base" hereafter) within the three states (Department of Defense 2017). I exclude eight military installations that are outdoor training sites that have no full-time personnel (e.g., Rocky Mountain Arsenal in Colorado and National Guard training areas). I also exclude the US Air Force Academy in Colorado because students at the Academy are not active duty service members. The analytic sample includes 29 military bases across the three states. The DoD geographic files provide both the point coordinates of the centroid of each military base as well as a boundary file that identifies the parcel of land that the military base covers. I use both the point coordinates and the boundary vector to determine each payday lender's distance to the closest military base.

I match the geographic data with information on the number of military and civilian personnel at each base using the Department of Defense's 2007 Base Structure Report (DoD 2007). This report identifies the size of the base in terms of acreage and number of military and

civilian personnel working at each base on September 30, 2006. Some bases in the geographic dataset are part of a "master base." A master base has a series of individual sites clustered together (e.g., Naval Base Kitsap in Washington includes Bangor Submarine Base, Puget Sound Shipyard, and Bremerton Naval Station). When this occurs, I still use the proximity to the nearest individual military site as my distance measure, but I assign the master base personnel counts to each individual base; any payday lender operating nearest to one of these sites is in close proximity to all other sites and thus can have traffic from all of them.

Finally, I use geographic Census tract boundary files to spatially join geocoded payday lender locations to Census tracts and connect tract-level Census characteristics to each lender (Manson et al 2017). Socio-economic and demographic characteristics of communities are correlated with payday lender presence (e.g., Burkey and Simkins 2004; Damar 2009; Gallmeyer and Roberts 2009), and models in this analysis seek to control for socioeconomic and demographic variation over time. I include time varying measures of tract-level population, median household income and share of black and Hispanic households. I use linear interpolation to estimate annual changes, using population and race/ethnicity data from the 2000 and 2010 decennial Censuses, and income data from the 2000 census and the pooled 2008 – 2012 American Community Survey (Manson et al 2017). To interpolate the measures, I match 2000 tracts to their 2010 boundaries via the Longitudinal Tract Database (Logan, Xu, and Stults 2012) which provides a crosswalk.[8] I also include a county-level measure of annual unemployment rate

[8] I do not include tract-level Census counts of military servicemembers because there is a significant risk of undercounting this population in base towns. In the decennial Census, servicemembers are counted in the state they designate as their permanent residence when they enlisted, not where they are last stationed (US Census 2017; Ashton 2011; Wang 2018). Instead, I use the 2007 DoD Base Structure Report to identify the number of military personnel working on at each base on a given day (September 30, 2006) to approximate variation in base size.

to capture potential variation in local economic conditions over time. The county-level measure is pulled from Bureau of Labor Statistics (2018) data, and assigned to all payday lenders within that county.

Analytic Strategy

To determine whether the Military Lending Act disproportionately impacted payday lenders operating within military communities, I examine changes in the predicted likelihood of a storefront closing before and after the policy change using payday storefront data from 2004 – 2009. A closure is identified in the data as a non-renewal of the storefront's annual license. A common method to evaluate the effectiveness of a policy change is a difference-in-differences framework that compares the change in outcome for the 'treated' group following the policy implementation to the change in outcome for the control group. In a standard design, the treatment is a dichotomous measure (i.e. the passage of a law) that affects the treatment group but not the control group (Angrist and Pischke 2001; Stock and Watson 2012). In this case, the Military Lending Act was federally mandated and applied to all payday lenders across all states, so it is not possible to identify a group of payday lenders that does not receive the treatment. However, it is possible to use heterogeneity in treatment intensity by considering a payday lender's distance to a military base.

Distance as Measure of Treatment Intensity. The specifications of the MLA (the "treatment") suggest that the law's effects would intensify for payday lenders located near military bases and be minimal for payday lenders not located near a base because the law only affects short-term loans for active duty military members and dependents. For the most part, these service members and their families live on or very near military bases: a Department of Defense survey conducted in 2007 found that 75% of active duty military lived within 20 miles

of a base, and over 90% lived within 30 miles (Bissell et al. 2010). Moreover, a higher share of junior enlisted service members, who are the lowest paid and thus more likely to use payday loans, live in military housing on base compared to senior enlisted service members or officers (Bissell et al. 2010). As such, distance from a military base can be used as a measure of treatment intensity with the expectation that the policy change would impact payday lenders within military communities more than it would impact those outside of military communities.

To identify a payday lender's distance to a military base, I calculate Euclidean distance (in miles) from each payday lender storefront to the centroid of the nearest military base to generate a continuous distance measure. This measure is top-coded at 100 miles. I also generate three-, five-, and 10-mile buffer zones from the perimeter of each military base using QGIS mapping software. For the buffer zones, I use the boundary files that identify the full land parcel to create distance buffers from the border of each military base. I then create categorical variables that classify payday lenders as falling within or outside of these zones.

States as a Second Treatment. Although the focus of the paper is on the federal level MLA, which is expected to primarily affect payday lenders near military bases, I take the opportunity to examine two state-level policy changes that were also implemented in 2007: Oregon's state-wide interest rate cap on all consumer loans, and Colorado's law limiting the number of consecutive payday loans. Payday lenders in Washington serve as the control group, because Washington did not have a state-wide policy change in 2007, and Colorado and Oregon payday lenders are the treated groups. The model will be able to distinguish between a) the 2007 MLA and b) the 2007 state changes by interacting the policy time measure with distance from the military base for the former and with state dummy variables for the latter.

Model Specification. I combine data across states and estimate a fixed effects linear probability model that accounts for the military base and state treatment groups and the time before and after the policy changes. These models also include time-varying socio-economic and demographic factors that may influence payday storefront closures (Angrist and Pischke 2001). The equation is as follows:

$$Y_{it} = \alpha_i + \beta_1 Dist_i + \beta_2 State_i + \beta_3 Policy_t + \gamma_1(Dist_i\ State_i) + \gamma_2(Dist_i\ Policy_t) + \gamma_3(State_i\ Policy_t) + \delta_1(Dist_i\ Policy_t\ State_i) + X_{it}\beta_4 + \varepsilon_{it}$$

The outcome, Y_{it}, represents the predicted probability of closure for each payday lender i in year t. I estimate four separate models to test four different distance thresholds. The first three models define *Dist* as a) those within 3 miles of the perimeter of the closest military base; b) those within 5 miles of the perimeter of a military base; and c) those within 10 miles to the nearest perimeter. Dist equals one if payday lenders fall within these ranges and zero if they are located outside of these areas. The fourth model uses a continuous measure of distance (in miles) from the centroid of the military base. *State* is a three-level categorical variable with Washington as the reference state. *Policy* equals one after the 2007 policy treatment, and zero prior. The pre-treatment period runs from 2004 through 2006 and the post-treatment period runs from 2007 through 2009.[9] X represents a vector of time-varying tract-level controls – log population and its squared term, log median household income, and share of black and Hispanic households – and county-level unemployment rates to account for changing economic and demographic characteristics for each payday lender location.

[9] Because the MLA was passed in Congress a year before its implementation, it is possible that there were anticipatory closures (i.e., payday lenders closing after the law passed in 2006 but prior to its implementation in 2007). Similarly, Oregon passed its state interest rate cap a year before it went into effect in 2007. In supplemental models, I reclassified the post-treatment period as 2006-2009. This reclassification does not substantively change results.

$\beta_1 - \beta_3$ are the effects of the distance treatment group, state treatment group, and post-policy years. γ_1 measures state- level heterogeneity in payday lender closures prior to the treatment period. Because the distance and state treatment groups are time invariant, their main effects (β_1 , β_2) and their interaction (γ_1) are unobserved in the fixed effects models. γ_2 is the treatment effect for payday lenders near military bases, and γ_3 is the treatment effect for payday lenders in states that experience a state-level policy change (Colorado and Oregon). δ_1 measures state heterogeneity in the changes in the likelihood of closure for payday lenders near and far from military bases after the 2007 policy treatment.

Anticipated results. The time effect, β_3, would be positive and significant if there are, all else equal, more closures in the period between 2007 and 2009, relative to 2004 – 2006. If the MLA is effective in reducing the presence of payday lenders near military bases, it is expected that γ_2 would be positive and significant, such that likelihood of closures after the policy implementation is higher for payday lenders near military bases, relative to payday lenders elsewhere. It is expected that γ_3 will be positive and significant for Oregon if the broad state-level Oregon policy change induces a disproportionate number of payday lender closures within the state after its implementation, relative Washington, which had no regulatory change. It is also expected that γ_3 will be positive and significant for Colorado, but that Oregon will continue to have the largest increase in likelihood of closures post-treatment because its 2007 policy change placed larger restrictions on payday lenders. Finally, δ_1 is not expected to have significance; there should be no state heterogeneity in the effectiveness of the Military Lending Act because it is a federal law that is enforced at the federal level.

RESULTS

Table 2 presents the descriptive statistics for military bases and payday lenders, both overall and by individual state. In terms of personnel, military bases in Oregon are smaller, on average, than those in Washington and Colorado. Oregon also has fewer payday lender storefronts compared to Washington and Colorado. Overall, about twenty percent of payday lender storefronts are within five miles of a military base. That increases to forty percent for a 10-mile radius. And, across the three states, there are fewer payday lender storefront closures in the pre-treatment period, compared to the post-treatment period. This is especially true for Oregon, in which just eight percent of storefronts close in the pre-treatment period, but forty-three percent close following the 2007 policy changes.

Table 2 Descriptive Statistics of Military Bases and Payday Lender Storefronts

	Overall		Colorado		Oregon		Washington	
	Mean (SD) or Proportion	(Min, Max)	Mean (SD) or Proportion	(Min, Max)	Mean (SD) or Proportion	(Min, Max)	Mean (SD) or Proportion	(Min, Max)
Military Bases								
Total Personnel	14,173	(200, 34428)	19,412	(2599, 27590)	813	(200, 2397)	18,053	(380, 34428)
Military Share of Personnel	0.70	(0.01, 1.00)	0.62	(0.72, 0.79)	0.68	(0.01, 1.00)	0.70	(0.45, 1.00)
Base Size (square miles)	46.63	(0.02, 505.35)	39.17	(0.88, 214.71)	63.23	(0.02, 440.20)	42.17	(0.04, 505.35)
Count	29		6		7		16	
Payday Lenders								
Closures								
All years	0.15	(0, 1)	0.14	(0, 1)	0.21	(0, 1)	0.12	(0, 1)
Pre-Treatment (2004 -2006)	0.11	(0, 1)	0.12	(0, 1)	0.08	(0, 1)	0.11	(0, 1)
Post-Treatment (2007 -2009)	0.19	(0, 1)	0.15	(0, 1)	0.43	(0, 1)	0.14	(0, 1)
Military Base Dist.								
Distance (in miles)	23.49 (25.7)	(0.23, 100)	26.86 (28.5)	(0.74, 100)	24.86 (29.2)	(0.47, 100)	19.33 (19.3)	(0.23, 100)

Within 3 Miles	0.12	(0, 1)	0.13	(0, 1)	0.12	(0, 1)	0.10	(0, 1)
Within 5 Miles	0.21	(0, 1)	0.24	(0, 1)	0.24	(0, 1)	0.17	(0, 1)
Within 10 Miles	0.40	(0, 1)	0.36	(0, 1)	0.48	(0, 1)	0.40	(0, 1)
20 Miles or More	0.26	(0, 1)	0.27	(0, 1)	0.34	(0, 1)	0.21	(0, 1)
Tract Chars.								
Log Population	8.39 (0.37)	(7.00, 9.29)	8.32 (0.37)	(7.00, 9.24)	8.42 (0.38)	(7.04, 9.15)	8.42 (0.36)	(7.09 9.29)
Log Median HH Income	10.64 (0.33)	(9.03, 12.33)	10.66 (0.33)	(9.04, 12.33)	10.57 (0.32)	(9.34, 11.38)	10.67 (0.33)	(9.43, 11.61)
Share Black and Hisp. Households	0.24	(0.02, 0.89)	0.32	(0.03, 0.89)	0.16	(0.03, 0.73)	0.19	(0.02, 0.87)
County Unemp. Rate	0.06	(0.03, 0.16)	0.05	(0.03, 0.09)	0.07	(0.04, 0.16)	0.06	(0.03, 0.13)
Count	8,968 storefront-years (2,244 storefronts)		3,654 storefront-years (917 storefronts)		1,768 storefront-years (473 storefronts)		3,546 storefront-years (854 storefronts)	

Parallel Trends Assumption. To ensure the internal validity of differences-in-differences analyses, trends across states must be parallel prior to the policy change to show that, absent the policy change, outcomes in the post-treatment period would be similar (Angrist and Pischke 2001). As previously shown in Table 1, the regulatory environments across the three states are substantively similar prior to the policy change. The Appendix presents an additional set of tests for the parallel trends assumption. Figure A1 in the Appendix compares the annual pre-MLA growth rates for payday lenders within five miles of a base and those 20 miles or further from a base, by state. For each of the three states, the trends between the two groups of payday lenders are similar, with positive growth in the number of storefronts between 2004-2006. Then, Table A1 in the Appendix estimates regressions for the pre-treatment period (2004-2006), where the likelihood of closure in this period is the outcome variable, and the variables of interest are a payday lender's distance from a military base and the payday lender's state, the two treatments in the analyses. These are random effects regressions and include the vector of time varying

controls. Net of controls, there are no significant differences across distances from a base nor across states. This suggests that the parallel trends assumption is not violated in this analysis.

Fixed Effects Models

Table 3 presents the results of the full models. Before discussing the variables of interest, it is worth noting that the time varying controls in the models behave largely as expected. Payday lenders are less likely to close as the population density of the area increases, up to a saturation point, as shown by the negative coefficient on log population and the positive coefficient on its squared term. And, as the median household income increases in the area, lenders have a higher likelihood of closure, supporting prior research that shows payday lenders tend to cluster in lower income areas (Gallmeyer and Roberts 2009; Prager 2014; Simpson and Buckland 2016). As the share of black and Hispanic households increases, payday lenders also become more likely to close, counter to prior research that shows payday lenders tend to cluster in communities with higher shares of nonwhite households (Burkey and Simpkins 2004). Though that may be true, this suggests that, on average, turnover of payday lenders increases as the share of black and Hispanic households increase. Finally, as the local economic conditions worsen, as proxied by the county-level unemployment, payday lenders are slightly more likely to close, but this is not statistically significant.

Military Lending Act Effects. Model 1 presents the results with the MLA distance threshold defined as within three miles of a military base. The likelihood of storefront closures marginally increases in the post-treatment period, as shown by the main effect of the post-treatment period ($b = .03$; $p > .05$). Model 1 shows no difference between the likelihoods of closure for payday lenders within three miles of a base and payday lenders and those outside of the threshold after the policy change ($b = .009$; $p > .05$), net of other factors. At this threshold,

the Military Lending Act does not substantively reduce exposure to payday lenders. Models 2 and 3 show that even as the threshold is adjusted to capture payday lenders within five and 10 miles of the base, there continues to be no effect. The continuous distance measure (Model 4) tells the same story; as a storefront's location increases in distance from a base, the likelihood of closure remains unchanged. The introduction of the MLA did not affect the likelihood payday storefront closures.

Table 3. Fixed Effects Models for Likelihood of Payday Storefront Closures across Three States.

	3-Mile Base Threshold Model 1		5-Mile Base Threshold Model 2		10-Mile Base Threshold Model 3		Continuous Distance Model 4	
	Coeff.	SE	Coeff.	SE	Coeff.	SE	Coeff.	SE
Post-Treatment Period (1= 2007-2009; 0= 2004-2006)	0.03	0.02	0.02	0.02	0.03	0.02	0.01	0.02
Base Distance X Post-Treatment Period								
Within 3 Miles (1 = yes; 0 = no)	0.009	0.04	--	--	--	--	--	--
Within 5 Miles (1 = yes; 0 = no)	--	--	0.01	0.03	--	--	--	--
Within 10 Miles (1 = yes; 0 = no)	--	--	--	--	-0.003	0.02	--	--
Continuous Distance	--	--	--	--	--	--	0.001	0.00
State X Post-Treatment Period								
Washington (ref.)	--	--	--	--	--	--	--	--
Colorado	0.05**	0.02	0.06**	0.02	0.05*	0.02	0.07**	0.02
Oregon	0.41***	0.02	0.44***	0.02	0.46***	0.03	0.41***	0.03
Base Distance X State X Post-Treatment Period								
Washington (ref.)	--	--	--	--	--	--	--	--
Colorado	-0.03	0.05	-0.06	0.04	-0.01	0.03	-0.001	0.00
Oregon	0.04	0.07	-0.12*	0.05	-0.11*	0.04	-0.001	0.00
Time Varying Controls								
Log Population	—**		—**		—**		—**	

Log Population Squared	+**	+**	+**	+**
Log Median HH Income	+***	+***	+***	+***
Share Black/Hispanic Households	+***	+***	+***	+***
County Unemployment	+	+	+	+

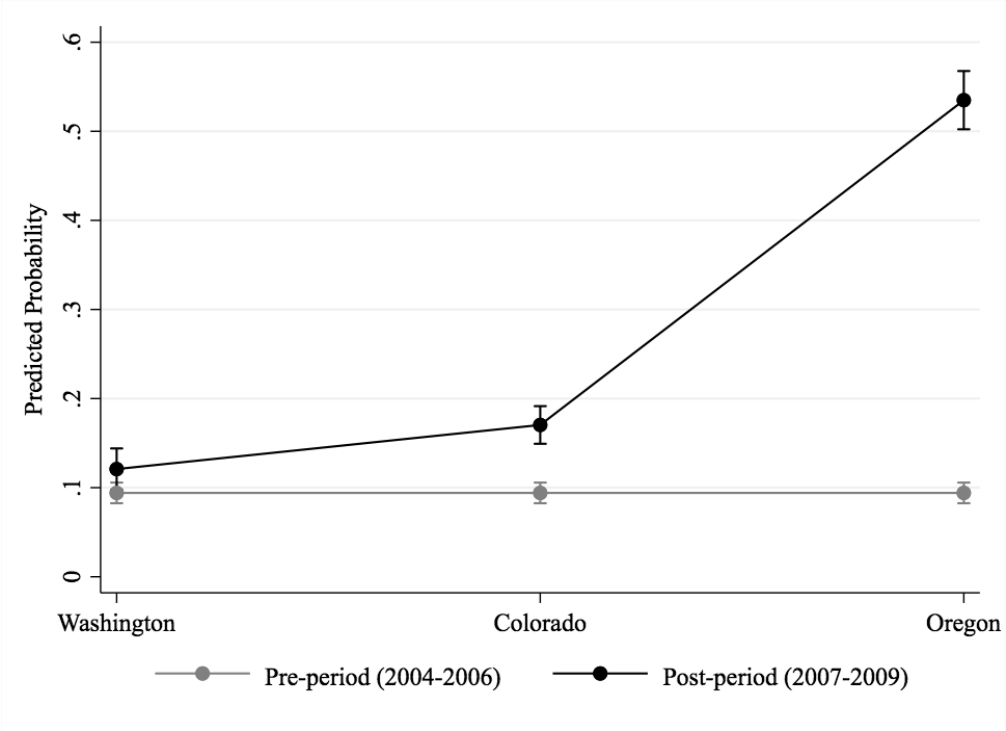
N = 8,968 storefront-years; 2,244 payday lender storefronts; * = p <.05, ** p < .01; *** p < .001.

State Policy Effects. Though the Military Lending Act has no bearing on the likelihood of storefront closures near military bases, there are diverging impacts of state policies enacted in the same year. Payday lenders in Colorado and Oregon receive the treatment, i.e., experience a state-wide policy change in 2007, while payday lenders in Washington have no state policy change. Compared to payday lenders in Washington, Colorado lenders have an additional five percentage point increase in the average likelihood of a storefront closing following its 2007 policy change ($p < .01$). And, most significantly, payday lenders in Oregon have a 41 percentage point increase in the likelihood of closures after its state-wide interest rate cap, relative to Washington payday lenders ($p < .001$). This difference in likelihoods is eight times that of the Colorado-Washington difference, underscoring that the Oregon policy change had a much stronger impact on payday lender activity relative to the Colorado change targeting rollovers. These differences are consistent across Models 1-4, with the Colorado increase in likelihood staying at five to seven percentage points and the Oregon increase staying between 41 and 44 percentage points.

Figure 1 presents a visualization of the predicted likelihoods of closure before and after the policy changes by state, using results from Model 2 in Table 3. The difference between post-treatment probabilities of closure in Oregon and the other two states is striking in magnitude. On average, Oregon payday lenders have a 53% chance of closure between 2007 and 2009, whereas

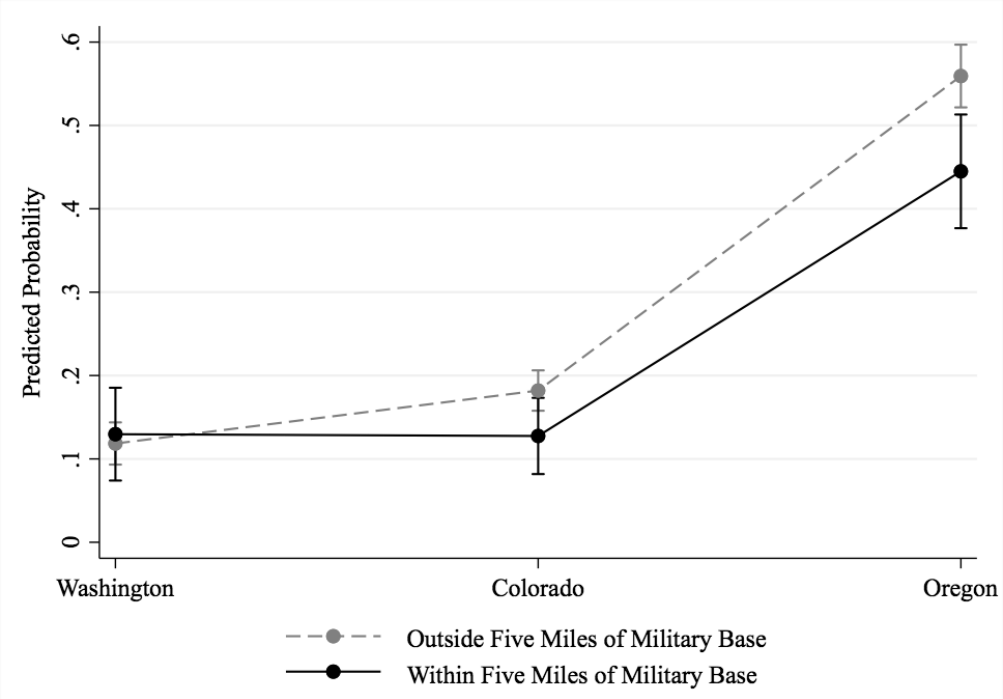
Washington and Colorado payday lenders each have less than a 20% chance. The Colorado law limiting the number of payday loans individuals could take out appeared to induce a small increase in the likelihood of closures, relative to Washington, but the state-wide interest rate cap in Oregon induced a mass exit of payday lenders from the state.

Figure 1. Predicted Probabilities of Storefront Closures, by State before and after 2007 Policy Changes



Notes: Graph based on Model 2 in Table 3; error bars represent 95% confidence intervals.

Figure 2. Predicted Probabilities of Storefront Closures, by State and Distance to Base, after 2007 Policy Changes



Notes: Graph based on Model 2 in Table 3 for 2007-2009 post-treatment period; error bars represent 95% confidence intervals.

Figure 2 shows the predicted probabilities of the policy changes by distance from a military base and by state in the post-treatment period. If there are state differences due to variation in the enforcement of the MLA, it would be expected that there would be more closures within the five-mile threshold in at least one of the states. Colorado and Washington have no change in the likelihood of closures within and outside military communities, as defined by the five-mile buffer. In Oregon, the likelihood of closure is actually lower for payday lenders within military communities relative to those outside the threshold. This is somewhat counter to the expectation that there should be no heterogeneity across states. However, Table 3 shows that the Oregon coefficient is sensitive to the distance threshold, and it is possible that the distance threshold of five miles is capturing other factors for Oregon, especially because the likelihood of

closure is smaller, rather than larger, near Oregon military bases relative to other areas in the post-MLA period. Nevertheless, the figure highlights that the Oregon state-wide interest-rate cap was the most effective policy measure for reducing the number of storefronts; outside military communities, the likelihood of closure increased by 55 percentage points after the interest cap, and the likelihood of closure within military communities increased by close to 45 percentage points.

Alternative Models

It is possible that the MLA did increase the likelihood of payday storefront closures near bases but that changes cannot be observed when grouping payday lenders as strictly within, and outside, of a three-, five- or 10-mile radius. MLA effects may be fuzzier with few discernable differences between storefronts within and just outside those thresholds. To consider whether this is the case, I estimate a new model that includes a second set of interactions to compare payday lenders within five miles of a base to those that are 20 miles or further from the nearest base. As it turns out, there are no substantive differences between payday lenders within five miles of a base and those 20 miles or further, as shown in Appendix Table A2.

It is also possible that closures following the passage of the MLA might also depend on base size. There are three communities – Colorado Springs, CO; Tacoma, WA; and Bremerton, WA that have bases with 20,000 or more personnel. Payday lenders operating in these communities may be more likely to close after the MLA because the significant number of military personnel may comprise a larger share of their markets. To consider this, I estimate a model that looks payday lenders within five miles of these large bases relative to those within five miles of smaller bases in Colorado and Washington. All remaining bases in Colorado and Washington have fewer than 10,000 military personnel, and thus this model compares payday

lenders near military bases with 20,000 or more personnel to those with 10,000 or fewer. There is virtually no difference between the likelihoods of storefront closures in large base communities and those in smaller military communities following the MLA, as shown in Appendix Table A3.

Finally, closures may not fully represent changes in military communities following the MLA. Storefront closures would be the strongest indicator that the MLA significantly restricted payday lending near military bases. But, even if the MLA did not lead to significant storefront closures in these areas, it may have disproportionately slowed entry rates into these communities relative to non-military areas. To examine whether this is the case, I resort the sample by military base and year to compare average storefront growth rates within a five-miles of the nearest military bases to those for payday lenders more than 20 miles from the nearest base. Growth rate is annual change from the total count of payday lender storefronts within five miles or outside 20 miles of the nearest base in the prior year. Because of the small sample size (there are only 29 military bases across the three states), I do not run fixed effects regressions but rather estimate ordinary least squares regressions that have growth rate as the outcome and the effects of the treatment period, the states, and their interactions as the variables of interest.

Table 4. Difference-in-Differences for Storefront Growth Rates, within and outside of Base Communities, by State.

	Within 5 Miles Model 5		20 Miles or Further Model 6	
	Colorado	Oregon	Colorado	Oregon
Difference-in-difference	0.02	-0.21**	-0.16	-0.40***
	(0.08)	(0.07)	(0.12)	(0.11)
Washington Mean, T(0)	*0.08*	*0.08*	*0.10*	*0.10*

Treated Mean, T(0)	*0.08*	*0.15*	*0.23*	*0.23*
Difference T(0)	0.00	0.07	0.13	0.13
Washington Mean, T(1)	*-0.05*	*-0.05*	*-0.03*	*-0.03*
Treated Mean, T(1)	*-0.03*	*-0.19*	*-0.06*	*-0.31*
Difference T(1)	0.02	-0.14	-0.03	-0.28
N (base-years)	163		163	

Notes: * = p <.05, ** p < .01; *** p < .001. Standard errors in parentheses. T(0) is the pre-policy period; T(1) is the post-policy period. The Treated Mean refers to Colorado in Columns 2 and 4 and Oregon in Columns 3 and 5.

Table 4 provides the difference-in-differences calculations from the model. The results for growth rates results are consistent with the main analysis. Prior to 2007, storefront growth is positive in areas within five miles and outside 20 miles of a base, as shown by the positive Washington and Treated Means at T(0) in Models 5 and 6. After 2007, growth rates turn negative in all states, regardless of distance from a base (see means for T(1)). Although there are more closures occurring than there are openings in the post-treatment period, the confidence intervals for the Colorado/Washington difference-in-differences in Model 5 and Model 6 overlap, as do the Oregon/Washington difference-in-differences. Thus, proximity to a military base does not impact the negative growth rates in the post-treatment periods, suggesting that the MLA did not disproportionately slow payday storefront growth in military areas. Of the three states, Oregon sees the biggest change in storefront growth rates in the post treatment period; after its state-wide interest rate cap, average storefront growth declines significantly in Oregon, and the difference-in-differences with Washington, which had no policy change, are large and significant. The Colorado/Washington difference-in-differences are not significant in either model. The main story continues to be the effectiveness of the Oregon state-wide policy change, not the Military Lending Act.

Discussion and Conclusion

The 2007 Military Lending Act did not remove the bears from the trout stream; it just extracted a few of their teeth by placing restrictions on a limited set of loan products. The fact that the MLA was unsuccessful in reducing the number of payday lenders near military bases is not wholly surprising. Although an implicit goal of the DoD's work to protect the troops was to reduce clustering near bases, the law as passed targeted specific loan products and applied an interest rate cap to a narrowly defined population of borrowers. As a result, it did not prevent payday lenders from engaging in regulatory evasion via the development of alternative products, nor did it stop payday lenders from making payday loans to civilians and non-activity duty service members within military communities.

MLA vs. Oregon Interest Rate Cap

The inefficacy of the 2007 MLA is emphasized by a comparison to Oregon's state-wide interest rate cap that successfully reduced payday lender exposure in the state. Oregon's policy change instigated an immediate exodus of payday lenders from the state. Between 2007 and 2009, Oregon had 279 storefront closures, and 72 percent of those occurred in 2007 in the immediate months following the interest rate cap. By 2009 just 136 payday lenders remained, a sharp decline from the over 400 lenders that were in the state in 2006.[10]

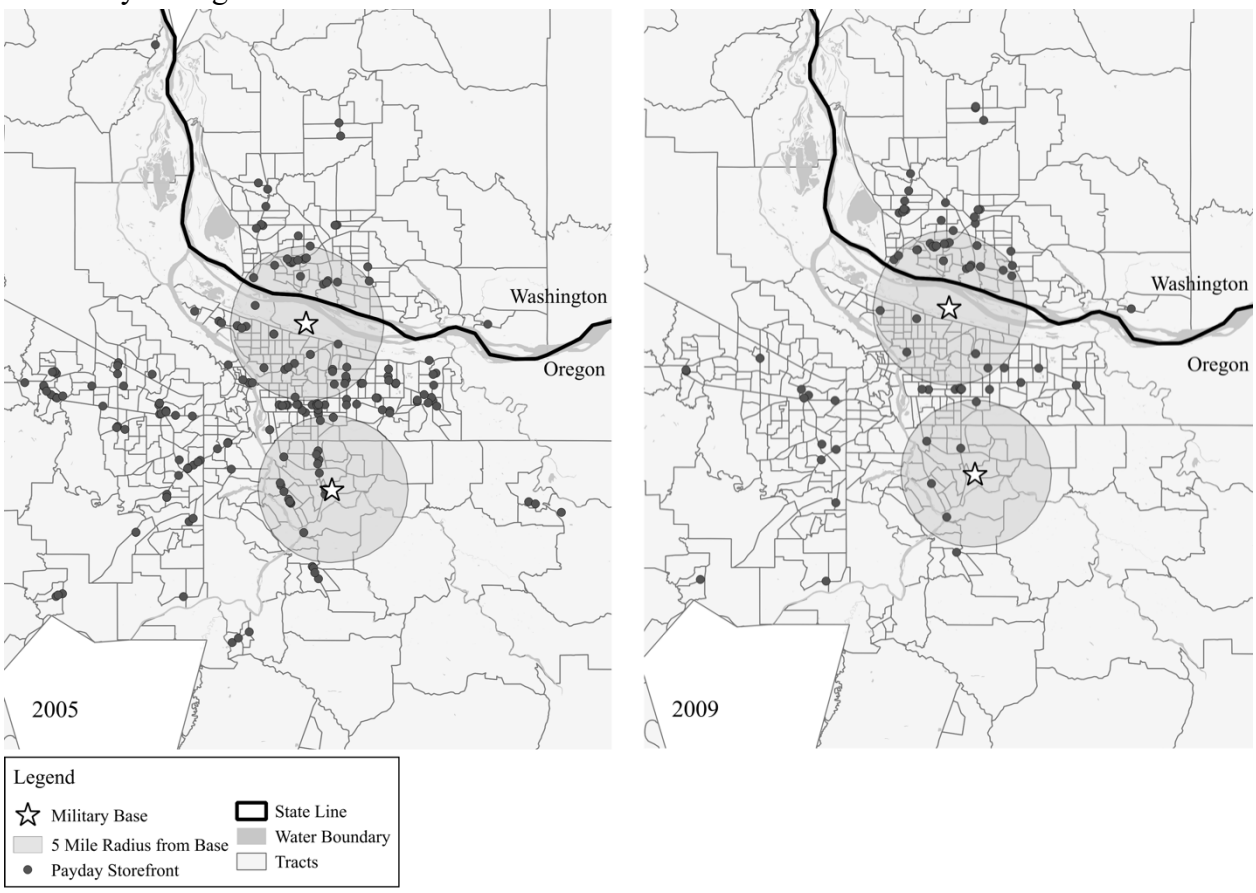
Contrasts between the limitations of the MLA and the effectiveness of the Oregon interest rate cap are evident when looking at payday lender presence in the Portland, Oregon Metropolitan Statistical Area before and after the 2007 policy changes. Two bases in Portland (Portland IAP and Camp Withycombe Clackamas) are just a few miles from the Washington-

[10] Per Oregon law, the remaining payday lenders in the post-treatment period are also providing consumer credit at 36% APR plus fees up to an effective rate of 154%, so these loan products are also less costly than the pre-policy products.

Oregon State line, which provides a unique opportunity to examine how both laws impacted payday lenders across the two states. Figure 3 provides an illustration.

In Figure 3, each military base is marked by a star, and dark gray buffer zones denote a five-mile radius around each base. The left panel shows the payday lenders operating on either side of the state line in 2005. In this panel, there are a number of payday lenders clustered within the five-mile base buffers. The northern-most base, Portland IAP, had 19 payday lenders within the 5-mile radius on the Oregon side and 15 on the Washington side. The southern base, Withycombe Clackamas, had 16 Oregon payday lenders within the five-mile buffer. The right-hand panel shows the payday lenders present in 2009. Oregon presents a strong contrast to Washington: the widespread closures following its interest rate cap resulted in each base having just five payday lenders within the buffer zones on Oregon side. Meanwhile, on the Washington side, Portland IAP continues to have a significant number of payday lenders clustered within five miles of the base. Indeed, the number of payday lenders within the buffer zone on the Washington side increased to a total of 21 lenders within five miles from the base in 2009.

Figure 3. Payday Lenders Near Portland, Oregon Military Installations before and after 2007 Policy Changes.



Note: Visualization created using QGIS software.

These bases are in an urban area, and payday lenders within five miles of each base would also be serving Portland's large civilian population. Within the analytic sample, these bases are on the smaller side and also likely have a higher share of reserve duty personnel working on base who would not be protected under the MLA.[11] Nevertheless, Figure 3

[11] These are Air National Guard and Army National Guard bases. The Military Lending Act pertains to active duty Army, Navy, Marine Corps, Coast Guard, and "full-time National Guard duty performed by a member of the National Guard pursuant to an order to full-time National Guard duty, for a period of 180 consecutive days or more for the purpose of organizing, administering, recruiting, instructing, or training the reserve components" (10 U.S.C 987; see https://www.law.cornell.edu/uscode/text/10/101). Of the Air National Guard members working

underscores how a more comprehensive policy change could reduce exposure to payday lenders for military servicemembers. In 2009, military servicemembers have much less exposure to payday lenders on the Oregon side of the MSA because of the expansive state-wide protections, but they continue to have substantial exposure on the Washington side.

Payday Lender Perspectives. The effectiveness of Oregon law in terms of storefront closures is also apparent in publicly traded payday lenders' annual reports to shareholders. These lenders cite the Oregon policy change as fundamentally incompatible with their business models. One wrote, "[a]s a result of legislation in Oregon that became effective in July 2007, we concluded that operating in that state was no longer economically viable and closed all of our Oregon centers" (Advance America 2008:16). Another stated, "[d]uring third quarter 2007, the Company closed all its branches in Oregon due to a new law that went into effect on July 1, 2007 that effectively precludes payday loans" (QC Financial Holdings 2008:15).

Meanwhile, these lenders had much less concern about the impacts of the MLA. Advance America (2008:17) noted that they "voluntarily ceased" issuing payday loans based on income from military service, and QC Financial Holdings (2007:42) simply wrote that they may see reduced revenue of less than $3 million because of the MLA (small change compared to their typical annual revenue of over $100 million). And, some payday lenders overtly disregarded the law. Unphased by the MLA, Dollar Financial Group introduced a new product in 2010 - the Military Installment Loan and Education Services ("MILES") program – that explicitly targeted auto loan services to junior enlisted personnel. They partnered with US Bank[12] to make these

on base at Portland IAP, about 25% are full time in a given month and meet the above requirements for protection (U.S. Air Force, n.d.).

[12]US Bank has also financially supported Dollar Financial Group through commercial credit agreements for years (CITE).

loans, and the company notes in its report to shareholders that it was strategically focused on areas "in close proximity to significant military installations" (2011:6). In 2013 the Consumer Financial Protection Bureau (CFPB)[13] fined Dollar Financial Group and US Bank for violating the terms of the MLA with their (short-lived) MILES program. Together, the two financial companies were fined $6.5 million and ordered to pay restitution to more than 50,000 servicemembers for "failing to properly disclose all fees….and for misrepresenting the true costs" of their loan services (CFPB 2013a). That same year, Cash America, another lender, was also fined for illegally extending payday loans at interest rates above 36% APR to over 300 military families protected by the MLA (CFPB 2013b).

Targeted vs. Universal Reforms for Financial Wellbeing

As shown in this analysis, the 2007 MLA, a law that specifically targets active duty service members and a subset of loan products, was not sufficient to reduce military exposure to payday lenders. The DoD acknowledged that high-interest lending continued to plague troops, and they have since worked to strengthen the law. In 2016, a new and improved MLA went into effect, covering a much wider range of products, including open-ended loans and credit cards.[14]

But will it work? The biggest takeaway from this analysis is that policies seeking to protect financially vulnerable populations may be most effective if laws apply to all consumers. The revised MLA still applies solely to active duty service members and their dependents, which means that payday lenders in military communities may stay put, marketing subprime products to reservists, veterans, and civilians in the area. Given that the 2007 version did not stop payday

[13] The CFPB, formed in 2011, was granted oversight authority for the Military Lending Act in 2012.
[14] Compliance for credit card companies was not required until 2017 (Consumer Financial Protection Bureau 2016).

lenders from marketing other high-interest products to servicemembers (Department of Defense 2014; Fox 2012), and in some cases, outright ignoring the law (CFPB 2013a, 2013b), the ongoing presence of payday lenders in military communities could continue to pose problems for service members.

Government plays a critical role in shaping credit markets (Baradaran 2018; Dwyer 2018; Krippner 2017), and state and federal regulatory bodies have the ability to set basic lending protections and/or develop standard industry regulations. In passing the 2007 MLA and updating the law to enhance protections in 2016, Congress implicitly acknowledged that payday lenders and other non-bank services offering high-interest loan products are predatory and can worsen financial conditions for (military) households. But, the restrictive nature of the MLA resulted in limited safeguards. Protecting financially vulnerable populations from predatory inclusion (Seamster and Charon-Chénier 2017) may require more expansive legislation and regulation.

Although the Oregon interest rate cap demonstrated success in reducing Oregonians' exposure to high-interest loans, proposing a similar interest rate cap at the federal level may not be the best solution. This study underscores the limitations of policy changes in the face of an industry that can easily adapt to and circumvent regulatory changes. Even with a federal interest rate cap, enforcement of products like online payday loans would be difficult (see, e.g, Kiel 2013). Moreover, when payday lending is outright banned, many consumers simply shift laterally to other high-cost financial alternatives like bank overdrafts and bounced checks because they still do not have access to better options (Bhutta, Goldin, and Homonoff 2016; Morgan, Strain, and Seblani 2012). If a similar interest rate cap were introduced at the federal level, it's likely that there would be an increase in the use of "fee-based" products, like bank

overdrafts, which technically aren't short-term loans but serve as a comparably expensive stop-gap (Ferrari, Messeti, and Ren 2018).

Postal Banking. A better policy might be one that creates a low-cost alternative to payday lending without (or in addition to) explicit regulation of the industry. The most promising current proposal is postal banking, which could provide all consumers with basic access to financial services, creating a low-cost alternative to payday lending that is accessible to everyone (Baradaran 2015, 2018; US Postal Service 2014). Postal banking would make a set of non-bank financial services, including basic check cashing, savings accounts, prepaid cards, and small loans, available at post offices (Baradaran 2018). Post offices already process money orders, so this proposal can be viewed as a significant extension of existing services. The US Postal Service (USPS) currently proposes partnering with FDIC-insured bank(s) to begin offering these services, and sees postal financial services as complementing existing bank services, rather than replacing them (USPS 2014). Proposed short-term loans are expected to carry an APR of 28%, a fraction of what the average payday loan costs. Similar postal banking models have seen success in other countries, including the United Kingdom which offers postal banking in partnership with the Bank of Ireland and other private banks (Anderson 2013).

Because post offices are located in every zip code, a postal banking solution ensures that every community has access to basic, low-cost financial services. USPS (2014) notes that 59% of post offices are in zip codes that have either no bank branches or just one bank branch; making basic financial services available at the post office would help improve accessibility in these areas. Moreover, the economies of scale and built-in infrastructure of the United States Postal

Service combined with offering low-cost credit products has the potential to compete payday lenders out of business (Baradaran 2018).[15]

Extension to Military Post Offices. There is an opportunity for targeted military financial inclusion within this universal public option, which is analogous to policy work that calls for targeted benefits or services within universal policies to better support those most in need (see, e.g., Skocpol 1991). Postal banking could be extended to include Military Postal Service (MPS) offices that are on military bases in addition to post offices within the broader community.[16] The Military Postal Service has an office on every base across the country, and, like the USPS, currently processes electronic remittances (Department of Defense 2018). Thus, the MPS has the infrastructure to implement these proposed financial services.

Currently, the military offers Military Relief Services that provide on-base access to short-term loans at low costs, but servicemembers must be active duty to obtain a loan and there are limits to the number of times they can use this service (see, e.g., Navy-Marine Corps Relief Society n.d.). Moreover, an internal survey found that a majority of servicemembers (60%) felt they would be "embarrassed" to use this service and half thought that their commanding officer would find out (Department of Defense 2014:12). Low-cost credit services available through routine transactions at the post office on base could provide a new on-base alternative that may alleviate stigma and concerns about disciplinary action in accessing short-term loans. Postal banking services through MPS would also be available to all personnel working or living on bases, regardless of active duty status. This solution combined with the MLA could be sufficient

[15] This proposal also has the potential to revive the US Postal Service by bringing in an estimated $9 billion in annual revenue (US Postal Service 2014).
[16] The MPS is an extension of the US Postal Service (USPS) and is required to follow USPS rules and regulations (United States Army Human Resources Command 2018).

to reduce payday lender presence in military communities, effectively eliminating the bears on the trout stream by providing an easily accessible and lower-cost alternative for active duty service members and their dependents, as well as reservists and civilian employees working on base.

There are many challenges in developing social policies that will protect vulnerable groups from high-cost and/or predatory credit products. My findings show that the best protections may be the ones that are available for all consumers. Indeed, the development of a low-cost, public alternative could be the best way to ensure all consumers, regardless of location, can access quality financial services.

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Figure A1. Payday Lender Counts Prior to Policy Implementation, 2003 - 2006.

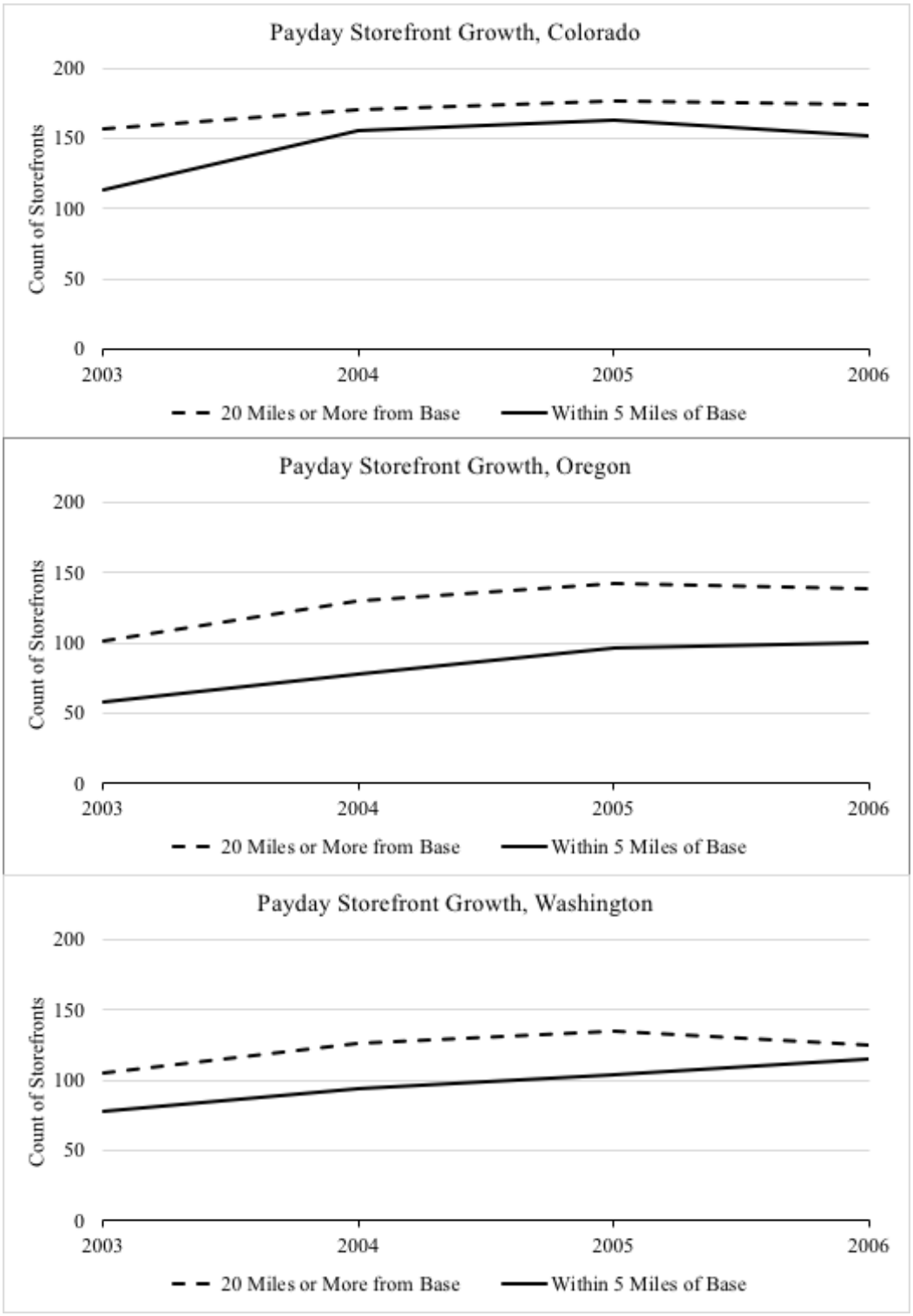

Table A1. Predicted Likelihoods of Closures in the Pre-Treatment Period (2004 – 2006).

	3-Mile Base Threshold Model 1		5-Mile Base Threshold Model 2		10-Mile Base Threshold Model 3		Continuous Distance Model 4	
	Coeff.	SE	Coeff.	SE	Coeff.	SE	Coeff.	SE
Base Distance								
Within 3 Miles (1 = yes; 0 = no)	0.03	0.02	--	--	--	--	--	--
Within 5 Miles (1 = yes; 0 = no)	--	--	0.03	0.02	--	--	--	--
Within 10 Miles (1 = yes; 0 = no)	--	--	--	--	0.03	0.01	--	--
Continuous Distance	--	--	--	--	--	--	0.000	0.000
State								
Washington (ref.)	--	--	--	--	--	--	--	--
Colorado	0.01	0.01	0.01	0.01	0.02	0.01	0.01	0.02
Oregon	-0.01	0.02	-0.01	0.02	-0.01	0.02	-0.01	0.02
Time Varying Controls								
Log Population	Y		Y		Y		Y	
Log Population Squared								
Log Median HH Income	Y		Y		Y		Y	
Share Black/Hispanic Households	Y		Y		Y		Y	
County Unemployment	Y		Y		Y		Y	

N = 4,825 storefront-years; 2,006 payday lender storefronts. Random effects regressions; restricted to years 2004 – 2006.

Table A2. Comparing Payday Lenders within Five Miles of Base to Those More than 20 Miles Away.

	Coeff.	SE
Post-Treatment Period (1 = 2007 - 2009; 0 = 2004 - 2006)	0.04*	0.02
Base Distance X Post-Treatment Period		
More than 20 Miles from Base (ref.)	--	--
Between 6 and 20 Miles from Base	-0.03	0.02
Within 5 Miles from Base	-0.01	0.03
State X Post-Treatment Period		
Washington (ref.)	--	--
Colorado	0.06**	0.02
Oregon	0.44***	0.02
Base Distance (Under 5 Miles) X State X Post-Treatment Period		
Washington (ref.)	--	--
Colorado	-0.06	0.04
Oregon	-0.12*	0.05
Time Varying Controls		
Log Population	−**	
Log Population Squared	+**	
Log Median Household Income	+***	
Share Black/Hispanic Households	+***	
County Unemployment Rate	+	

N = 8,968 storefront-years; 2,244 payday lender storefronts.

Table A3. Comparing Payday Lender Closures Near Large Bases and Small Bases, Colorado and Washington.

	Coeff.	SE
Post-Treatment Period (1 = 2007 - 2009; 0 = 2004 - 2006)	0.07	0.04
Base Size X Post-Treatment Period		
Fewer than 10,000 Personnel (ref.)	--	--
20,000 Personnel or More	-0.01	0.06
State X Post-Treatment Period		
Washington (ref.)	--	--
Colorado	-0.06	0.05
Base Size X State X Post-Treatment Period		
Washington (ref.)	--	--
Colorado	0.05	0.07
Time Varying Controls		
Log Population	−	
Log Population Squared	+	
Log Median Household Income	+*	
Share Black/Hispanic Households	+***	
County Unemployment Rate	+	

N = 1,478 storefront-years; 364 payday lender storefronts. Sample restricted to payday lenders within 5 miles of each base. All bases have either fewer than 10,000 personnel or more than 20,000.