Political Ideology and U.S. Electric Vehicle Adoption

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Abstract

The prospect for electric vehicles (EVs) as a climate change solution hinges on their widespread adoption across political lines. This paper uses county-level data to show that from 2012-2023, about half of all new EV registrations in the U.S. went to the 10% most Democratic counties, and about one-third went to the top 5%. This correlation is largely stable over time, and remains after controlling for household income, gasoline prices, and other observables. EV trucks are a small share of the EV market, but show a lower correlation than other EV types. We also conducted a survey, finding little difference in the ability of Democrats and Republicans to answer questions about EVs.

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1 Introduction

The prospect for electric vehicles (EVs) as a climate change solution hinges on their widespread adoption by households across the political spectrum. Ambitious targets for U.S. decarbonization have EVs reaching 50%+ of new vehicle sales by the early 2030s (National Academies, 2021; Princeton, 2021), so even ubiquitous adoption in left-leaning areas will simply not be enough.

In this paper, we examine the correlation between political ideology and U.S. EV adoption. Using detailed county-level data on new U.S. vehicle registrations from 2012-2023, we measure the degree to which EV adoption is concentrated in the most left-leaning counties, and how this concentration has changed over time.

The results point to a remarkably strong correlation. During this time period, about half of all new EVs in the United States went to the 10% most Democratic counties, and about one-third went to the top 5%. The most Democratic counties tend to have large populations. Looking at all new vehicles, 30% go to the top 10% most Democratic counties, and 18% go to the top 5%. Thus, the concentration of EVs goes well beyond what would be expected based on population. Counties with affluent left-leaning cities like Cambridge MA, San Francisco CA, and Seattle WA play a disproportionate role, with EV shares several times the national average.

These are associations, not causal relationships. At least in theory, one could imagine randomly varying household income or gasoline prices, for example, and then testing for differences in EV adoption. But what would it mean to randomly assign political ideology? We have no such randomized experiment, so the patterns here should be interpreted as purely descriptive.

That said, when we control for household income, gasoline prices, and other observables, the correlation remains strong and statistically significant. While we cannot rule out that there are additional omitted variables, the role of political ideology appears to be separate and distinct, above-and-beyond the role played by other observable factors.

The correlation between political ideology and EV adoption remains largely stable over time. The overall scale of the EV market expands dramatically over our sample period, but even by the end of our sample period, 45% of EVs still went to the 10% most Democratic counties, and 32% still went to the top 5%. Thus, overall, we find little evidence of a broadening across the political spectrum, at least during the period 2012-2023.

An important exception is trucks and vans. A valuable feature of our analysis is that we can look separately by vehicle type. The EV market during our sample period is dominated by cars and SUVs, and the pattern is very similar for these two vehicle types, with both highly concentrated among the most Democratic counties. Electric trucks and vans, in contrast, are significantly less concentrated in Democratic counties, though these represent a small share of the EV market. The weaker but still positive correlation between EV truck adoption and political ideology is particularly notable given that trucks are a much higher share of registrations in Republican counties.

We also conduct an online survey, showing images of various vehicle models, and asking respondents to distinguish between EVs and non-EVs. Accuracy varies widely across vehicle models, e.g. 95% for Tesla Model Y versus 53% for Volkswagen ID.4, but Democrats and Republicans were equally accurate. We also find that Democrats have on average only slightly higher general understanding of EVs. It is hard to draw definitive conclusions from this type of survey, but the results suggest that information differences cannot explain the large and persistent gap in EV adoption.

Our paper is related to a small literature in economics on political ideology and “green” vehicle adoption. In one of the first papers on this topic, Kahn (2007) finds that Census tracts in Los Angeles county with more registered Green Party voters are more likely to have hybrid vehicles.[1] While most previous studies focus on conventional hybrid vehicles like the original Toyota Prius (Kahn, 2007; Kahn and Vaughn, 2009; Sexton and Sexton, 2014), EVs are of significant independent interest due to their higher media profile, potential for large-scale decarbonization, and requirements for charging.

Our paper also complements recent papers on EV adoption, beliefs about climate change, and Elon Musk. Archsmith et al. (2022) uses survey data from 2017 and 2018 to show that EV purchases as a share of sedan sales were higher in states where more people believe climate change is happening.[2] Gillingham et al. (2025) use U.S. vehicle registrations 2020-2025 to document declining Tesla vehicle registrations in Democratic counties starting in October 2022 when Musk acquired Twitter. Pallottini and Shchukina (2025) use vehicle registration data from Texas and a discrete choice model to estimate that willingness-to-pay for Tesla vehicles fell by $12,000 in Democrat zip codes between 2021 and 2025.

These studies suggest that EV adoption in the U.S. reflects both intrinsic and extrinsic motivations, modulated by political ideology. For intrinsic motivations, this could mean households deriving utility from reducing carbon emissions akin to the "warm glow" from other forms of public good provision (Andreoni, 1989, 1990; Fried et al., 2025), but with

[1] Kahn and Vaughn (2009) shows that zip codes in California with more registered Green Party voters are more likely to have hybrid vehicles, controlling for income and other household characteristics. Sexton and Sexton (2014) finds that zip codes in Colorado and Washington with more Democratic voters are more likely to have the Toyota Prius relative to less conspicuous hybrids like the Toyota Camry hybrid, consistent with what they call "conspicuous conservation". Further afield, Costa and Kahn (2013) finds that Democrats are more responsive than Republicans to energy-related peer comparisons.

[2] Archsmith et al. (2022) uses data from a survey of U.S. new vehicle purchasers conducted by MaritzCX (now Ipsos) in 2017 and 2018. In addition to examining beliefs about climate change, the paper shows that EV purchases are correlated with household income, education, age, and race. The paper also documents large differences in the geographic pattern of purchases for gasoline-powered sedans and trucks, which they argue points to "the importance of viable electric vehicle alternatives to conventional light trucks".

Democrats deriving more utility than Republicans.[3] For extrinsic motivations, this could mean signaling to others with the value of signaling, in part, depending on the political ideology of the community where the EV is driven.[4]

Our paper is also related to a broader literature on the economic determinants of EV adoption. Previous studies have examined charging stations (Li et al., 2017; Springel, 2021; Li, 2023), subsidies (Muehlegger and Rapson, 2022; Allcott et al., 2024; Haan et al., 2025), high-occupancy vehicle lanes (Sheldon and DeShazo, 2017; Avis et al., 2025), household income (Borenstein and Davis, 2016; Gillingham et al., 2023; Borenstein and Davis, 2025), gasoline prices (Bushnell et al., forthcoming), and peer effects (Tebbe, 2025).[5]

The paper proceeds as follows. Section 2 discusses data sources. Section 3 describes the correlation between political ideology and U.S. EV adoption, and how this correlation has changed over time. Section 4 presents regression evidence, testing to see how the correlation changes after controlling for household income and other factors. Section 5 describes our online survey. Section 6 concludes.

[3] Andreoni (1989) and Andreoni (1990) make a distinction between pure altruism and warm glow. With pure altruism an individual would value improvements to the global environment regardless of how that improvement comes about. With "warm glow", however, it is important to the individual that these improvements come from actions taken by the individual themselves. Fried et al. (2025) conduct a U.S. nationally representative survey on clean technology adoption, finding that 44% of the 156 respondents who purchased an EV ranked "reduce carbon emissions" as either the first or second most important factor for their decision. Interestingly, this same number for solar panels and heat pumps was only 27% and 17%, respectively, suggesting more "warm glow" from EVs.

[4] Economists for decades have hypothesized that signaling to others plays an important role in motivating charitable giving and other pro-social behaviors (Glazer and Konrad, 1996; Bénabou and Tirole, 2006). Unlike with warm glow, a household does not derive utility from the action itself. Instead, utility is derived from *being seen* taking this action by others. For example, an EV adopter might derive utility from signaling to Democrats but not from signaling to Republicans.

[5] There is also an analogous literature examining the role that many of these same factors played in driving the adoption of conventional hybrid vehicles. See, e.g, Gallagher and Muehlegger (2011); Sallee (2011); Heutel and Muehlegger (2015). Further afield, there are also papers about what an EV replaces (Xing et al., 2021), how much EVs are driven (Burlig et al., 2021), and the environmental impact of EVs (Holland et al., 2016, 2020).

2 Data

The core dataset for our analysis is the Experian North American Vehicle Database. This proprietary dataset was compiled by Experian using data from state department of motor vehicle offices and other sources, and describes the universe of U.S. new vehicle registrations. Our primary measure of EV adoption is the "EV Share", which we define as the share of all new vehicle registrations that are EVs. We define EVs as including battery EVs (like all Tesla models), plug-in hybrid EVs (like the Prius Plug-In Hybrid) and fuel cell EVs (like the Toyota Mirai), though this last category is very small. We observe shares at both the state- and county-level over the period 2012 to 2023.

A valuable feature of the Experian data is that they include both sales and leases. Vehicle leasing is common in the United States and varies across years and across vehicle types, so this feature makes the data more complete and representative. Another valuable feature of the Experian data is they record the state and county where the vehicle was initially registered, even if the vehicle was purchased or leased elsewhere. It is common in the U.S. to cross state and county lines to purchase or lease a vehicle, so this allows us to correlate adoption with the political ideology and demographic characteristics of households' location of residence.

Our primary measure of political ideology is Democrat vote share from the 2012 U.S. presidential election, using data from state and county voting records compiled by the MIT Election Lab. We use 2012 because this is the beginning of our sample period, but results are very similar using vote shares from 2016 or 2020. In some results we control for household income, population density, gasoline prices, and other covariates. See the online appendix for the complete set of data sources, descriptive statistics, and additional details.

3 Political Ideology and EV Adoption

This section describes the correlation between political ideology and U.S. EV adoption, and how this correlation has changed over time. We start in Section 3.1 looking at the more aggregated state-level data, before turning to the county-level data in Section 3.2.

3.1 State-Level Scatterplots

Figure 1 shows the correlation between political ideology and EV adoption, separately by vehicle type. In each scatterplot, there are 51 observations, one for each state plus Washington DC. The x-axis is the Democrat vote share, ranging from near 25% in Utah and Wyoming to more than 65% in Vermont, Hawaii, and Washington DC. The y-axis is EVs as a share of all new vehicles registered in that vehicle type. For example, in California, 23% of all new SUVs were EVs. For this figure, we restrict the dataset to 2021-2023 because there were virtually no electric trucks before 2021 and very few electric vans.

This figure reveals a pronounced positive correlation between Democrat vote share and EV adoption. Washington DC and West Coast states (CA, WA, and OR) stand out for having high Democrat vote shares and particularly high levels of EV adoption, but the positive correlation is not driven solely by these cases. Even excluding those four observations, there is still a strong positive correlation with households in majority Democrat states about twice as likely on average to adopt an EV than households in majority Republican states.

The positive correlation is observed for all four vehicle types. The EV market during this period was dominated by cars and SUVs, and the pattern for these two types is quite similar, with a pronounced positive correlation for both types. EV trucks and vans were introduced to the market more recently and may appeal to a broader or different consumer group. Indeed, the EV shares for trucks and vans are much lower, but again, there is a pronounced positive correlation between Democrat vote share and EV adoption.

We also examined the state-level correlation for the entire sample period 2012-2023, as well as the state-level correlation year-by-year. The EV market grows dramatically during our sample period, but there is an enduring correlation throughout between political ideology and EV adoption. In the early years of the sample, EV shares are near 0% in most states and below 5% everywhere. Adoption increases sharply year after year, but there is a pronounced positive correlation in all years. By the end of the period, EVs represent more than 5% of the market for new vehicles in most Democratic states, while still less than 5% in most Republican states. See the online appendix for details.

In the next section, we turn to county-level data. The state-level patterns provide an intuitive starting point for the analysis, but they also obscure rich variation within states that can shed additional light on this relationship.

3.2 County-Level Concentration

Table 1 reports for 2012 to 2023 the share of U.S. EV registrations that went to the top 5% and 10% of counties with the highest Democrat vote share, as well as for all counties with a Democrat majority. The table reveals a high degree of concentration in all years. During this time period about one-third of all new EVs went to the top 5% most Democratic counties, about half went to the 10% most Democratic counties, and more than two-thirds went to counties with a Democratic majority.

Looking more closely at the data, the top U.S. counties for EVs are urban, high-income, and in Democratic states. The top five counties are all in California's Bay Area, and California more generally has eight of the top ten counties.[6] Top counties from outside California tend

[6]The Bay Area is one of the primary "green" clusters shown by Kahn and Vaughn (2009) to have a

to include urban, high-income, left-leaning cities. This includes King County, WA (Seattle), Multnomah County, OR (Portland), and Middlesex County, MA (Cambridge).

The correlation between political ideology and EV adoption remains largely stable over time. The table also reports the slope for each statistic across years. The slopes indicate a decreasing concentration over time, but are small in magnitude. Concentrations tend to increase during the first half of the sample and then decrease during the second half. Even by 2023, however, 45% of new EV registrations were still in the top 10% most Democratic counties, while 32% were in the top 5%.

The second panel in Table 1 reports concentrations by vehicle type. EV vans and trucks were uncommon early in our sample period, so for these calculations, we restrict registrations to 2021-2023. EV cars and SUVs have a very similar pattern, with about one-third of EVs in the top 5% most Democratic counties and close to half in the top 10%. EV vans and trucks, in contrast, are much less concentrated, with less than one-fourth in the top 5% and about one-third in the top 10%. During 2021-2023, EV vans and trucks represented only 3% of the EV market, but this lower concentration is notable because researchers have long postulated that these other vehicle types would be important for broadening the EV market (e.g. Archsmith et al., 2022).

4 Regression Evidence

The previous section documents a strong and enduring correlation between political ideology and U.S. EV adoption. However, the most Democratic counties tend to have high household incomes, high population densities, and high gasoline prices. As discussed in the introduction and documented in the literature, all three of these factors are positively

disproportionate number of conventional hybrid vehicles, and this pattern clearly continues with EVs.

associated with EV adoption.[7] Thus one might reasonably ask whether the patterns in the previous section reflect these other factors – rather than political ideology itself.

Table 2 reports estimates from five separate least squares regressions, adding control variables progressively. These regressions are estimated using county-by-year data from 2012 to 2023, and standard errors are clustered by state. In Column (1) without any controls, a one percentage point increase in Democrat vote share (e.g. going from 45% to 46%) is associated with a 0.033 percentage point increase in EV adoption (e.g. from 1.0 percent to 1.033 percent). Mean EV share is less than 1 percent, so this is a large effect. The coefficient attenuates as controls are added – county-level median household income (Column 2), county-level population density (Column 3), state-level gasoline prices (Column 4), state-by-year fixed effects (Column 5) – but remains large in magnitude and statistically significant. The estimate in Column (5) implies that a one percentage point increase in Democrat vote share is associated with a 0.026 percentage point increase in EV adoption.

Thus, the correlation between political ideology and EV adoption remains strong and statistically significant even after controlling for household income, population density, and gasoline prices. These other factors matter, but do not explain the correlations described in the previous section. While we cannot rule out that there are additional omitted variables, the role of political ideology appears to be separate and distinct, above-and-beyond the role played by income, population density and gasoline prices.

[7] Previous research has shown that gasoline prices impact adoption decisions for gasoline-powered vehicles (Bento et al., 2009; Busse et al., 2013; Allcott and Wozny, 2014; Sallee et al., 2016), so it would make sense that gasoline prices would also matter for households choosing between gasoline-powered vehicles and EVs. Indeed, Bushnell et al. (forthcoming) finds that EV adopters are highly sensitive to gasoline prices, though almost completely insensitive to electricity prices. Similarly, Zhang et al. (2026) find that EV adopters in four Nordic countries are highly sensitive to gasoline prices, but with no evidence of sensitivity to electricity prices.

It is worth emphasizing also that state-by-year fixed effects control for a wide variety of state-level policies and other confounders. State-level policies can directly affect both the supply and demand for EVs, by altering automakers' incentives to market EVs in particular states and by changing the effective purchase and lease prices. For example, during our sample period, California and ten other states had a zero emissions vehicle (ZEV) mandate which required automakers to sell a quota of "zero emissions" vehicles. See McConnell and Leard (2021) and Armitage and Pinter (2025) for details. In addition, California, New York, Maryland, and other states offered at various times direct subsidies, state income tax credits, state sales tax exemptions, state registration fee reductions, and other state-level incentives (Sheldon, 2022). Many states have also gone the other way and imposed additional registration fees for EVs, in part to make up for the foregone revenue from gasoline taxes (Davis and Sallee, 2020). The state-by-year fixed effects control flexibly for these state-level policies.

We also examined a variety of alternative models. Population weights increase the size of the point estimates, with little change in statistical significance. Adding controls for education, electricity prices, charging stations, and heating degree days further attenuates the estimates, but the coefficient on Democrat vote share remains strong and statistically significant. We prefer our baseline estimates in Table 2 because these are the most frequently discussed confounders, but it is reassuring that the results are qualitatively similar in these alternative specifications. See the online appendix for details.

We do not try to estimate models with county fixed effects. In theory, it would be possible to include separate fixed effects for all 3000+ U.S. counties and to estimate the effect of political ideology on EV adoption using variation in political ideology over time. However, this would require a reliable measure of how political ideology varies over time, and we do not believe that such a measure exists. Democrat vote shares for U.S. presidential elections vary between the 2012, 2016, and 2020 elections, but this reflects preferences for particular individual candidates, differences in voting turnout between elections, and other idiosyncratic factors that mostly do not reflect true changes in political ideology.

5 Additional Evidence from a Survey

In this section, we describe the results from an online survey that we conducted in 2025. We wanted to find out if Democrats know more than Republicans about EVs. The previous sections document a strong and enduring correlation between political ideology and EV adoption, and we wanted to shed light on whether these differences could potentially be related to Democrats and Republicans having different information.

We acknowledge upfront that it is hard to draw strong conclusions from this type of survey. Democrats and Republicans are different in many ways. In addition, there are always reasonable questions to ask about how seriously respondents take a survey like this and about other factors that could influence participant responses. Consequently, we interpret the findings from the survey with caution and are careful to avoid interpreting these patterns as causal relationships.

In the survey, we showed images of various vehicle models to the respondents and asked them to identify each as an EV or non-EV. We focused on the highest-selling sedans and crossover vehicles from 2020 and 2023 and included approximately an equal mix of EVs and non-EVs. We also asked respondents three multiple-choice questions about general EV knowledge (e.g. What is level-2 charging?) and three multiple-choice questions about general automotive knowledge (e.g. What is an alternator?).

Table 3 summarizes the results of the survey. Overall, Democrats and Republicans were equally able to distinguish EVs from non-EVs. Republicans were a bit better able to identify the Ford Mach-E and Democrats were a bit better able to identify the Volkswagen ID.4, but the differences are small in magnitude and not statistically significant at conventional levels (p-value 0.06 and 0.11, respectively).

The ability of the respondents to accurately distinguish EVs from non-EVs varies widely between vehicle models. The conspicuous Tesla Model Y was most accurately identified, with 95% for both Democrats and Republicans. The hardest to identify was the Volkswagen ID.4, with 56% and 51% for Democrats and Republicans, respectively. Among non-EVs, both Democrats and Republicans struggled somewhat to correctly identify the Honda Civic Hatchback as a non-EV, with 69% and 67%, respectively.

We also find that Democrats have only somewhat higher general understanding of EVs. The difference is statistically significant (p-value 0.01), but small in magnitude, with 67% of questions answered correctly versus 62%. Democrats did better, in particular, answering questions about EV charging. This does not seem to reflect stronger overall automotive knowledge, with Democrats doing a bit worse than Republicans on questions about general automotive knowledge (p-value 0.12).

Despite the concerns mentioned previously, the survey suggests that informational differences cannot explain the large differences in EV adoption. Democrats are much more likely than Republicans to adopt EVs, yet both groups were approximately equally accurate at identifying EVs and in answering basic knowledge questions.

6 Conclusion

Many new technologies start off as niche products that appeal only to a relatively small subset of households. But it has now been 16 years since Nissan introduced the Leaf, and 18 years since Tesla introduced the original Roadster. Moreover, there are now over 100 different EV models for sale in the United States. Enough time has passed – one might have thought – for the U.S. EV market to have broadened considerably.

Yet, we find a strong and enduring correlation between political ideology and U.S. EV adoption. Despite dramatic growth in the overall size of the market, 45% of EVs still go to the 10% most-Democratic counties, and 32% go to the 5% most-Democratic counties. We also find that the correlation remains even after controlling for income, population density, gasoline prices, and state-by-year fixed effects. Finally, we conducted a survey finding that Democrats and Republicans are approximately equally accurate at answering questions about EVs.

Throughout, we have emphasized that these correlations are purely descriptive, and we are careful not to draw causal conclusions. Future work could build on these findings in several directions. One promising avenue is exploring how brand-specific dynamics interact with political ideology, as illustrated by recent work documenting declining Tesla registrations in Democratic counties following Elon Musk's political activities (Gillingham et al., 2025; Pallottini and Shchukina, 2025). Another avenue concerns the underlying motivations for EV adoption, including whether the patterns we document reflect intrinsic differences in environmental values, extrinsic signaling motivations, or some combination of both.

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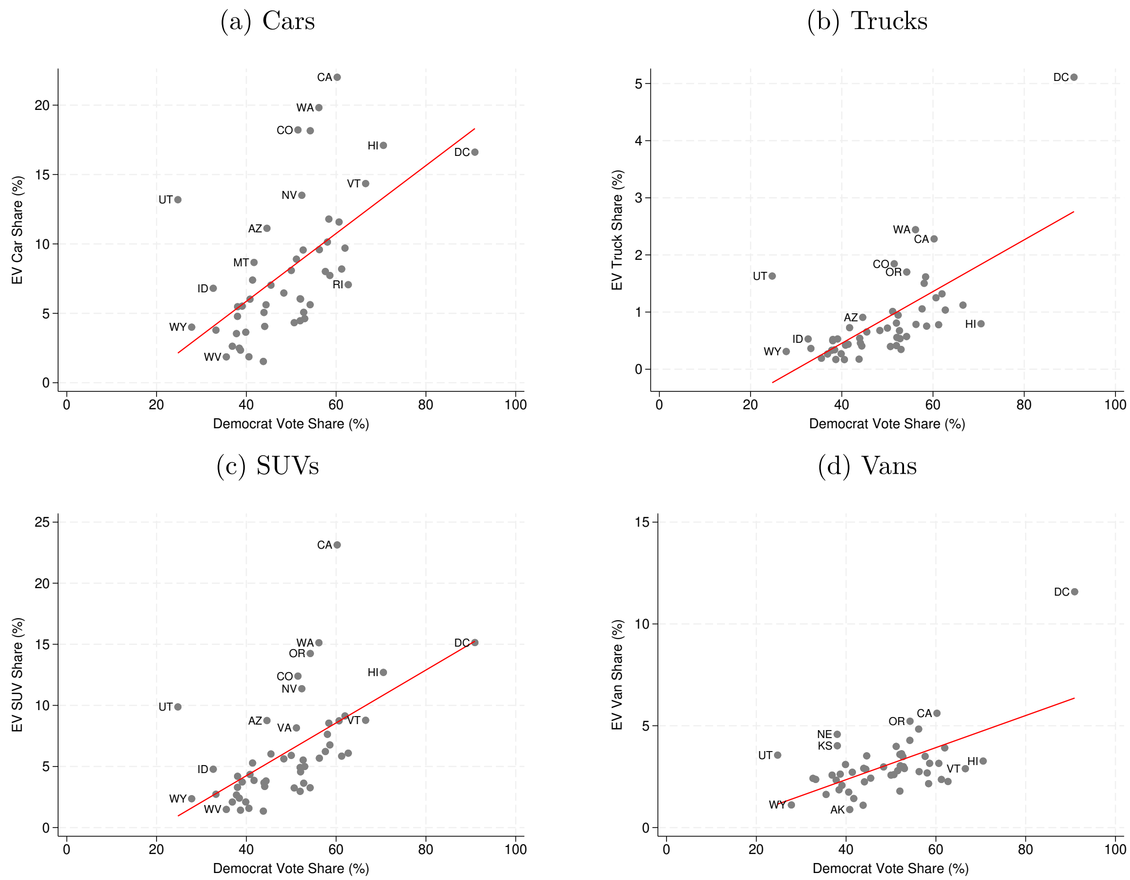
Figure 1: Political Ideology and EV Adoption, By Vehicle Type



Notes: Each scatterplot has 51 observations, one for each state and one for Washington, DC. The x-axis is the share of voters in the 2012 U.S. presidential election who voted for Barack Obama. The y-axis is EV cars, trucks, SUVs, and vans as a share of all new vehicles registered in that vehicle type from 2021 to 2023, ranging from 0% to 100%. We also plot least squares linear regression lines.

Table 1: EV Adoption in the Most Democratic Counties

Panel A: Share of Registered EVs by Year			
Year	Top 5% Most Democratic Counties	Top 10% Most Democratic Counties	Counties with a Democratic Majority
2012	0.377	0.481	0.700
2013	0.414	0.521	0.728
2014	0.438	0.541	0.717
2015	0.469	0.566	0.744
2016	0.450	0.548	0.749
2017	0.450	0.547	0.748
2018	0.420	0.529	0.733
2019	0.394	0.507	0.720
2020	0.356	0.478	0.700
2021	0.325	0.452	0.681
2022	0.317	0.443	0.673
2023	0.317	0.446	0.679
Slope	-0.011	-0.008	-0.005
P-value	0.010	0.019	0.041
Panel B: Share of Registered EVs by Type, 2021-2023			
Cars	0.334	0.466	0.685
SUVs	0.316	0.443	0.679
Vans	0.240	0.357	0.604
Trucks	0.218	0.334	0.576

Notes: This table describes the concentration of newly registered EVs in counties with the highest Democrat vote shares (Columns 1 and 2) and in counties with a Democratic majority (Column 3). Panel (A) shows how this concentration has changed over time. The slope at the bottom of the panel comes from a regression with 12 observations, one for each year. We regress each statistic on a linear time trend and report the slope as well as a p-value from a test where the null hypothesis is that the slope is zero. Panel (B) shows how this concentration varies across vehicle type. EV vans and trucks are uncommon early in our sample period, so we restrict this to registrations 2021-2023. For example, 33.4% of EV cars went to the top 5% most Democratic counties during this period, while only 21.8% of EV trucks went to those same counties. During 2021-2023, the percentage of newly registered EVs in each type was 30%, 66%, 1%, and 2% for cars, SUVs, vans, and trucks, respectively.

Table 2: Political Ideology and EV Adoption, Regression Estimates

	(1)	(2)	(3)	(4)	(5)
Democrat Vote Share	0.033**	0.030**	0.029**	0.027**	0.026**
	(0.010)	(0.008)	(0.008)	(0.007)	(0.006)
County Median Household Income		0.055**	0.054**	0.050**	0.053**
		(0.010)	(0.010)	(0.009)	(0.009)
County Population Density			0.005	0.005	0.004
			(0.004)	(0.004)	(0.004)
State-Level Gasoline Prices				0.969**	
				(0.243)	
State-by-Year Fixed Effects	No	No	No	No	Yes
Observations	37,344	37,344	37,344	37,344	37,332
R-squared	0.062	0.165	0.166	0.255	0.673

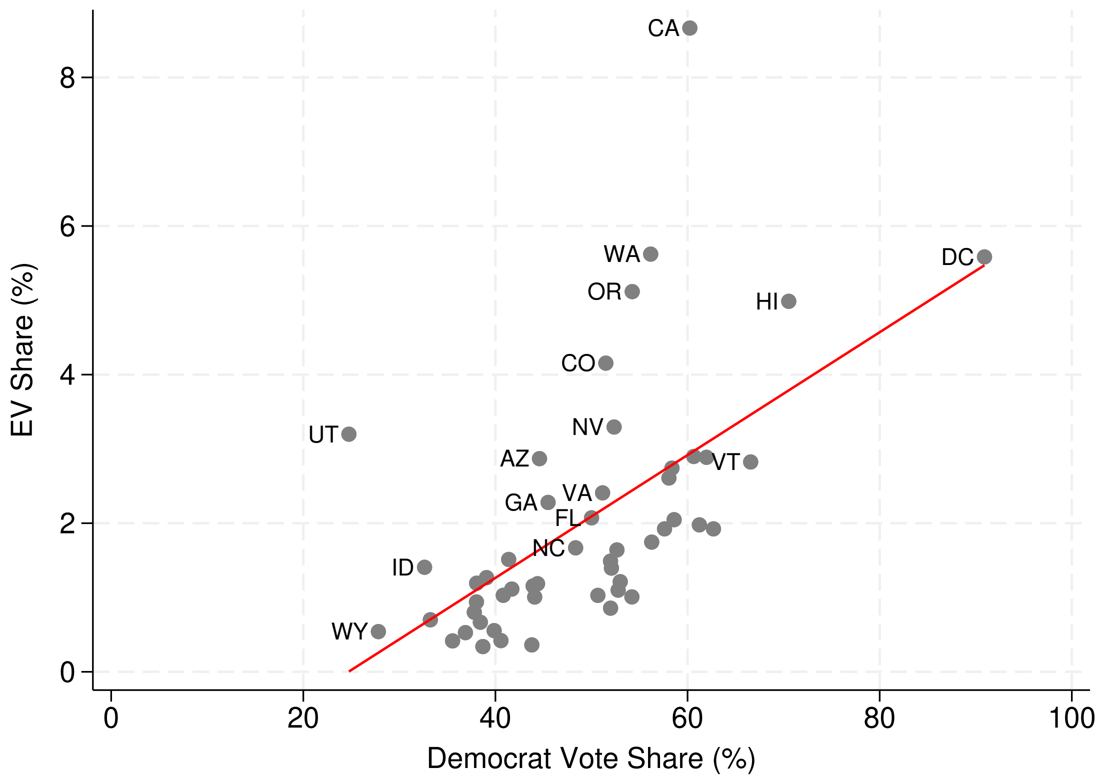
Notes: This table reports coefficient estimates and standard errors from five separate least squares regressions. All regressions are estimated using county-by-year observations for 2012 to 2023. In all regressions the dependent variable is the share of all new registered vehicles that are EVs. The mean EV share in the sample is 0.84, i.e. a bit less than 1%. There are no additional controls other than the controls listed in the row headings. Standard errors are clustered by state. The number of observations is smaller in Column (5) because Washington DC is a single county, so those observations are dropped when state-by-year fixed effects are included. ** Significant at the 1% level, *Significant at the 5% level.

Table 3: Do Democrats Know More Than Republicans About EVs?

	(1) Democrats n=499	(2) Republicans n=498	(3) *p*-value (1) vs (2)
A. Distinguishing EVs from non-EVs			
Overall Percentage Correct	79%	78%	.98
Correctly Identified EVs as EVs	79%	78%	.75
Tesla Model Y 2023	95%	95%	.88
Ford Mach-E 2023	76%	81%	.06
Volkswagen ID.4 2023	56%	51%	.11
Nissan Leaf 2020	85%	83%	.33
Chevrolet Bolt 2020	82%	82%	.88
Correctly Identified non-EVs as non-EVs	78%	79%	.76
Toyota Rav 4 2023	84%	84%	.92
Honda CRV 2023	80%	84%	.19
Toyota Camry 2020	79%	81%	.59
Honda Civic Hatchback 2020	69%	67%	.44
B. Knowledge About EVs			
Overall Percentage Correct	67%	62%	.01
Correct Understanding Charging Time	41%	36%	.05
Correct Understanding Level 2 Charging	72%	64%	.01
Correct Understanding Batteries	86%	87%	.65
C. General Automotive Knowledge			
Overall Percentage Correct	69%	72%	.12
Correct Understanding Alternator	60%	67%	.04
Correct Understanding Wheel Alignment	77%	79%	.33
Correct Understanding Odometer	69%	69%	.96

Note: This table reports results from the survey we conducted in January 2025 with 1,000 participants on Prolific. This lack of evidence of a difference between Democrats and Republicans in distinguishing EVs from non-EVs remains after controlling for respondent gender, educational attainment, household income, and age. See the online appendix for additional details about the survey including the survey instrument, descriptive statistics, and regression analysis.

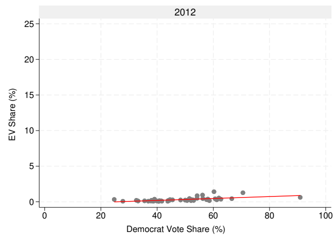
Appendix Figure 1: Political Ideology and EV Adoption, All Vehicle Types



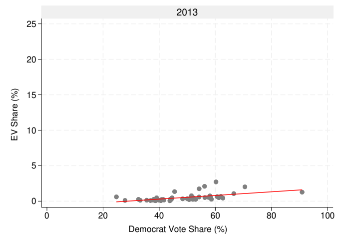
Notes: This scatterplot has 51 observations, one for each state and one for Washington, DC. The x-axis is the share of voters in the 2012 U.S. presidential election who voted for Barack Obama. The y-axis is EVs as a share of all new vehicles registered during the period 2012 to 2023. We also plot a least squares linear regression line.

Appendix Figure 2: Political Ideology and EV Adoption, by Year

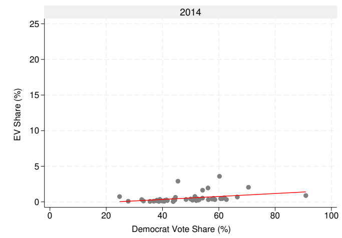
(a) 2012



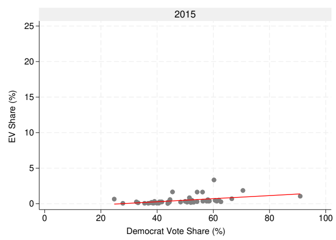
(b) 2013



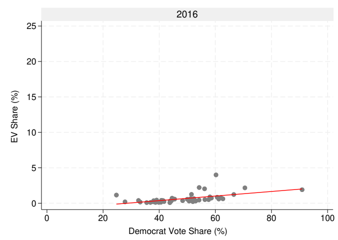
(c) 2014



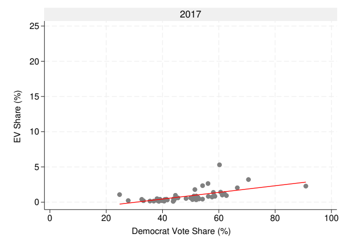
(d) 2015



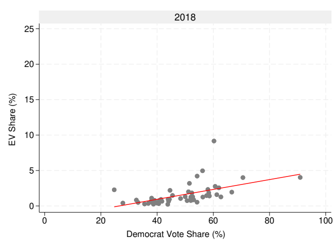
(e) 2016



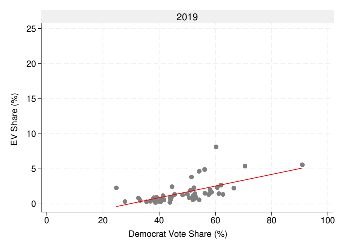
(f) 2017



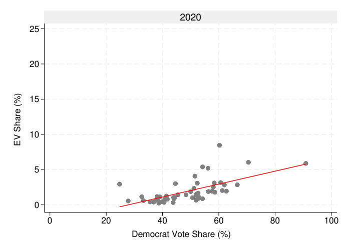
(g) 2018



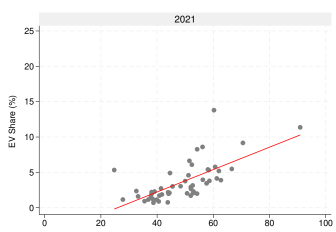
(h) 2019



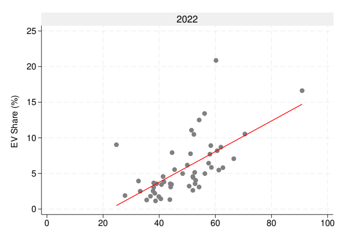
(i) 2020



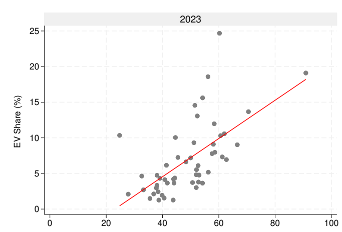
(j) 2021



(k) 2022

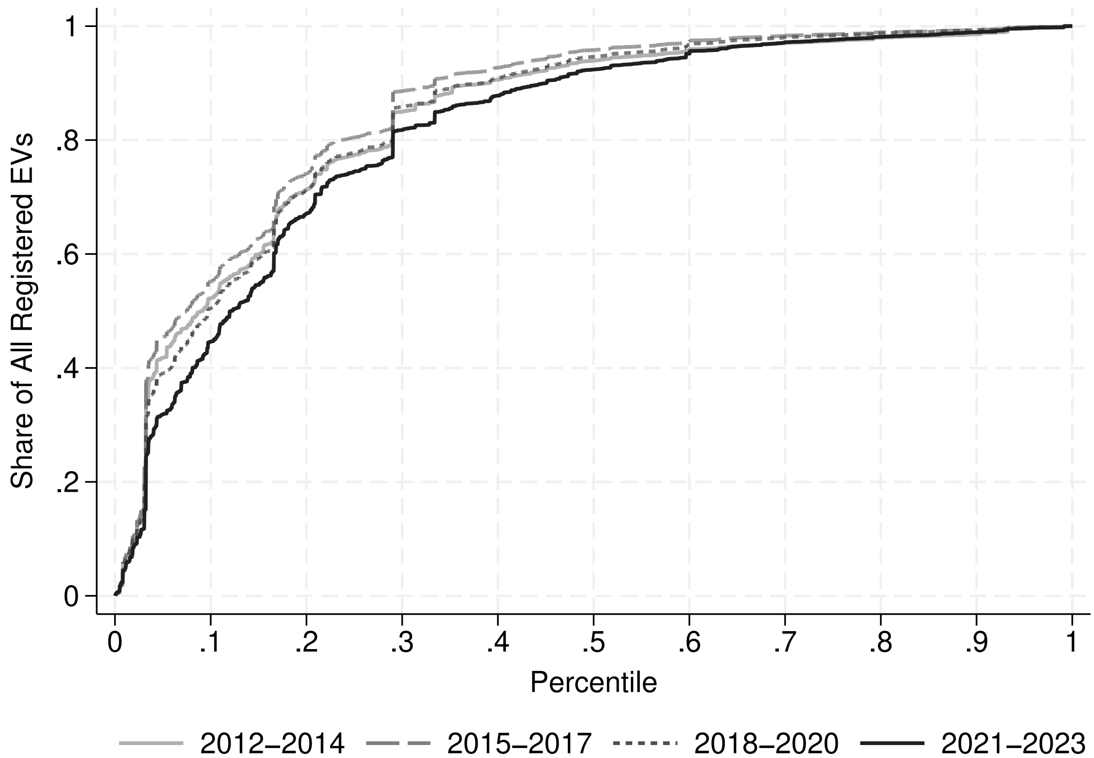


(l) 2023



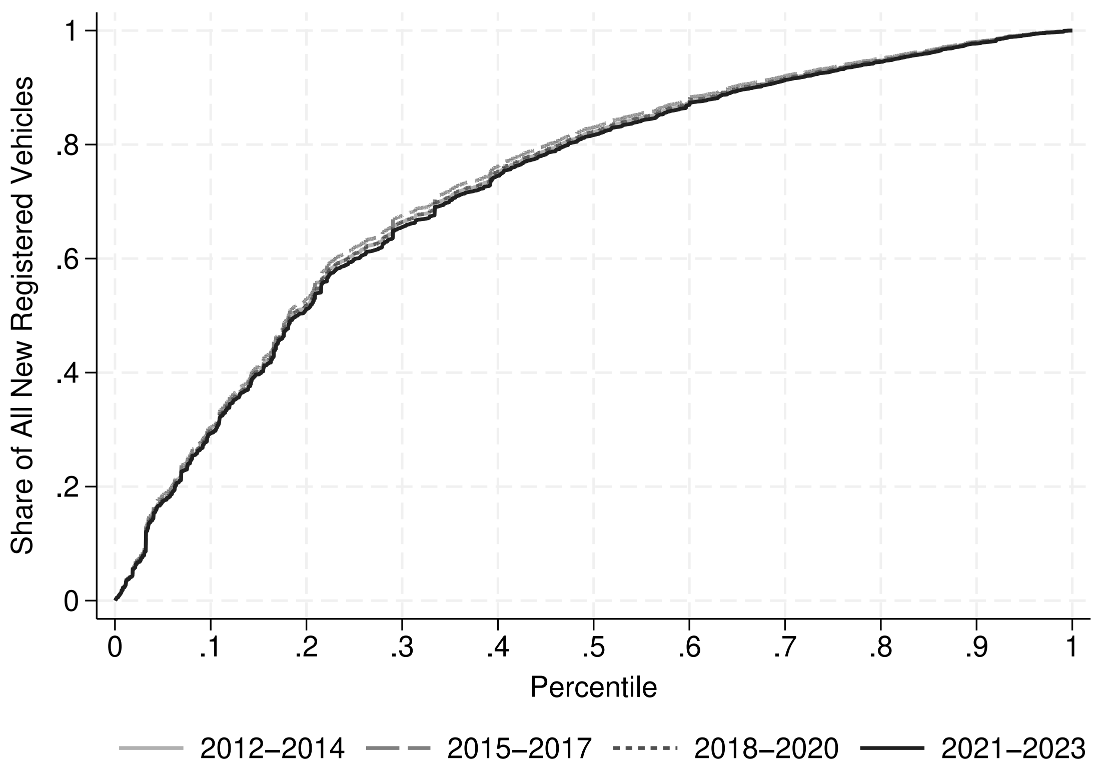
Notes: These scatterplots are identical to Appendix Figure 1, except we include a separate scatterplot for each year. We use the same y-axis range throughout to facilitate comparison across years. We also plot least squares linear regression lines. The figure reveals explosive growth in EV adoption during our sample period. In the early years of the sample, EV shares are near 0% in most states and below 5% everywhere. Adoption increases sharply year after year, with particularly notable growth in 2018, 2021, 2022, and 2023. By the end of the period, EVs represent more than 5% of the market for new vehicles in most Democratic states, while still less than 5% in most Republican states.

Appendix Figure 3: Political Ideology and EV Adoption, Cumulative Distribution Function by Time Period



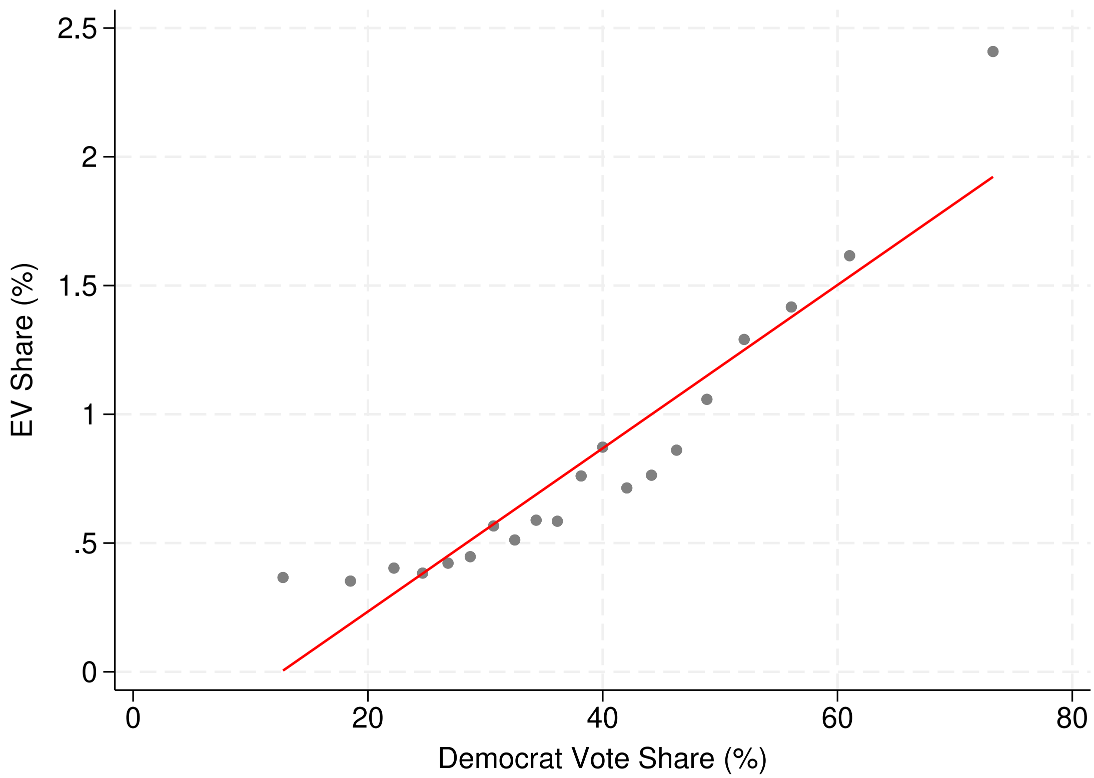
Notes: An alternative approach for examining the concentration of EVs in the most Democratic counties is to examine the cumulative distribution function. This approach is more flexible in that it does not emphasize the specific 5% and 10% thresholds, but yields very similar results overall. This figure plots the distribution separately by 3-year periods from 2012 to 2023. The x-axis is the percentile of counties based on Democrat vote shares, from highest to lowest. The y-axis is the share of all new U.S. EV registrations. Thus, for example, in all 3-year time periods about 80% of EV adoption occurred in the 30% most Democratic counties. The distribution shifts modestly to the right during the second half of our sample, but in all years the distribution is very steep, with a high degree of concentration among the most Democratic counties.

Appendix Figure 4: Political Ideology and New Vehicle Registrations, Cumulative Distribution Function by Time Period



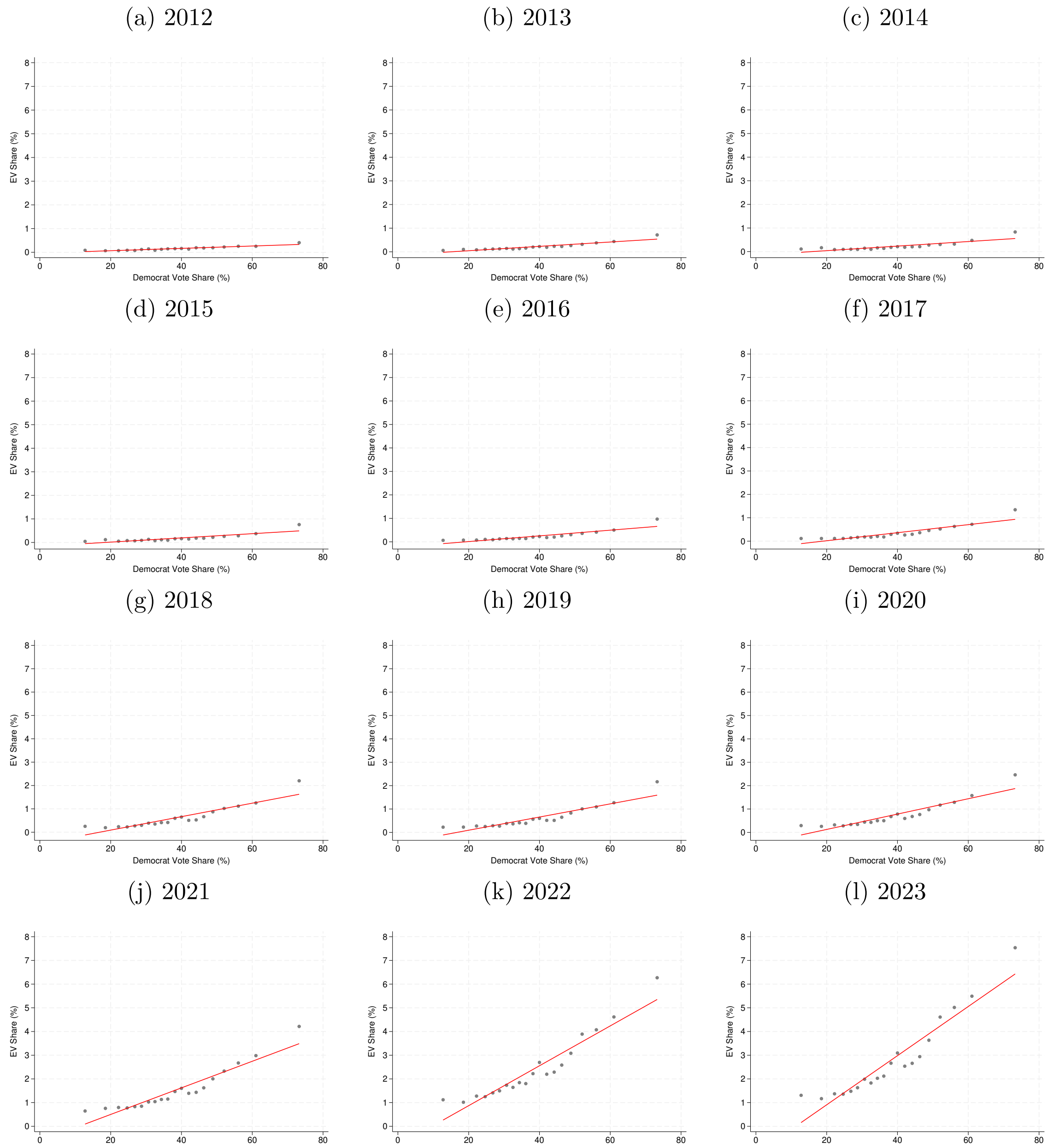
Notes: The most Democratic counties are also some of the most populous counties, so the concentration in the previous figure in part reflects higher overall levels of new vehicle registrations. This figure is constructed in exactly the same way as the previous figure, except that it uses all new U.S. vehicle registrations, not just EVs. This figure shows, for example, that in all 3-year time periods about 80% of new vehicle registrations occurred in the 50% most Democratic counties. There is almost no change over time in the distribution, as illustrated by the nearly completely overlapping cumulative distribution functions across different 3-year time periods. The distribution for all new vehicles is much flatter compared to the distribution for EVs in the previous figure, indicating that the concentration of EVs in the most Democratic counties is much more than would be expected based on the overall concentration of new vehicle registrations.

Appendix Figure 5: Political Ideology and EV Adoption, Binned Scatterplot



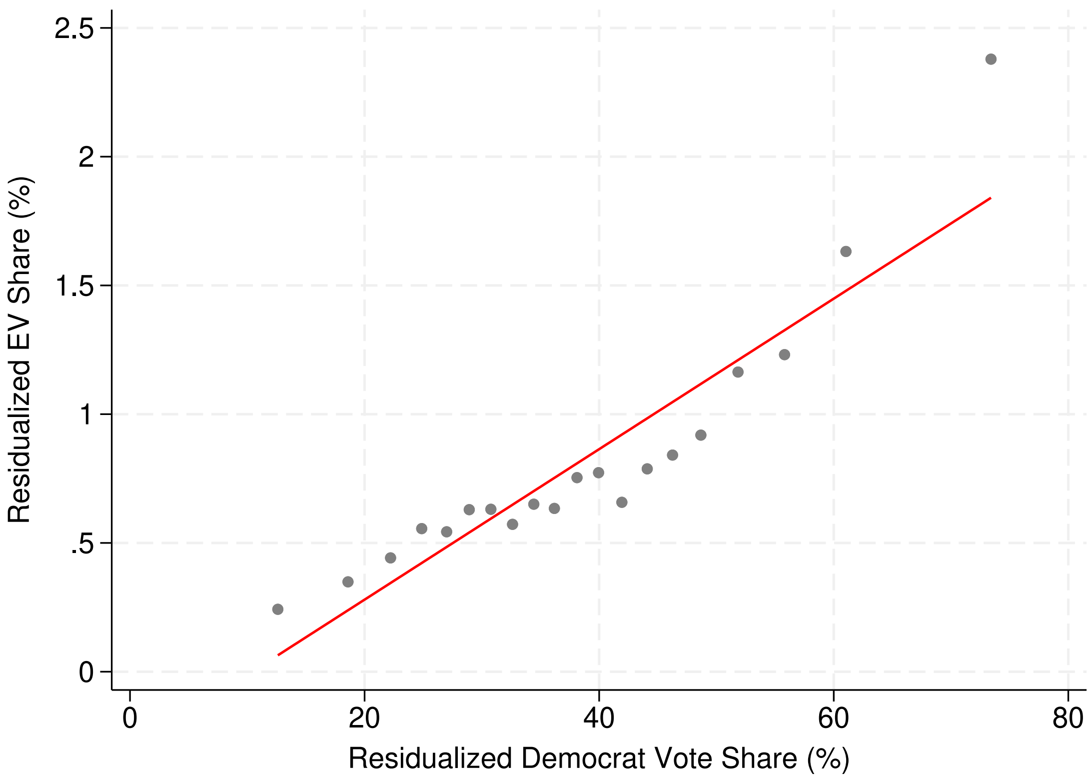
Notes: For this figure we group counties into twenty equal-sized "bins" on the basis of Democrat vote share, and then plot the mean EV share and Democrat vote share for each bin. We also plot a least squares linear regression line. The x-axis is the share of voters in the 2012 presidential election who voted for Barack Obama. The y-axis is EVs as a share of all new vehicles registered during the period 2012 to 2023.

Appendix Figure 6: Binned Scatterplots by Year



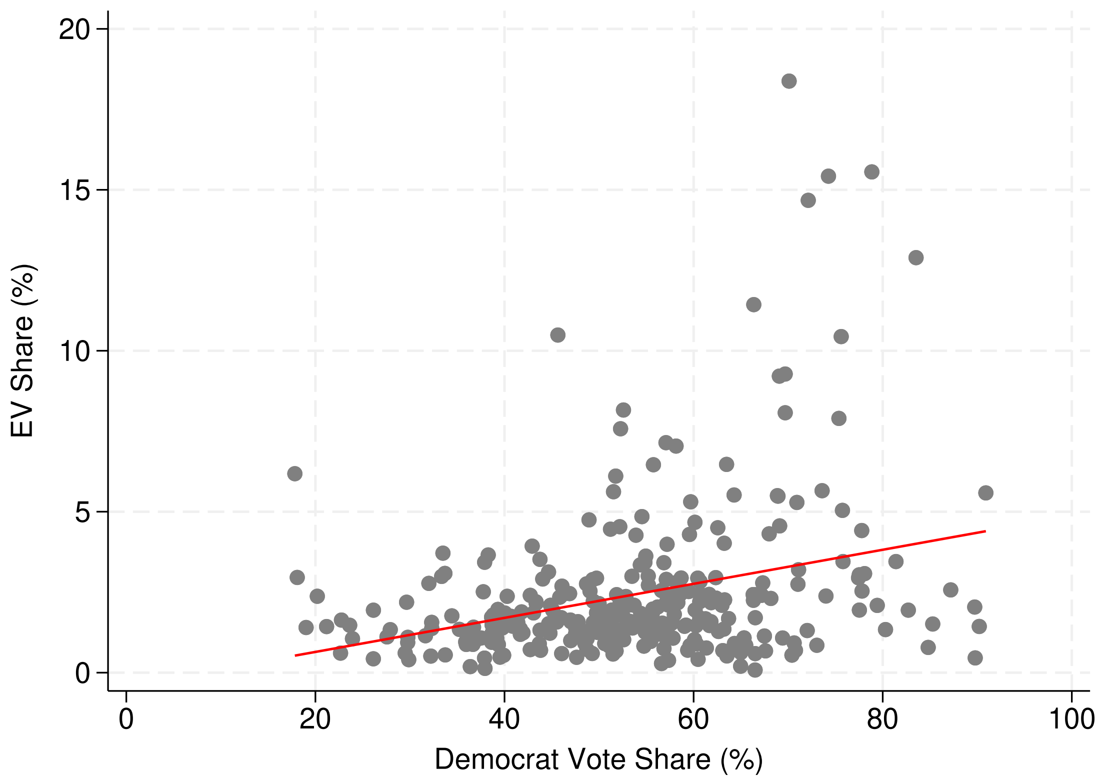
Notes: These binscatter plots are identical to Appendix Figure 5, except we include a separate scatterplot for each year with a least squares linear regression line.

Appendix Figure 7: Political Ideology and EV Adoption, Controlling for Income



Notes: This binscatter plot shows the relationship between county-level residualized Democrat vote shares and residualized EV shares. The x-axis is the share of voters in the 2012 presidential election who voted for Barack Obama. The y-axis is EVs as a share of all new vehicles registered during the period 2012 to 2023. Both variables were residualized with respect to county-level median household income in 2012, and then the sample mean was added back. We also plot a least squares linear regression line.

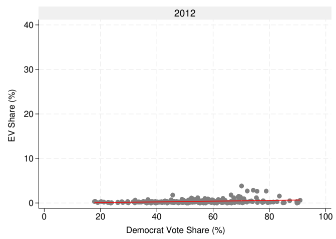
Appendix Figure 8: EV Adoption in High Population Density Counties



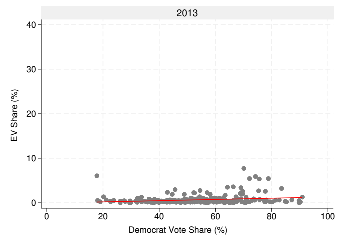
Notes: This figure is a county-level scatterplot, restricted to high population density counties (above 90th percentile). The x-axis is the share of voters in the 2012 presidential election who voted for Barack Obama. The y-axis is EVs as a share of all new vehicles registered during the period 2012 to 2023. We also plot a least squares linear regression line. Population density is defined at the county level as population divided by land area. A strong positive correlation remains even after restricting the sample to high population density counties. Among Republican-majority counties, EV adoption tends to range between 0 and 2.5%, whereas among Democratic majority counties, EV adoption tends to range from 0% to 10%, with adoption above 10% in some outlier counties.

Appendix Figure 9: EV Adoption in High Population Density Counties, by Year

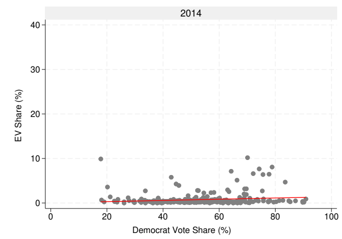
(a) 2012



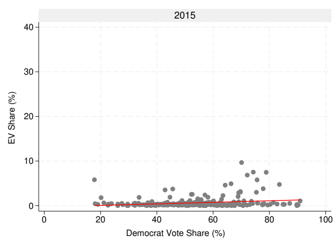
(b) 2013



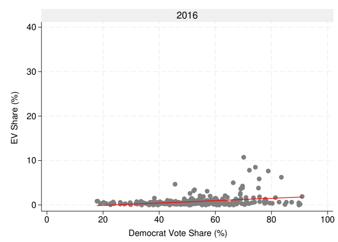
(c) 2014



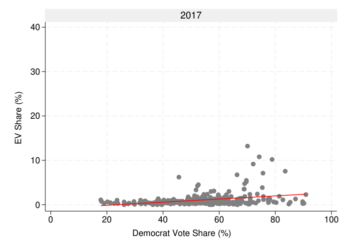
(d) 2015



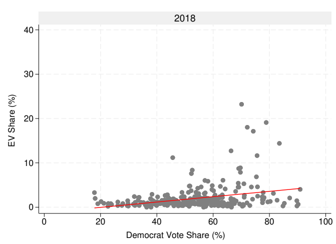
(e) 2016



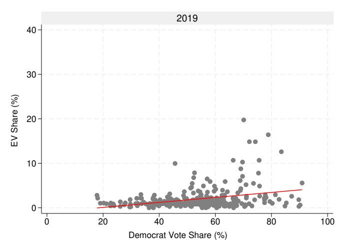
(f) 2017



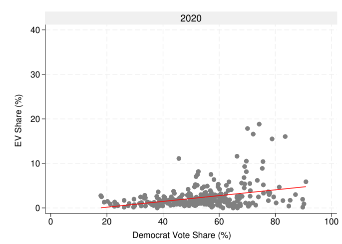
(g) 2018



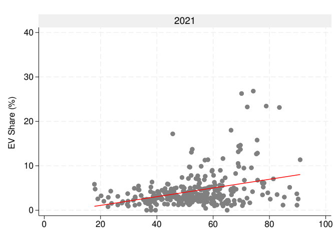
(h) 2019



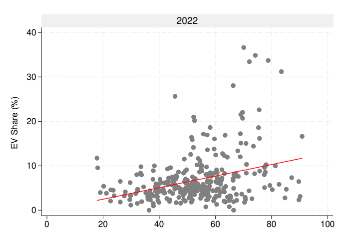
(i) 2020



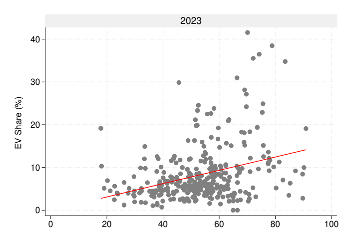
(j) 2021



(k) 2022



(l) 2023



Notes: This figure is identical to Appendix Figure 8, except we include a separate scatterplot for each year with a least squares linear regression line. The figure shows the dramatic growth in EV adoption in Democratic counties. During the first half of the sample period, adoption tends to be below 10% almost everywhere, but there are clear bursts in EV adoption in Democratic counties in 2018, 2021, 2022, and 2023. The difference in adoption between Democratic and Republican counties remains pronounced throughout the sample period.

Appendix Table 1: Descriptive Statistics

	Obs	Mean	Std dev.	Min	Max
EV Share	37,344	0.84	1.95	0	41.6
Democrat Vote Share	37,344	38.5	14.8	3.45	93.4
County Median Household Income ($1,000)	37,344	44.7	11.3	22.1	121
County Population (10,000 persons)	37,344	10.1	32.1	0.009	993
County Population Density (100 persons per square mile)	37,344	2.67	17.7	0.001	711
State-Level Gasoline Prices ($/gallon)	37,344	2.85	0.60	1.85	5.55
State-Level Electricity Prices (cents/kWh)	37,344	12.4	2.61	8.37	43.0
College-Educated Population Share	37,344	19.5	8.76	3.70	72.8
County Tesla Station Count	37,344	2.21	14.6	0	1,212
County 12-month Heating Degree Days (1,000°Df)	37,284	4.76	2.26	0.08	11.6

Notes: This table provides descriptive statistics for our county-level dataset. The unit of observation is county-by-year and the sample period covers 2012 to 2023. See the online appendix for a detailed description of data sources. EV share is the share of all new vehicles registered in a given county and year that are EVs. Democrat vote share is the share of voters in the 2012 presidential election who voted for Barack Obama. In 2012, Barack Obama received 51% of all votes (i.e. the popular vote), but the mean is lower here because these statistics are not weighted by population. County-level voting records are not available for Alaska for 2012, so Alaska is dropped in all county-level analyses. We also drop Kalawao county, Hawaii, in all county-level analyses as it is a very small county that only has non-zero new vehicle registrations in about half of the years in our sample. County median annual household income is from 2012 and measured in thousands of dollars. County population is from 2012 and measured in ten thousands of people. Population density is measured at the county-level and measured in hundred persons per square mile. Gasoline prices are measured at the state-by-year level, in dollars per gallon. Electricity prices are measured at the state-by-year level, in cents per kilowatt-hour. County-level share of population aged 25 and over with a bachelor's degree or higher is from 2012 and measured as a percentage. County Tesla station counts are measured as the total number of Level 3 Tesla charging outlets. County-level 12-month heating degree days are the sum of negative differences between the mean daily temperature and the 65°F base, measured in Fahrenheit degree-days. Heating degree days are not available for Hawaii and Lexington County, VA.

Appendix Table 2: Growth in Electric Vehicle Availability, 2012–2023

Model Year	Number of Brands Offering EVs	Number of EV Models Offered
	(1)	(2)
2012	9	12
2013	11	16
2014	17	26
2015	18	30
2016	19	34
2017	20	50
2018	22	56
2019	23	74
2020	24	85
2021	26	99
2022	26	137
2023	34	121

Notes: Column (1) reports the number of brands offering at least one EV model, and Column (2) presents the number of EV models offered by model year. Data are from the U.S. Department of Energy's Alternative Fuels Data Center (AFDC) annual Alternative Fuel and Advanced Technology Vehicles lists for model years 2012–2023. EVs include battery electric vehicles (BEVs), plug-in hybrid electric vehicles (PHEVs), and fuel cell vehicles (FCVs), with models defined following the AFDC classification.

Appendix Table 3: Correlation Between County-level Democrat Vote Shares and EV Shares, by Year

Year	Correlation	P-value
2012	0.260	0.000
2013	0.295	0.000
2014	0.241	0.000
2015	0.261	0.000
2016	0.325	0.000
2017	0.345	0.000
2018	0.341	0.000
2019	0.352	0.000
2020	0.364	0.000
2021	0.384	0.000
2022	0.386	0.000
2023	0.396	0.000

Notes: This table reports correlations by year between county-level EV shares and Democrat vote shares in the 2012 presidential election.

Appendix Table 4: Correlation Between State-level Democrat Vote Shares and EV Shares

Year	Correlation	P-value
2012	0.574	0.000
2013	0.538	0.000
2014	0.351	0.012
2015	0.428	0.002
2016	0.537	0.000
2017	0.591	0.000
2018	0.530	0.000
2019	0.610	0.000
2020	0.627	0.000
2021	0.675	0.000
2022	0.625	0.000
2023	0.622	0.000

Notes: This table presents correlations by year between state-level EV shares and Democrat vote shares from the 2012 Presidential Elections.

Appendix Table 5: Alternative Measures of Political Ideology

Year	2012 vote	2016 vote	2020 vote
2012	0.260	0.311	0.351
2013	0.295	0.363	0.407
2014	0.241	0.318	0.353
2015	0.261	0.332	0.366
2016	0.325	0.406	0.446
2017	0.345	0.423	0.467
2018	0.341	0.427	0.471
2019	0.352	0.445	0.492
2020	0.364	0.465	0.515
2021	0.384	0.488	0.547
2022	0.386	0.500	0.564
2023	0.396	0.512	0.575

Notes: This table is identical to Appendix Table 3, but uses alternative measures of political ideology. Column (1) shows our baseline results using the share of voters in the 2012 Presidential Election who voted for Barack Obama. Columns (2) and (3) repeat the exercise, but using Democrat vote share from the 2016 and 2020 Presidential Elections, respectively.

Appendix Table 6: Political Ideology and EV Adoption, Regression Estimates With Population Weights

	(1)	(2)	(3)	(4)	(5)
Democrat Vote Share	0.081*	0.070**	0.079*	0.059**	0.058**
	(0.033)	(0.026)	(0.030)	(0.016)	(0.015)
County Median Household Income	No	Yes	Yes	Yes	Yes
County Population Density	No	No	Yes	Yes	Yes
State-Level Gasoline Prices	No	No	No	Yes	—
State-by-Year Fixed Effects	No	No	No	No	Yes
Observations	37,344	37,344	37,344	37,344	37,332
R-squared	0.076	0.157	0.162	0.375	0.855

Notes: This table is exactly the same as Table 2 in the paper except we use population weights in all regressions. In contrast, Table 2 in the paper uses no weights, so implicitly puts equal weight on all counties. The number of observations is smaller in Column (5) because Washington DC is a single county, so those observations are dropped when state-by-year fixed effects are included. ** Significant at the 1% level, *Significant at the 5% level.

Appendix Table 7: Political Ideology and EV Adoption, Regression Estimates with Additional Controls

	(1)	(2)	(3)	(4)
Democrat Vote Share	0.017**	0.017**	0.014**	0.013**
	(0.005)	(0.005)	(0.005)	(0.004)
County Median Household Income	0.024**	0.024**	0.021**	0.021**
	(0.008)	(0.008)	(0.006)	(0.006)
County Population Density	0.002	0.002	0.001	0.001
	(0.002)	(0.002)	(0.002)	(0.002)
State-Level Gasoline Prices	5.833**	4.992**	4.068**	4.068**
	(1.510)	(0.747)	(0.719)	(0.737)
College-Educated Population Share	0.054**	0.054**	0.049**	0.050**
	(0.004)	(0.004)	(0.004)	(0.005)
State-Level Electricity Prices		0.395**	0.269**	0.280**
		(0.116)	(0.094)	(0.096)
County Tesla Station Count			0.035**	0.035**
			(0.007)	(0.007)
County Heating Degree Days				−0.030
				(0.033)
State Fixed Effects	Yes	Yes	Yes	Yes
Year Fixed Effects	Yes	Yes	Yes	Yes
Observations	37,344	37,344	37,344	37,284
R-squared	0.590	0.611	0.665	0.665

Notes: Similar to Table 2 in the paper, this table reports coefficients and standard errors from four separate least squares regressions. All regressions are estimated using county-by-year observations for 2012 to 2023. In all regressions, the dependent variable is the share of all new registered vehicles that are EVs. All regressions include state fixed effects and year fixed effects. Standard errors are clustered by state. Heating degree days are not available for Hawaii and Lexington County, VA.** Significant at the 1% level, *Significant at the 5% level.

Appendix Table 8: Descriptive Statistics for Survey

	(1) Democrats n=499	(2) Republicans n=498	(3) p-value (1) vs (2)
Basic Demographics			
Age	42	42	.80
Male	39%	46%	.02
Household Size	2.7	3.3	.00
Annual Household Income $1000s	71	74	.24
Student	12%	11%	.63
Employment Status			
Employed Full-Time	56%	52%	.22
Employed Part-Time	13%	14%	.77
Not in Paid Work (e.g. retired)	11%	16%	.01
Unemployed or Other	12%	10%	.27
Employment Status Not Available	8%	7%	.82
Education			
High School Graduate	100%	100%	.56
College Graduate	62%	55%	.02
Race			
Asian	7%	2%	.00
Black	12%	5%	.00
Mixed	4%	2%	.08
White	74%	88%	.00
Other	2%	2%	.82
U.S. Census Region			
Northeast	16%	15%	.87
Midwest	22%	21%	.60
South	42%	47%	.09
West	20%	16%	.14
Survey Details			
Survey Completion Time (Minutes)	4.1	4.9	.02
Previously Completed Surveys	2,392	1,499	.00

Note: This table reports descriptive statistics for the individuals we surveyed in January 2025 on Prolific. We restricted the survey to respondents living in the United States, fluent in english, with a drivers license, and with either an owned or leased car. Prolific asks participants, "In general, what is your political affiliation?" and we surveyed 500 Democrats and 500 Republicans. Participants identifying as "Independent," "Other," or "None" were not surveyed. Three participants failed to correctly submit their survey responses resulting in a sample with 499 Democrats and 498 Republicans. Household income is elicited by Prolific using 13 categories. For the purposes of the table we calculated mean income based on the bottom of each range, e.g. "$60000–$69999" is treated as $60,000 and "More than $150,000" is treated as $150,000.

Appendix Table 9: Survey Results By Political Party and State of Residence

(1) Democrats in Blue States n=311	(2) Republicans in Blue States n=276	(3) Democrats in Red States n=188	(4) Republicans in Red States n=222	(5) *p*-value (1) vs (2)	(6) *p*-value (3) vs (4)
A. Distinguishing EVs from non-EVs, Overall Percentage Correct					
79%	79%	78%	78%	.83	.79
B. Knowledge About EVs, Overall Percentage Correct					
67%	62%	66%	62%	.02	.22
C. General Automotive Knowledge, Overall Percentage Correct					
69%	71%	68%	72%	.32	.22

Note: This table is similar to Table 3, but reports statistics separately by both political party and state of residence. Blue and red states are defined based on the 2012 presidential election.

Appendix Table 10: Do Democrats Know More Than Republicans? Regression Evidence

	Distinguish EVs from non-EVs		Knowledge About EVs		General Automotive Knowledge	
	(1)	(2)	(3)	(4)	(5)	(6)
1(Democrat)	.00	.00	.04*	.04**	-.03	-.02
	(.01)	(.01)	(.02)	(.02)	(.02)	(.02)
1(Male)		.04**		.06**		.11**
		(.01)		(.02)		(.02)
1(College Grad)		.01		.05**		.02
		(.01)		(.02)		(.02)
Household Income (in $10,000s)		.00		.00		-.00
		(.00)		(.00)		(.00)
Age (in years)		-.00		.00		.01**
		(.00)		(.00)		(.00)
Mean Dependent Variable	.79	.79	.64	.64	.70	.70
Observations	997	996	997	996	997	996
R-squared	.00	.02	.01	.03	.00	.09

Note: This table reports coefficients and standard errors from six separate least squares regressions. The dependent variable for each regression is indicated in the column headings. Columns (1) and (2), for example, focus on the nine questions for which we showed respondents images of vehicle models and asked them to identify each as either an EV or a non-EV. The dependent variable is the percentage of questions answered correctly so, for example, is equal to 1.0 for a respondent who answered all nine question correctly or 0.555 for a respondent who answered 5 of 9 questions correctly. There are no additional independent variables other than those listed in the row headings. The number of observations is smaller in Columns (2), (4) and (6) because the respondent's age was not available for one respondent. *Significant at 5% and ** significant at 1%.

A Additional Data Details

As we explain in the paper, the core dataset for our analysis is the Experian North American Vehicle Database. See `https://www.experian.com/automotive/auto-vehicle-data`. This proprietary dataset describes the universe of U.S. new vehicle registrations. New vehicle registrations include "retail" buyers, i.e., households and small businesses, as well as "non-retail" buyers, i.e., government, dealer, and fleet/commercial buyers. Non-retail as a share of all new vehicle registrations ranges from 12% to 19% across years. In our analysis, we restrict the sample to retail buyers only.

As we mention in the paper, the Experian data include both sales and leases. Vehicle leasing varied widely during our sample period, increasing from 21% in 2012 to 30% in 2016, and then decreasing again to 27% in 2020, and to below 20% in 2022.[8] The Experian data provide a record of all new vehicles as they become initially registered, regardless of whether they are purchased or leased.

The Experian data record the state and county where the vehicle was initially registered, even if the vehicle was purchased or leased elsewhere. Consider, for example, a household that lives in Nevada but purchases a vehicle in California. Or consider a household that lives in a rural Pennsylvania county, but travels to an urban Pennsylvania county to lease a vehicle. In both cases these vehicles will appear in the Experian data based on the household's location of residence, which is what we want for a study correlating adoption decisions with state- and county-level characteristics.

As we mention in the paper, our primary measure of political ideology is Democrat vote share from the 2012 U.S. presidential election. An alternative to using vote shares would be to measure political ideology using opinion polls. Market research organizations like Ipsos and YouGov, for example, frequently run surveys asking respondents if they consider themselves a Democrat or a Republican. Although there are potentially some advantages with opinion polls, these data do not have the county-level granularity that we need for our analysis. In the 2012 election, there were 26 states plus Washington DC won by the Democratic party and 24 states won by the Republican party. Less than 2% of voters selected the Libertarian or other third parties.

[8] See "Car Buyers Shun Leases as Deals and Vehicles Dwindle" Nora Eckert, *Wall Street Journal* March 24, 2022, and "Car Leasing Plummeted During Pandemic, Could Take Years to Recover," Ryan Felton, *Wall Street Journal* January 28, 2023.

Certain specifications also include additional controls. We account for median household income, population density, gasoline prices, electricity prices, educational attainment, the number of Level 3 Tesla charging stations, and heating degree days.

We use county-level median household income estimates for 2012 from the U.S. Census Bureau Small Area Income and Poverty Estimates (SAIPE) Program. See `https://www.census.gov/programs-surveys/saipe/data/datasets.html`. In some specifications, we use state-level median household income estimates for 2012 from the U.S. Census Bureau, Current Population Survey. See `https://www2.census.gov/programs-surveys/cps/tables/time-series/historical-income-households/h08.xlsx`.

In some specifications we control for population density. Densely populated urban areas tend to have more robust charging infrastructure which encourages EV adoption. In addition, shorter commuting distances and more frequent stop-and-go driving make EVs a practical choice for households in more densely populated environments. We define population density as county-level population divided by total county land area. We obtain county-level population estimates for 2012 from the U.S. Census Bureau Population Estimates Program and information on land area for 2012 comes from the U.S. Census Bureau TIGER/Line Shapefiles. See `https://www.census.gov/programs-surveys/popest/data/tables.html` and `https://www.census.gov/programs-surveys/geography.html`.

We use state-by-year average gasoline prices from 2012 to 2023 from the U.S. Department of Energy, Energy Information Administration, *State Energy Data System* (SEDS). See `https://www.eia.gov/state/seds/`.

Certain specifications also control for electricity prices. We use state-by-year average retail price of electricity to residential customers from 2012 to 2023 from the U.S. Department of Energy, Energy Information Administration. See `https://www.eia.gov/electricity/data/state/xls/861/HS861%202010-.xlsx`.

We use county-level educational attainment from the 2008–2012 American Community Survey (ACS) 5-Year Estimates, published by the U.S. Census Bureau. See `https://data.census.gov/table`. We use the 2012 estimates of the share of the population aged 25 and over with a bachelor's degree or higher.

We also control for the number of Level 3 Tesla charging stations in some specifications.

Tesla may have planned and built its charging network in areas with high EV adoption potential, and the entry of Tesla stations may have contributed to EV adoption in those locations. We compiled county-by-year counts using data from the U.S. Department of Energy, Alternative Fuels Data Center (AFDC). Tesla charging station counts are defined as the number of Level 3 charging outlets at stations with Tesla connectors on the last day of each year from 2012 to 2023. For this purpose, we use daily snapshots from 2014 to 2023 obtained from the U.S. Department of Energy, Alternative Fuels Data Center (AFDC). For the period 2014 to 2023, we use the daily snapshot from January 1st of the following year to represent the total number of installed chargers on the last day of a given year. Since daily snapshots are not available for 2012 and 2013, we use opening dates indicated for those specific years from the January 2014 snapshot of the AFDC U.S. charging stations database. In most cases, these stations only have Tesla Level 3 connectors. However, at a small number of Tesla stations, a Chademo or Combo connector is also present alongside Tesla connectors. Since the data report only total Level 3 outlet counts rather than counts by connector type, we cannot isolate Tesla-specific outlets in these cases and instead use the total Level 3 count as a proxy. See `https://afdc.energy.gov/data_download`.

Finally, we control for heating degree days. Colder climates may deter EV adoption due to reduced battery range and performance in low temperatures, longer charging times, and increased energy use for cabin heating. Heating degree days are a widely used measure of cold which captures both the number of cold days as well as the intensity of cold on those days. We use county-level 12-month heating degree days between 2012 and 2023 from the National Oceanic and Atmospheric Administration, National Centers for Environmental Information. See `https://www.ncei.noaa.gov/access/monitoring/climate-at-a-glance/county/mapping`.

B Survey Details

We conducted our survey from January 31, 2025 to February 6, 2025, yielding 997 completed responses out of 1,000 targeted participants. Survey participants were recruited through Prolific. We selected participants based on the following criteria: location in the United States, English fluency, car ownership (owning a car, leasing a car, or both), possession of a valid driving licence, and U.S. political affiliation (Democrat or Republican).

The survey conducted for this paper was reviewed and approved by the Research Ethics Board of HEC Montréal (Project No.: 2025-6083) and was deemed exempt from review by the IRB at Tufts University (IRB ID: STUDY00005289). The full survey instrument appears in the subsequent pages of this document.

Transportation Survey

The following pages contain an anonymous questionnaire, which we invite you to complete. This questionnaire was developed as part of a research project at HEC Montréal that assesses general knowledge of automobiles.

If you agree to take part in this study, you will be directed to a Google form to answer the survey questions. Since your first impressions best reflect your true opinions, we would ask that you please answer the questions included in this questionnaire without any hesitation. There is no time limit for completing the questionnaire, although we have estimated that it should take about 5 minutes.

The survey responses received by the research team will be anonymous and the researchers will do their best to keep your information strictly confidential. It maybe used for the advancement of knowledge and the dissemination of the overall results in academic or professional forums. No personal identifiable information will be collected.

The online survey service that informed you of this study, Prolific, agrees to refrain from disclosing any personal information (or any other information concerning participants in this study) to any other users or to any third party, unless the respondent expressly agrees to such disclosure or unless such disclosure is required by law.

You are free to refuse to participate in this project and you may decide to stop answering the questions at any time. By completing this questionnaire, you will be considered as having given your consent to participate in our research project and to the potential use of the anonymous data collected from this questionnaire in future research.

All survey data collected will be securely stored on encrypted cloud-based hosting services.If you have any questions about this research, please contact the principal investigator, Katalin Springel, at the telephone number or email address indicated below.

HEC Montréal's Research Ethics Board has determined that the data collection related to this study meets the ethics standards for research involving humans. If you have any questions related to ethics, please contact the REB secretariat at (514) 340-6051 or by email at cer@hec.ca.

Thank you for your valuable cooperation!

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If you give your consent to take part please click "I agree" below. *

- I agree
- I do not agree

Prolific ID

Please enter your Prolific ID *

Your answer

Main Survey

Each vehicle below is either an electric vehicle (i.e. a vehicle powered by an electric motor) or a gasoline-powered vehicle. We have not included any plug-in hybrid, conventional hybrid, or other types of vehicles.

What is this? *

- ○ Electric Vehicle
- ○ Gasoline Vehicle

What is this? *

◯ Electric Vehicle

◯ Gasoline Vehicle

What is this? *

- ○ Electric Vehicle
- ○ Gasoline Vehicle

What is this? *

- ◯ Electric Vehicle
- ◯ Gasoline Vehicle

What is this? *

◯ Electric Vehicle

◯ Gasoline Vehicle

What is this? *

◯ Electric Vehicle

◯ Gasoline Vehicle

What is this? *

◯ Electric Vehicle

◯ Gasoline Vehicle

What is this? *

- ◯ Electric Vehicle
- ◯ Gasoline Vehicle

What is this? *

○ Electric Vehicle

○ Gasoline Vehicle

Additional Questions

Answer each question the best you can but please don't search online for the answers.

With an electric vehicle, what is Level 2 charging? *

- ◯ The fastest type of charging available
- ◯ Charging at a standard household outlet
- ◯ Charging using a 240-volt outlet, typically found in homes and public charging stations
- ◯ Charging using renewable energy sources

What is the most common battery type used in electric vehicles today? *

- ◯ Lead-acid batteries
- ◯ Nickel-metal hydride batteries
- ◯ Lithium-ion batteries
- ◯ Solid-state batteries

With an electric vehicle, approximately how many miles do you get for 30 minutes of Level 3 (DC Fast) charging? *

- ◯ 0-5 miles
- ◯ 10-20 miles
- ◯ 40-50 miles
- ◯ 100-200+ miles

In a gasoline-powered vehicle, what is the purpose of the alternator? *

- ◯ To improve steering stability
- ◯ To transmit power from the engine to the wheels
- ◯ To cool the engine
- ◯ To charge the battery

If the inner edges of a vehicle's tires look worn, what is the most likely cause? *

- ◯ The vehicle's tires are underinflated
- ◯ The vehicle is too heavy for the tires
- ◯ The vehicle's wheel alignment is off
- ◯ The vehicle's shock absorbers need replacing

What does an odometer measure? *

- Distance
- Speed
- Fuel level
- Engine temperature

End of Survey

Please complete the following steps to record your survey response and receive your reward:

1) Make a note of this completion code: C1I3EEYK

2) Click 'Submit'.

3) Enter the completion code on Prolific.