The Political Economy of Vermont's Abortion Bill*

Shishir Shakya†
Elham Erfanian‡
Alexandre Ribeiro Scarcioffolo§

Abstract

In 2019, the state of Vermont passed an act to preserve the right to abortion (H. 57 bill), which declares that no government entity can interfere with, or restrict, a consenting individual's right to abortion care across the entire gestation period. However, the bill has not changed the previously states quo of the state towards abortion rights. Utilizing a high dimensional dataset, in this paper, we explain the channels that influence the expressive voting on the H. 57 bill. We implement a double-selection post-LASSO method to exploit the strengths and innovation of machine learning. We web scrape the lower chamber and upper chamber voting data on H.57 and use the 2017 American Community Survey 5-year estimates to retrieve 141 different socio, economic, housing, and demographic characteristics of State Legislative Districts (upper and lower chamber). Our results suggest channels of poverty, gender, and population diversity are some crucial mechanisms.

Keywords: XXX, XXX, XXX
JEL Classification: XXX, XXX

*We thanks Alex Cardazzi.

†John Chambers College of Business and Economics & Regional Research Institute (RRI), West Virginia University, Morgantown WV 26506 E-mail: ss0088mix.wvu.edu.

‡University of Kentucky & Regional Research Institute

§Georgia College State University & Regional Research Institute (RRI)

1 Introduction

Pregnancy and abortion rates are few among many other essential public health indicators of reproductive health. However, the abortion rate, defined as abortions per 1,000 women aged 15–44, is an engaging public health indicator that often wrangles with political agendas. In 1973, the United States (U.S.) Supreme Court has recognized the constitutional right to abortion in the *Roe v. Wade* decision. Although, the Supreme Court has left the decision whether to prohibit abortion after the fetal viability[1] at the mercy of each state as long as the life and health (both physical and mental) of the woman are preserved. From the standpoint of each state to follow the fundamental right to abortion while imposing limits to it, since 2010, more than 480 new restrictions were enacted. These restrictions are usually focused on limiting public funding, mandated counseling and waiting periods before an abortion, and burdensome regulations on abortion facilities.[2] From Figure 1, we can see after 1973, the abortion rate in the U.S. has sharply increased, peaking in 1981. After 1981, we observe a steady decline, in which the 2017 abortion rate has decreased to record low levels after abortion has become legal nationwide. While abortion restrictions might have impacted the evolution of abortions, the decline appears to be related to fewer births and pregnancies overall Nash and Dreweke (2019).

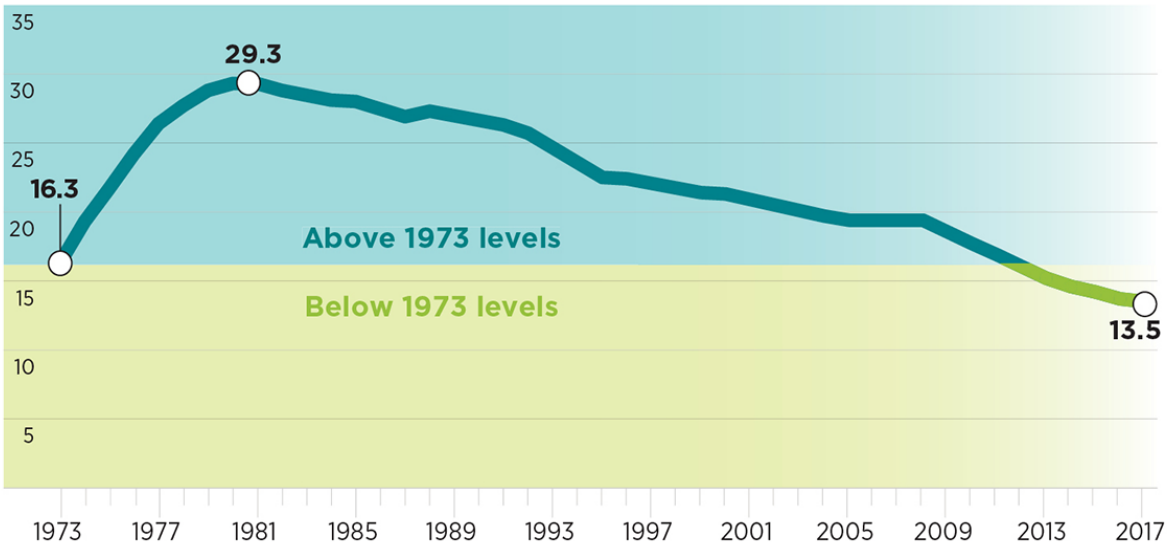
As an example of the crescent wave of restrictions regarding abortion rights in the U.S., in 2013, the Pain-Capable Unborn Child Protection Act (aka Micah's Law) was introduced to make unlawful abortion after 20 weeks of post-fertilization, in other words, restrict abortion before fetal viability. Micah's Law was not approved in the Senate in 2018; however, several states enacted similar bills in their territory. For instance, Alabama has recently attempted to ban abortion before fetal viability but have been stopped by court order. On the other hand, states primarily located in the Northeast and West are enacting policies to protect abortion rights.[3] Among these states, Vermont has taken an unprecedented step towards supporting abortion rights. In 2019, Vermont passed an act to preserve the right to abortion (H. 57 bill), which states that no government entity can interfere with, or restrict, a consenting individual's right to abortion care. By doing so, the state has enacted the right to abortion across the whole

[1] The point at which a fetus can sustain life outside the womb. A fetus generally reaches viability between 24 and 28 weeks after the last menstrual period. Some state laws considered "fertilization" the point when pregnancy begins; it is two weeks after the last menstrual period.

[2] See https://www.guttmacher.org/fact-sheet/state-facts-about-abortion-vermont accessed on April 22, 2020

[3] See https://www.guttmacher.org/article/2019/12/state-policy-trends-2019-wave-abortion-bans-some-states-are-fighting-back, accessed on April 29, 2020.

Figure 1: Trend of U.S. Abortions Rate
Numbers of abortion per 1,000 women aged 15–44



Source: https://data.guttmacher.org/states/trend?state=UStopics=65dataset=data

pregnancy period (40 weeks), not limiting until the fetal viability.

In spite of having the strongest protections for abortion rights in the nation until the moment, the H. 57 bill apparently has not changed the status quo of the state. Previously, Vermont possessed no legal limits on when or under what circumstances a woman could decide to end a pregnancy (Taylor and Turkewitz, 2020). The authors go far to argue that H. 57 bill appears to represent more an expressive action of Vermont's legislators than an actually changing the state's status quo: "*(T)he bill sends a resonant message to the nation about Vermont's views on abortion rights just as other states are sending far different signals...' In this time when, across the country and nationally, when Roe v. Wade and individuals' access to private, reliable reproductive health care and abortion is in question, we thought we'd better be clear in Vermont,' said Ann Pugh, a state representative from South Burlington and one of the Vermont bill's lead sponsors.*"

Therefore, an interesting question arises, what were the main determinants of the Vermont legislature in passing the H. 57 bill in a state that previously did not offer legal limits on abortion restrictions? The vote appears to be purely expressive since the state previously did not impose restrictions on abortion. Additionally, expanding the right to abortion to later stages of pregnancy might not generate significant results in the state. Only 1.1% of the abortions occur at or over 21 weeks of gestation in Vermont, a number that is even smaller in comparison to the

U.S. average, 1.33% (Jatlaoui et al., 2019). From the perspective that the bill appears to not generate significant increments on social gains, but in fact, express the state's view on abortion rights, creates a situation in which we can isolate whether legislator voting is driven by their characteristics, the characteristics of the median voter in their district, or some combination of the two. We follow the general approach of Scarcioffolo et al. (2020), who evaluate the role of legislator and median voter characteristics on Vermont General Assembly voting outcomes on banning fracking in the state.

Due to the large discrepancy of state's policies across the U.S., there is a large strand of literature understanding how the composition of each state, such as population as well as the political forces like ideology, religion, partisanship plays a role on shaping the state's view on abortion rights. Gohmann and Ohsfeldt (1990); Tatalovitch and Schier (1993); Witt and Moncrief (1993); Day (1994); Schecter (2001); Medoff (2002) investigate the role of religion on voting behavior on abortion rights. For example, legislator's religion and the district religiosity both can influence the voting behavior on abortion bills. The percentage of Catholics named as an indicator of the antiabortion attitude within a state.

Similarly, partisanship contributes to voting behavior. Gohmann and Ohsfeldt (1990) and Schecter (2001) found a significant effect of Democrat legislators to vote pro-choice. In contrast, Tatalovitch and Schier (1993) and Medoff (2002) suggest that ideology is rather more influential in voting pro-choice than partisanship.

Gender and race can also determine voting behavior. Female Republicans tend to deviate from male Republicans and vote for pro-choice rather than pro-life abortion bills (Schecter, 2001; Medoff, 2002). Senators from states with a higher percentage of nonwhite population are more likely to vote pro-choice. One convincing reason, which Medoff (1989) argues, is that a higher abortion rate in states with a higher percentage of nonwhite population is a result of a higher demand for abortion among nonwhites. Gohmann and Ohsfeldt (1990), support the importance of the percentage of women with white-collar jobs in shaping legislator's voting behavior. Senators are more likely to be pro-choice when they represent states with a higher percentage of women pursuing a career. As woman's income rises, the cost of childbearing increases, hence they become more likely to be potential users of abortion and supportive of pro-choice policies (Medoff, 2002).

Finally, Strickland and Whicker (1992) discusses how diversity, per capita income, and urbanization as other determinants shape pro-choice voting behavior. They argue that the more urban and diversity a region, the more liberal orientations it will exhibit as it concentrates a wide variety of professionals. On the other hand, income per capita appears to be negative correlated with abortion supports as less fortunate families face higher relative cost of childbearing.

Although informative, the literature often rely on choosing variables of interest, i.e., channels, and control them considering a small set of controls to analyze voting behavior. However, these channels are not randomly assigned, and experimental manipulation of these channels is infeasible. Additionally, understanding the link between the channels and voting outcome can be challenging because various confounders can cause both the channels and voting behavior. Economic theory and intuition may guide what confounders to control in regression estimation, however, as a researcher, we do not observe the exact data generating process to model such a relationship.

To circumvent these drawbacks, we take advantage of the readily available high-dimension data in a public choice context and machine learning estimation strategies. By considering more than 140 different socio, economic, housing, and demographic characteristics of Vermont districts as well as voting data from the lower and upper chamber, we examine the Vermont's legislator voting behavior on the right to abortion bill by employing the double-selection post-LASSO methodology. The combination of high-dimension data with machine learning methodology allows us to select confounders and channels that are relevant to explain voting behavior without overfitting the estimation process. ALEX: Shishir, make sure that what Elham and I wrote make sense!!!

By following the literature, we examine two sets of channels that could have shaped Vermont's abortion right expressive voting. The first set is related to the characteristics of the median voter and covers diversity, education, and poverty of the constituents. To represent the diversity channel we consider % population voting female, % population voting male, % unmarried partners, and the diversity index ALEX: Shishir, please write a footnote about the definition of the diversity index, and include the results in the Table 1. Counties with higher female population. Secondly, Wang and Buffalo (2004) argue people with higher education attainment are more likely to support abortion rights as they tend to be open-minded and develop

a stronger knowledge-based attitude. To proxy the education channel, we consider the % of population with high bachelor degree or higher as well as % of population with White-collar jobs. Lastly, we consider unemployment rate in the county as an indicator of socioeconomic status. The second set of channels is related to legislators. ALEX: are we going to include legislator characteristics? If yes, what characteristics should we include?

Our results suggest that various voter's channels such as education, poverty, and population diversities can influence the voting outcome, contributing to the literature in what drives expressive voting by legislators. UPDATE ACCORDING TO THE NEW RESULTS - LATER

2 Data and Method

2.1 Data

We web scrape the Vermont lower and upper chamber voting data on H.57 bill, an act relating to preserving the right to abortion bill from the Vermont General Assembly website. This data shows which representatives and senators vote for or against the H. 57 bill. Then, we use the 2017 American Community Survey 5-year estimates to retrieve 141 different socio, economic, housing, and demographic characteristics of State Legislative Districts (upper and lower chamber).[4]

2.2 Methodology

To explain the voting outcomes on H.57, we test four different channels: channel of education, poverty, gender, and diversity of constituents that each legislator represents. We choose these four channels based on the literature review. However, to estimate the impact of these channels in the observational studies setting demands caution because of endogeneity biases. These channels are not randomly assigned, and experimental manipulation of these channels is infeasible, the issue of endogeneity arises inevitably in our study, which could lead to spurious findings.

In our study, endogeneity may arise via reverse causality, omitted variables, and unobservable factors. However, it's safe to assume there is no reverse causality because each of these channels affects voting behavior, but the voting behavior of legislators cannot modify these channels. In our study, failure to accurately select the covariates could lead to endogeneity bias. In general,

[4] A list of the variables are available upon requested

economic theory and intuition guide variable selections. In our case, general utilitarian theory and median voters' characteristics could define H.57 voting behavior. However, as a researcher, we do not observe exact data generating processes. Failure to adequately control can lead to endogeneity due to omitted variable bias. However, over-controlling leads to a loss of efficiency of estimates. A standard strategy is ad hoc to report the estimates implementing different sets of controls and show treatment effects from each channel are indifferent to changes in controls. This standard strategy lacks a principled method for proper variable selection. Therefore, we propose a recently developed method call Double Selection post-LASSO.

The double-selection post-LASSO method comprises three steps. First, run LASSO[5] of the voting outcome on the list of potential control variables to select a set of predictors for the outcome variable. Second, run LASSO of the variable of interest on the list of possible control variables to pick a set of predictors for the variable, which is the channel of interest. The second step is essential because the exclusion of a covariate that is a modest predictor of the dependent variable, but a strong predictor of the channel variable can create a substantial omitted variable bias. In experimental data, the second step also serves as a test of randomization. If the channel variable is effectively randomized, no covariates should be selected in this step. Third, run ordinary least squares regression of outcome variable on the variable of interest, and the union of the sets of regressors chosen in the two LASSO runs. Then correct the inference with usual heteroscedasticity robust ordinary least squares standard error — the estimates of the response of outcome variable on the interest variable yield a causal interpretation. For the theoretical arguments, see (Belloni et al., 2013, 2014).

3 Results

From our dataset based on 89 difference socio, economic, and demographic characteristics of State Legislative Districts, we segregate them according to three [ELHAM: may be better to be

[5]The Least Absolute Shrinkage and Selection Operator (LASSO) is an appealing method to estimate the sparse parameter from a high-dimensional linear model is introduce by Frank and Friedman (1993) and Tibshirani (1996). LASSO simultaneously performs model selection and coefficient estimation by minimizing the sum of squared residuals plus a penalty term. The penalty term penalizes the size of the model through the sum of absolute values of coefficients. Consider a following linear model $\tilde{y}_i = \Theta_i\beta_1 + \varepsilon_i$, where Θ is high-dimensional covariates, the LASSO estimator is defined as the solution to $\min_{\beta_1 \in \mathbb{R}^p} E_n\left[(\tilde{y}_i - {}_i\Theta\beta_1)^2\right] + \frac{\lambda}{n}\|\beta_1\|_1$, the penalty level λ is a tuning parameter to regularize/controls the degree of penalization and to guard against overfitting. The cross-validation technique chooses the best λ in prediction models and $\|\beta\|_1 = \sum_{j=1}^{p} |\beta_j|$. The kinked nature of penalty function induces $\hat{\beta}$ to have many zeros; thus, LASSO solution feasible for model selection.

consistent with what we said before about four channels] main channels: Education, poverty, population diversity to explain the voting outcome in Vermont. Our main results are shown on Table (1).

Table 1: Mechanisms

Variables	N	Average Effect	95% Lower Bound	95% Higher Bound	Effect
Population diversity Channel					
% Population Voting Female	640	0.025	0.011	0.038	Positive
% Population Voting Male	678	-0.025	-0.036	-0.010	Negative
% Unmarried partners	658	0.060	0.034	0.083	Positive
Education Channel					
% Population with Bachelor degree or higher	669	0.018	0.009	0.026	Positive
% Employment - Finance & Insurance sector	638	0.046	0.032	0.061	Positive
% Employment - Management/Professor/Scientific sector	658	0.021	0.005	0.046	positive
% Employment - information sector	672	0.049	0.022	0.104	Positive
Poverty Channel					
% Unemployment rate	657	-0.027	-0.045	-0.007	Negative

Notes: The 1%, 5% and 10% level of significance are given as ***, **, and * respectively. The % employment is related to the percentage of civilian employed over 16 years old

Through the education channel, despite the declined on the correlation between the level of education and support for abortion over the years as pointed out by Jelen and Wilcox (2003) our results suggest that the level of education still relevant to explain in some degree support to the act H.57. Legislators that represent districts with a larger percentage of the population with bachelor's or higher degrees are more likely to vote in favor of abortion. Similarly, sectors that normally present higher percentage of high educated employment (white-collar) also explain voting outcome. Sectors such as information, scientific, management, professor, finance, and insurance, are positively related to the likelihood of voting "Yea." Our results go a long way with the 2018 public opinion survey conducted by Pew Research Center in which 71% of the U.S. college graduated or higher say abortion should be legal across the country.[6]

Gender matters. Our prior expectation that gender matters was confirmed, in which legislators representing districts with the population with a higher percentage of voting women are more likely to support the bill, whereas districts with more population voting males are more likely to be pro-life. A possible explanation relies on the idea that women are the ones that burden the most an unplanned pregnancy, and having the right to abort might alleviate this burden. Similar results were found by Gohmann et al. (1990), which the authors suggest that

[6]See https://www.pewforum.org/fact-sheet/public-opinion-on-abortion/, accessed on July 4, 2019.

senators that represent states with a high percentage of women with a white-collar job are more likely to be pro-choice. We also find that districts with large unmarried partners are more likely to vote in favor of abortion. Lundberg and Pollak (2007) argue that women have acquired more control over the outcome of premarital sex. Hence, unmarried couples might be more likely to be pro-choice, reflecting the votes of their representative.

Woodrum and Davison (1992) and Bolzendahl and Myers (2004)- marital status is correlated to restrictive abortion attitudes

Finally, the poverty channel appears to matter in the voting outcome. Legislators representing districts with a high percentage of the unemployment rate are more likely to vote pro-life. probably shedding light

4 Conclusion

References

Belloni, A., Chernozhukov, V., and Hansen, C. (2013). Inference on treatment effects after selection among high-dimensional controls. *Review of Economic Studies*, 81(2):608–650.

Belloni, A., Chernozhukov, V., and Hansen, C. (2014). High-Dimensional Methods and Inference on Structural and Treatment Effects. *Journal of Economic Perspectives*, 28(2):29–50.

Bolzendahl, C. I. and Myers, D. J. (2004). Feminist attitudes and support for gender equality: Opinion change in women and men, 1974–1998. *Social forces*, 83(2):759–789.

Day, C. L. (1994). State legislative voting patterns on abortion restrictions in louisiana. *Women & Politics*, 14(2):45–63.

Frank, L. E. and Friedman, J. H. (1993). A statistical view of some chemometrics regression tools. *Technometrics*.

Gohmann, S. F. and Ohsfeldt, R. L. (1990). Predicting state abortion legislation from us senate votes: The effects of apparent ideological shirking. *Review of Policy Research*, 9(4):749–762.

Jatlaoui, T. C., Eckhaus, L., Mandel, M. G., Nguyen, A., Oduyebo, T., Petersen, E., and Whiteman, M. K. a. (2019). Abortion surveillance—united states, 2014. *MMWR Surveillance Summaries*, 68(11):1–41.

Jelen, T. G. and Wilcox, C. (2003). Causes and consequences of public attitudes toward abortion: A review and research agenda. *Political Research Quarterly*, 56(4):489–500.

Lundberg, S. and Pollak, R. A. (2007). The american family and family economics. In *Journal of Economic Perspectives*.

Medoff, M. H. (1989). Constituencies, ideology, and the demand for abortion legislation. *Public Choice*, 60(2):185–191.

Medoff, M. H. (2002). The determinants and impact of state abortion restrictions. *American Journal of Economics and Sociology*, 61(2):481–493.

Nash, E. and Dreweke, J. (2019). The us abortion rate continues to drop: Once again, state abortion restrictions are not the main driver. *Guttmacher Policy Review*, 22.

Scarcioffolo, A. R., Shakya, S., and Hall, J. (2020). The political economy of vermont's anti-fracking movement. *Journal of Public Finance and Public Choice*, (In Press).

Schecter, D. (2001). What drives the voting on abortion policy? investigating partisanship and religion in the state legislative arena. *Women & Politics*, 23(4):61–83.

Strickland, R. A. and Whicker, M. L. (1992). Political and socioeconomic indicators of state restrictiveness toward abortion. *Policy Studies Journal*, 20(4):598–617.

Tatalovitch, R. and Schier, D. (1993). The persistence of ideological cleavage in voting on abortion legislation in the house of representatives, 1973-1988. *American Politics Quarterly*, 21(1):125–139.

Taylor, K. and Turkewitz, J. (2019 (accessed May 4, 2020)). *Vermont Moves to Protect Abortion Rights as Other States Impose Bans*. https://www.nytimes.com/2019/05/21/us/vermont-abortion-bill-h57.html.

Tibshirani, R. (1996). Regression Selection and Shrinkage via the Lasso.

Wang, G.-z. and Buffalo, M. (2004). Social and cultural determinants of attitudes toward abortion: A test of reiss' hypotheses. *The Social Science Journal*, 41(1):93–105.

Witt, S. L. and Moncrief, G. (1993). Religion and roll call voting in idaho: The 1990 abortion controversy. *American Politics Quarterly*, 21(1):140–149.

Woodrum, E. and Davison, B. L. (1992). Reexamination of religious influences on abortion attitudes. *Review of religious research*, pages 229–243.