Same-Sex Marriage and Negative Externalities*

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Objectives. Conventional theory regarding externalities and personal choices implies that in the absence of negative externalities, there is no economic rationale for government to regulate or ban those choices. We evaluate whether legally recognizing (or prohibiting) same-sex marriage has any adverse impact on societal outcomes specifically related to "traditional family values." *Methods.* Using data from 1990 to 2004 in the U.S. states, with statistical controls appropriate for the particular model, and with fixed effects, we test the claim of the Family Research Council that same-sex marriage will have negative impacts on marriage, divorce, abortion rates, the proportion of children born to single women, and the percent of children in female-headed households. *Results.* We find no statistically significant adverse effect from allowing gay marriage. Bans on gay marriage, when they are not overturned, appear to be associated with a lower abortion rate and a lower percentage of children in female-headed households. However, allowing gay marriage also shows the same or stronger associations. *Conclusions.* The argument that same-sex marriage poses a negative externality on society cannot be rationally held. Although many might believe that this conclusion is so obvious that it does not warrant testing, many politicians use this argument as a fact-based rationale to legitimize bans on same-sex marriage.

A basic understanding of economic theory regarding externalities and personal choices implies that in the absence of negative externalities, there is no reasonable rationale for government to regulate or ban those choices. We evaluate whether legally recognizing (or prohibiting) same-sex marriage has any adverse impact on societal outcomes specifically related to "traditional family values." Five basic family values serve as the basis for the conclusions of this study, taken from the claims of the Family Research Council. Specifically, we test its claim that same-sex marriage will have negative impacts on marriage, divorce, abortion rates, the proportion of children born to single women (born out of wedlock, or BOW), and the [illegible] in female-headed households. If no statistically significa[illegible] be found, then the argument that same-sex marriag[illegible]

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UNITED STATES DISTRICT COURT
NORTHERN DISTRICT OF CALIFORNIA

Case number: 3:09-cv-02292-VRW

PLTF EXHIBIT NO. _PX2898

Date admitted: _____

By: _____

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externality on society cannot be rationally held. Although many might believe that it is a waste of time to test this claim, many politicians use this argument as a fact-based rationale to legitimize bans on same-sex marriage. Supporters of these bans are quite successful; as of 2004, 45 states had banned same-sex marriage. Although it is legitimate in democracies for policies to be chosen based on a plurality of beliefs about values, it is less legitimate, and possibly dangerous, for policies to be chosen based on a plurality of beliefs about incorrect empirical claims (Mirels and Dean, 2006).

We look at the following state-level marriage regulations: (1) whether gay marriage (or its equivalent) was legally permitted in that year; (2) whether the state offered some level of similar rights to same-sex partnerships; and (3) whether gay marriage was expressly forbidden by a state's law in that year. We use state-by-state data from 1990, 2000, and 2004 to analyze the impact of each of these legal frameworks on five outcome variables (marriage, divorce, abortion, BOW rates, and children in female-headed households). Since only two states in 2004 legally permit gay marriage, we collapse categories (1) and (2) together in the analysis that follows. State-by-state data from the U.S. Census Bureau on various demographic characteristics serve as dependent and control variables.

The results show that allowing gay marriage has no significant adverse impact on the family values variables. The results also show that bans on gay marriage, when they are not overturned, appear to be associated with a lower abortion rate and a lower percentage of children in female-headed households. However, allowing gay marriage also shows the same or stronger associations. It appears that any positive external effects of laws banning gay marriage are accompanied with similar or larger positive effects from laws that allow it. The implication is that laws allowing gay marriage, and the individual choices they reflect, have no significant adverse external effects, and may have positive effects. It follows that there can be no rational argument against these laws based on the alleged negative consequences of gay marriage for "family values." Bans on gay marriage may also have similar, but weaker, positive effects. Since bans restrict individual choice, they have higher social costs than laws allowing gay marriage.

Background

The right to marry a person of one's own choosing is a nonscarce right. Scarce rights have costs and limitations to exercise (e.g., the right to own a house), while nonscarce rights can be exercised by everyone as long as it has no cost to another. Marriage is a nonscarce right because the exercise of it is within reach of anyone who chooses to exercise it (barring legal limitations). It also has no cost to another: "The freedom to marry someone of the same sex does not forestall someone else from marrying whomever he or she chooses" (Hatzis, 2006:60).

Thus, for the purposes of this discussion, we begin with a presupposition of unrestricted marriage, or an "open" marriage market free of government influence.[1] We ask the conventional economic question: Are there market failures associated with a free market in marriage where everyone is entitled to marry someone of their own choosing? This necessitates the discussion of marriage as a contractual agreement (as opposed to a religious or moral proposition). "The central institution of the family is marriage, a relationship that hovers uneasily at the border of contract" (Posner, 2003:145).

Hatzis (2006:58) states that, "according to marriage-as-contract theory, family law should recognize and enforce welfare-enhancing and regulate welfare-reducing exchanges." Thus, the only real economic argument that could be used as a basis for the ban of same-sex marriage is that there are negative externalities associated with same-sex marriage that reduce overall welfare to the society as a whole. Hatzis (2006:58) explains in the following manner.

> The externality argument against same-sex marriage (and against any "immoral" activity for that matter) goes like this: A part of the cost of the voluntary but "immoral" activity spills over onto "moral" people, who are annoyed by the way of life of "immoral" people . . . . Then, the way of life or the acts of some people can be said to offend the majority. Their acts or transactions have negative external effects of such magnitude that they can have detrimental effects to the social order itself . . . .

The problem with this line of argument is that there is hardly any type of behavior or action that could not seem to cause "harm" to others because harm is being defined to include disliking or despising the behavior or actions. This is not an economically acceptable view of harm. For our purposes, harm occurs only if there is actual societal damage done.[2] Thus, in the case of unregulated, "open" markets for marriage, if real detrimental effects to the social order could occur by not banning same-sex marriage, then state intervention in the form of a ban could be seen to be justified. This brings us to the purposes of this study.

There has been much controversy over decisions made by individual states that permit same-sex marriages or a civil equivalent. In fact, "pro-family" groups argue that permitting same-sex couples the legal protections of marriage (or its equivalent) will destroy marriage as an institution and cause a

[1]For the purposes of this article, an "open" marriage market will be one where every individual can marry any one other individual. We do not consider polygamy in this study. We also ignore the civil rights arguments presented by gay rights activists and focus solely on an economic analysis.

[2]Competitive markets create losers, but the "harm" to the losers in such a market is a pecuniary, not a technical, externality because the gainers can compensate the losers and still remain gainers. Losers are often jealous, but jealousy is also not a technical externality. There is no externality if C hires A rather than B in a competitive employment market, even though B may despise or be jealous of A. The same would be true if gay C marries gay A instead of straight B.

decline in other socially desirable behaviors. Specifically, groups such as the Family Research Council (FRC) have argued that permitting same-sex marriage will increase the incidence of divorce and abortion, and actually reduce the rate of "traditional" marriages that occur. These can be seen as potential negative externalities of an "open" marriage market. The FRC further argues that creating clear laws prohibiting same-sex marriage will reduce these negative external effects,[3] thus justifying the government's bans. These groups claim these positions as "facts" resulting from "research" based on governmental programs either prohibiting or permitting same-sex unions. Additionally, numerous "studies" conducted by the FRC posit substantial evidence for these claims without citing any clear statistical basis for their "facts."

Badgett (2004) has shown that giving marriage rights to same-sex couples in Europe has had no averse effect on marriages, divorces, or children. Nonetheless, we believe it is necessary to seriously analyze the effects of gay marriage in U.S. society, especially now that a number of U.S. states have either expressly permitted or expressly banned marriage or its equivalent for same-sex couples. To do this, we test three "theories" from the perspective of those opposed to gay marriage. The theories would buttress the positions of the Family Research Council and the like if statistical evidence could be found that they were, in fact, true. For each theory, we thought it was necessary to test not only the effect of permitting gay marriage but the alleged countereffect of bans on gay marriage because claims have been made that banning gay marriage sends clear signals to society about the centrality of family values, while permitting gay marriage signals that the family is not a core value.

The first theory concerns marriage. It states that permitting gay marriage will reduce overall marriage in society. A widely cited article in recent publications against gay marriage states: "Marriage in Scandinavia is in deep decline, with children shouldering the burden of rising rates of family dissolution. And the mainspring of the decline—an increasingly sharp separation between marriage and parenthood—can be linked to gay marriage" (Kurtz, 2004). The article claims that the declining marriage rates and increasing divorce rates of Scandinavia can be linked directly to the approval of same-sex marriages by the government.

The second theory concerns divorce, stating that gay marriage will increase divorce rates.

> As the transient, promiscuous, and unfaithful relationships that are characteristic of homosexuals become part of society's image of marriage, fewer marriages will be permanent, exclusive, and faithful—even among heterosexuals. So-called "conservative" advocates of same-sex civil marriage are optimistic that legal unions would change homosexuals for the better; it

[3]See ⟨www.frc.org⟩ and, more specifically, their "fact-based" paper (Family Research Council, 2007).

> seems far more probable that homosexuals would change marriage for the worse.[4]

The basic claim here is that the "homosexual lifestyle" would likely create an increase in divorce rates, not only within same-sex marriages but also in the broader society.

The third theory concerns children. It states that gay marriage will lessen the importance of procreation in marriage, leading to higher abortion rates, more children born out of wedlock (BOW), and more single-parent families.

> Marriage is a public institution because it brings together men and women for the purpose of reproducing the human race and keeping a mother and father together to cooperate in raising to maturity the children they produce. The public interest in such behavior is great, because thousands of years of human experience and a vast body of contemporary social science research both demonstrate that married husbands and wives, and the children they conceive and raise, are happier, healthier, and more prosperous than people in any other living situation.[5]

Often, pro-values groups cite the importance of procreation in marriage and argue that approval of same-sex marriage will sever the link between child rearing and marriage, creating higher numbers of children born out of wedlock (BOW) and more abortions. On its face, this seems like a somewhat stilted and strange claim. The FRC does not explain the mechanism that leads to these outcomes, and we do not pretend that we can construct a convincing causal story. Nonetheless, we recognize that many seemingly persistent associations may have unexplained causal explanations.

Nonetheless, we test the claims that allowing gay marriage might have adverse effects on, or even a persistent association with, family formation and on the relation between children and their birth families. Controlling for confounding variables and for individual heterogeneity among U.S. states, we regress marriage rates, divorce rates, abortion rates, the percent of children BOW, and the percent of female-headed households with own children less than 18 on each of two possible legal scenarios: (1) gay marriage is permitted by law or some rights of marriage are given to same-sex couples and (2) gay marriage is specifically prohibited by law.

Design, Measurement, and Estimation

Practically, an experimental design would be infeasible in testing the effects of legal recognition of same-sex marriage on a statewide basis. The most practicable research method design for this study is a nonexperiment.

[4]Ibid.
[5]Ibid.

This is not to say that this study will provide definitive results; nonexperimental designs often suffer from omitted variable bias. To mitigate this risk, in addition to major demographic control variables, we include a fixed value for each state in each regression. This controls for unobserved time-invariant variables that may be related both to the dependent variable and included independent variables. We also include a dummy for time to mitigate threats to validity due to underlying common trends and events in the data and to reduce problems of autocorrelation in a data set that has three yearly observations for each state. We use robust estimates of standard errors, clustering by state to recognize that, because within-state observations may share similar determinants and may not be independent, the within-state variance of stochastic terms is less than the variance between states. Overall, these adjustments should enable our core parameter estimates to be both internally and statistically as valid as possible while providing external validity. Nonetheless, we regard our findings as correlational rather than definitively causal.

The regression model uses state data gathered primarily from the U.S. Census, with additional data on the legal recognition and forbiddance of marriage rights provided from research by the Human Rights Campaign. The data set contains observations from all 50 states and the District of Columbia for the years 1990, 2000, and 2004 ($N = 153$).[6] In addition to state and year fixed effects, we also include the following control variables in each regression estimation: total population, urban population percentage, percentage of population self-identified as Christian adherents, percentage of population holding a bachelor's degree, the log of median income for each state, the percent of the population of marriageable age (18–66), the number of prisoners per person, and the percent of women 18–24 enrolled in college and/or with a BA degree or higher.

There are two distinct independent test variables in this nonexperiment. The first is a dummy variable that indicates whether gay marriage, or equivalent full legal recognition like civil unions, is legally recognized or if there is any partial recognition of legal right bestowed on same-sex couples in a state for that particular year. This is especially pertinent in the two more recent year samples where, even when same-sex marriage is banned in a number of places, there have been partial married rights given to same-sex couples. The second is a set of two dummy variables that show if, and for how many consecutive periods, there is an express legal prohibition of same-sex marriage either through a direct ban or a legally exclusive definition of marriage. For the purposes of this study, we include both constitutional and statutory bans in the same category. Table 1 shows the number of observations in three categories: complete legalization, partial recognition, and prohibition. There is clearly variance over time, as more and more states adopt laws either banning gay marriage, or offering full or partial legal

[6] U.S. Bureau of the Census (2006).

TABLE 1

Dummy Variable Counts

Year	States Permitting Gay Marriage	States Providing Some Legal Recognition	States Prohibiting Gay Marriage
1990	0	0	3
2000	0	1	33
2004	2	6	45

recognition.[7] There is also variance between states. In 1990, only three states (California, Wyoming, and Maryland) had legislation, and it banned gay marriage. By 2000, 33 states had banned gay marriage, and one partially protected it. By 2004, only Vermont and Massachusetts permitted gay marriage; all states but Alabama, New Mexico, New York, and Rhode Island had legislation of some sort, and 45 states banned it. Overall, there is little variance among the states in laws offering full recognition; there is more variance in laws offering some equivalent rights, especially by 2004, when six states had such legislation. The greatest variance in the data is among states prohibiting gay marriage, or not.

As a consequence, we measure the occurrence of laws protecting gay marriage with one dummy variable. We capture the variance among states that prohibit gay marriage with two indicator variables measuring the duration of the prohibition. Among the 45 states that banned gay marriage, most banned it in 2004; a few banned it legislatively in 1990, saw it overturned in the interim (by 2000), and repassed the ban constitutionally by 2004. We code these states as banning gay marriage with a duration count of one continual period in our data. Among the remaining states that banned gay marriage, the ban was passed in 2000 and it remained in place in 2004. We code this as a separate dummy where the duration count is two consecutive periods in our data. We expect that stable, continuing laws are more likely to have external effects (positive or negative) on the family values variables than laws that are more recent or less stable.

Findings

Table 2 shows the descriptive statistics for the variables in our study. With one exception, they reveal a great deal of variation within each variable. There is little variation among the observations in our data in which gay marriage is legal. Thus, it will be particularly difficult to test whether laws

[7]Some states had multiple policies (banning and giving partial rights) in effect in the same year, so there are more entries in Table 1 than states.

TABLE 2

Descriptive Statistics

Variable	Mean	*SD*	Min. Value	Max Value
Gay marriage permitted	0.04	0.20	0	1
Gay marriage ban duration of 1 period	0.32	0.47	0	1
Gay marriage ban duration of 2 consecutive periods	0.19	0.39	0	1
Marriage rate (per 1,000)	10.08	10.41	4.7	99
Divorce rate (per 1,000)	4.42	1.4	1.7	11.4
Abortion rate (per 1,000 women aged 15–44)	19.18	14.28	0.9	133.1
Percent female-headed HH among HHs with own children<18	21.8	5.97	12.9	53.1
Percent born to unmarried women (data from 2004 are estimates from 2003)	31.47	7.70	13.5	64.9
Population (in 1,000s)	5,012.56	5,929.81	320.46	35,637.23
Urban pop. (percentage)	24.62	34.90	0.52	100.00
Christians (percentage)	48.51	10.65	30.06	74.28
Percent pop. with BA	24.13	5.62	12.33	45.7
Median income	45,583	10,250	26,214	75,541
Percent pop. age 18–66	62.09	1.96	54.8	68.1
Prisoners per population	0.004	0.002	0.0009	0.016
Percent females 18–24 enrolled in college or w/BA or higher	45.6	8.58	23.2	64.6

permitting gay marriage have an adverse effect on the family values variables, since the small variation biases the study toward a conclusion of "no effect." Yet that is not what we find in three of five parameter estimates. There is more variance in observations about legal prohibitions of gay marriage. Collectively, about 50 percent of states have passed some sort of ban at least once.

With respect to the nonpolicy variables, there is considerable variance. In the United States, marriage rates have been declining during the period of our study (from 9.8 to 7.4 per 1,000 population), while divorce rates are falling also (from 4.7 to 3.7 per 1,000). The percent born to unmarried women has gone up (from 26.8 percent to 36.8 percent). The state with the highest overall marriage rate is Nevada (where the rate falls from 99 to about 62 per 1,000). The state with the next highest rate is Hawaii, where the rate rises from about 16 to 23 per 1,000. The states with the lowest marriage rates are California and Connecticut, where the rates fall from about 8 to 5 per 1,000. States with the lowest divorce rates are the District of Columbia, where the rate has fallen from 4.5 to 1.7 per 1,000, and Illinois, where the

rate has fallen from 3.8 to 2.6. The state with the highest divorce rate is Nevada, where the rate has fallen from 11.4 to 6.4. The next highest rate is in Arkansas, where the rate has fallen from 6.9 to 6.3 per 1,000. The states with the highest percent born to unmarried women are the District of Columbia, where the percent has fallen from 64.9 to 53.5, and Mississippi, where the percent has risen from 40.5 to 46.5. Wyoming has the lowest abortion rate, which has dropped from 9.6 to 0.9 per 1,000 women of child-bearing age. The District of Columbia has the highest abortion rate, which dropped from 133.1 to about 68 per 1,000. New York is relatively high also, where the rate dropped from 45.6 to about 39 per 1,000. Among all households with young children (under 18), the percent with a female head is 21.8; the highest rate is in the District of Columbia in 2004 (at 53 percent), and the lowest is in North Dakota in 1990 (at 13 percent). The rate is increasing in most states, including in North Dakota, where it increased to 18.7 percent in 2000, and dropped a little to 17.2 percent by 2004. The Family Research Council probably links the correlation between observable undesirable changes in these outcomes with tolerance of gay marriage, confusing it with causation.

Among the independent variables, it is important to note two that not only vary considerably among the states, but have also changed dramatically during the period of our study. Both are likely to affect marriage, divorce, and abortion rates, as well as the living conditions of children (Goldin, 2006; Lynch and Sabol, 2003). The percent of women aged 18–24 who are enrolled in college or have a BA degree or more is 45.6 percent, and varies from a low of 23 percent (in Alaska in 1990) to a high of 64.6 percent (in Rhode Island in 2004). The percent has been increasing steadily in most states, including in Alaska, where the percent nearly doubled to 44 percent in 2004. The prison population is 0.004 per person (or 4 per 1,000 persons), but the rate varies from a low of 0.00085 per person (or 8.5 per 10,000) in Minnesota in 1990 to a high of 0.016 (or 16 per 1,000) in Washington, DC in 1990. In most states, the prison rate has grown. Even in Minnesota, the rate went up to 0.0145 in 2000 and 0.0198 in 2004. (The rate dropped in Washington, DC only because the local prison was closed and its inmates were moved to Maryland.)

It is important to note that in determining the parameter estimates and in finding the appropriate functional form for the regression equation, we used the logs of population and income. Tables 3–7 show the regression results.[8]

[8]We also tested these five claims using models with the same statistical controls, no fixed effects, and a lagged value of the dependent variable. Using a lagged dependent variable is enticing because it controls for possible endogeneity in the results we do report, if the determinants of laws regulating gay marriage reflect the very family conditions that we investigate. The estimates from this model showed that none of the gay marriage laws had any impact on the outcome variables. We do not report the results from this model because its estimates for the focal causal variable (the gay marriage laws) are biased in favor of a "no impact" outcome, which is exactly what the results from the model showed (Achen, 2000). Such a model is biased in favor of the "no impact" outcome for two reasons. One is that the

TABLE 3

Regression of Marriage Rates on Gay Marriage Laws (Clustered Standard Errors; Fixed State Effects Not Shown) ($N = 153$)

marriagerate	Coef.	s.e.	z	$P > \lvert z \rvert$
gaymarriage ok	0.720	0.248	2.90	0.004
gaymarriage ban duration1	−0.100	0.141	−0.71	0.477
gaymarriage ban duration2	0.430	0.330	1.30	0.192
log population	−12.31	2.457	−5.01	0.000
percent urban	0.018	0.009	2.10	0.036
percent Christian	0.055	0.048	1.15	0.249
percent with BA degree	−0.165	0.047	−3.51	0.000
log income	3.798	1.36	2.78	0.005
percent aged 18 to 66	0.193	0.076	2.55	0.011
prisoners per person	109.42	135.00	0.81	0.418
percent women 18–24 ≥ BA	−0.025	0.016	−1.53	0.125
year 2000	0.940	0.351	02.68	0.007
year 2004	−2.04	0.936	−2.18	0.029
constant	60.37	26.04	2.32	0.020
Wald chi2(63)	3280.91			0.000
log likelihood	−161.72			

Table 3 shows that, regardless of their duration, laws prohibiting gay marriage have no significant effect on the marriage rate, while permitting gay marriage does not reduce the marriage rate and may even raise it. This is important because it shows that laws banning gay marriage fail to have any external effects, at least on the rate of marriage, while laws permitting it clearly have no adverse effect on the rate of marriage, and may even increase it. Apparently, other factors affect the rate of marriage. States with large populations have lower rates of marriage: for each percent increase in population, the marriage rate declines by 0.12 per 1,000. Urban states have (slightly) higher marriage rates. Predictably, states with higher percents of college graduates have lower marriage rates (Goldin, 2006). Marriage also

N is smaller than the N in the results we do report. More importantly, when lagged variables have no clear causal impact on the outcome, introducing them as right-hand-side controls adds unnecessary endogeneity to the model, biasing parameter estimates of true causal variables toward zero. For example, considering the models in this study, it is hard to argue that divorce rates in a state at time t cause divorce rates at time $t+1$. By contrast, low student achievement at time t probably does cause those same students to score relatively poorly on achievement tests at time $t+1$. The results that we present control for major aspects of changes in the rates of marriage, divorce, and child-related outcomes (time and state fixed effects, increasing rates of college attendance (especially among women), affiliation with the Christian religious movement, and imprisonment) that are also likely to affect support for various types of gay marriage laws. Thus we think endogeneity is not likely to be a major threat to the validity of our results, and the Ramsey RESET test for each of the five models confirms that endogeneity or other sources of specification error are not likely (Gujarati, 2003:522). Finally, using simple OLS models to predict the observed values of the five outcome variables, the R^2s range from 0.92 to 0.97.

appears to be a normal good, since rates of marriage increase in wealthier states. States with larger proportions in the marriage-age pool (liberally defined as 18–66) have higher marriage rates. The year dummies indicate that marriage rates appeared to rise slightly in the 1990s but dropped overall between 1990 and 2004.

Table 4 shows divorce rates regressed on the same test and control variables. Clearly, the marriage rate is an important determinant of the divorce rate: where there are more marriages, there are more divorces; for each percent increase in the marriage rate, there is a 0.11 percent increase in the divorce rate. Legalization of gay marriage has no effect on divorces, but banning gay marriage (for just one period) significantly reduces the divorce rate, compared to having no laws at all. Curiously, banning gay marriage for two consecutive periods appears to have no association with the divorce rate. Table 4 also shows that there are fewer divorces in states with more Christian adherents, and more divorces in wealthier states. Once marriage rates are controlled, there are also fewer divorces in states with larger proportions in the 18–66 age range. There also appears to be a general decline in the divorce rate (of about 0.7 percent) from 1990–2004.

Table 5 shows the abortion rates of each state regressed on the same test and control variables. In this case, the results indicate that legalization of gay marriage clearly does not raise abortion rates and may even reduce them: states that legalized gay marriage have lower abortion rates (by 3.53 per 1,000 women of child-bearing age) than states that have no law. States that

TABLE 4

Regression of Divorce Rates on Gay Marriage Laws (Clustered Standard Errors; Fixed State Effects Not Shown) ($N = 141$)

divorcerate	Coef.	s.e.	z	$P > \lvert z \rvert$
marriagerate	0.107	0.015	6.93	0.000
gay marriage ok	−0.174	0.210	−0.83	0.408
gaymarriage ban duration1	−0.122	0.051	−2.40	0.016
gaymarriage ban duration2	0.041	0.093	−0.44	0.657
log population	−0.756	0.413	−1.83	0.067
percent urban	0.001	0.003	0.31	0.757
percent Christian	−0.052	0.014	−3.62	0.000
percent with BA degree	−0.008	0.014	−0.54	0.588
log income	1.258	0.466	2.70	0.007
percent aged 18 to 66	−0.106	0.019	−5.50	0.000
prisoners per population	−2.51	32.13	−0.08	0.938
percent women 18–24 ≥ BA	−0.003	0.008	−0.44	0.658
year 2000	−0.099	0.126	−0.79	0.430
year 2004	−0.716	0.298	−2.41	0.016
constant	7.35	6.01	1.22	0.222
Wald chi2(61)	5874.93			0.000
log likelihood	51.854			

TABLE 5

Regression of Abortion Rates on Gay Marriage Laws (Clustered Standard Errors, Fixed State Effects Not Shown) ($N = 153$)

abortion rate	Coef.	s.e.	z	$P > \lvert z \rvert$
marriage rate	0.217	0.070	3.08	0.002
gay marriage ok	−3.53	0.765	−4.61	0.000
gaymarriage ban duration1	−0.441	0.344	−1.28	0.199
gaymarriage ban duration2	−0.711	0.332	−2.14	0.032
log population	3.62	3.54	1.02	0.307
percent urban	0.016	0.016	1.07	0.284
percent Christian	−0.266	0.097	−2.73	0.006
percent with BA degree	0.477	0.068	7.05	0.000
log income	−0.53	2.91	−0.18	0.854
percent aged 18 to 66	0.503	0.117	4.28	0.000
prisoners per population	1,314.1	299.0	4.39	0.000
percent women 18–24 ≥ BA	0.023	0.039	0.58	0.559
year 2000	−9.47	1.04	−9.13	0.000
year 2004	−11.57	1.89	−6.13	0.000
constant	−38.56	39.24	−0.98	0.326
Wald chi2(63)	23993.75			0.000
log likelihood	−265.22			

continually ban gay marriage are also associated with states that have lower abortion rates (but only by 0.71 per 1,000 women of child-bearing age). Controversy surrounding both laws may signal that abortion is usually an undesirable outcome. While either law, or both, may be beneficial, legalization may be more so. With respect to the control variables, abortion rates rise with marriage rates, and states with more Christian adherents have lower abortion rates, while states with higher education, and a higher percent of marriageable (and child-rearing) age have higher abortion rates. As the number of prisoners per person rises (by 0.001), the abortion rate rises by 1.3 per 1,000 women of child-bearing age. At the mean prison rate of 0.004, this means that the abortion rate rises by about 5.2 per 1,000 women of child-bearing age. The year dummies indicate that even with these statistical controls, the abortion rate has been declining since the reference year of 1990. The decline would probably be greater if fewer (men) were sent to prison (mostly for drug crimes) (Lynch and Sabol, 2003).

The results in Table 6 show that laws regulating gay marriage, either permitting it or forbidding it, have no impact on the percentage of children born out of wedlock: neither law increases nor decreases that rate. Many other factors affect this outcome. The percent BOW decreases in states with higher marriage rates, a larger population, more Christian adherents, higher education, and higher income. The percent BOW increases in states with high prison rates, with a high percentage in child-bearing years, and with a high rate of young women in college or with advanced degrees. Even after

TABLE 6

Regression of BOW Rates on Gay Marriage Laws (Clustered Standard Errors, Fixed State Effects Not Shown) ($N = 153$)

percent bow	Coef.	s.e.	z	$P > \|z\|$
marriage rate	−0.302	0.035	−8.56	0.000
gay marriage ok	0.399	0.620	0.64	0.520
gaymarriage ban duration1	−0.006	0.232	−0.03	0.978
gaymarriage ban duration2	0.314	0.434	0.73	0.468
log population	−5.31	1.57	−3.39	0.001
percent urban	−0.003	0.009	−0.34	0.731
percent Christian	−0.409	0.056	−7.47	0.000
percent with BA degree	−0.224	0.063	−3.58	0.000
log income	−4.57	1.79	−2.55	0.011
percent aged 18 to 66	0.302	0.109	2.76	0.006
prisoners per population	1,207.5	111.35	10.84	0.000
percent women 18–24 ≥ BA	0.121	0.026	4.63	0.000
year 2000	4.20	0.451	9.33	0.000
year 2004	6.12	1.17	5.24	0.000
constant	120.1	21.46	5.59	0.000
Wald chi2(64)	21878.02			0.000
log likelihood	−203.98			

these controls (and with fixed state effects), the percent BOW has been increasing since the reference year, but it appears that laws regulating gay marriage can neither be blamed or credited for affecting out-of-wedlock births.

Table 4 showed that banning gay marriage for one consecutive period appears to reduce the divorce rate, suggesting that it effectively reduces a negative externality. But it is not clear that divorce would have any externalities on the two parties involved, since, from an economic perspective, marriage is a contract between two willing parties, and divorce is a decision by both to cease that contract. However, divorce may adversely affect children. If divorce affects children negatively, then laws about gay marriage might be justifiable if they reduce divorce. The central question, then, is whether divorce (or laws regulating marriage) has negative effects on children by leaving them in households headed by a single parent (usually a female). Divorce is most likely to have this effect if young families break the marriage contract; if families with grown children break the marriage contract, it is not clear that the (grown) children would be affected at all.

Table 7 shows the results from a regression of the percent of female-headed households among all families with their own children on divorce rates and laws regulating gay marriage, as well as a host of control variables. The percent of female-headed households with children is lower in states with higher divorce rates, suggesting that in states where divorce rates are high, divorcees may delay until children are grown. (The results for divorce

TABLE 7

Regression of Percent Female-Headed Households Among Families with Own Childen<18 on Gay Marriage Laws (Clustered Standard Errors, Fixed State Effects Not Shown) ($N = 141$)

pctfemhdkids	Coef.	s.e.	z	$P > \|z\|$
divorce rate	−0.187	0.089	−2.10	0.036
marriage rate	0.045	0.032	1.41	0.159
gay marriage ok	−1.59	0.439	−3.62	0.000
gaymarriage ban duration1	−0.083	0.188	0.44	0.658
gaymarriage ban duration2	−1.70	0.359	−4.73	0.000
log population	1.86	1.41	1.32	0.187
percent urban	−0.071	0.009	−7.73	0.000
percent Christian	0.255	0.049	5.22	0.000
percent with BA degree	−0.007	0.053	−0.13	0.899
log income	10.06	1.72	5.84	0.000
percent aged 18 to 66	−0.459	0.084	−5.49	0.000
prisoners per population	78.05	76.96	1.01	0.311
percent women 18–24 ≥ BA	−0.045	0.021	−2.10	0.036
year 2000	4.56	0.431	10.56	0.000
year 2004	9.08	0.973	9.34	0.000
constant	−82.52	18.11	−4.56	0.000
Wald chi2(61)	13408.64			0.0000
log likelihood	−110.17			

rates are the same even if marriage rates are dropped from the equation.) Laws that permit or ban gay marriage (if they have a two-period duration) also appear to be associated with a lower percent of female-headed households with children, and the magnitude of the impact of both types of laws is comparable, implying that either law (or both of them) appear to be equally beneficial. Just as in the case for abortion outcomes, controversy surrounding both laws may signal that raising kids in single-parent (usually female-headed) households is usually an undesirable outcome. The percent of female-headed households with young children is also lower in urban states, in states with large percentages in the marriageable age group, and in states with a large percentage of young women in college or with advanced degrees. The percent of female-headed households with young children is higher in states with more Christian adherents, and in high-income states; it has also been growing since 1990.

Conclusions

The results above show that laws permitting same-sex marriage or civil unions have no adverse effect on marriage, divorce, and abortion rates, the percent of children born out of wedlock, or the percent of households with

children under 18 headed by women. Laws permitting same-sex marriage or civil unions may even raise marriage rates, and reduce abortions and the percent of female-headed households with children, even after controlling for many confounding variables and state and year fixed effects. Laws banning same-sex unions, if they are of long duration, generally appear also to have beneficial effects since they are associated with fewer abortions and female-headed households with children, but the seemingly beneficial effects of these laws appear to complement the effects of permitting same sex unions. (There is also evidence that short duration bans are significantly but weakly related to fewer divorces.)

We cannot say that we have disproved the existence of a link between laws permitting gay marriage and a negative impact on "family values" indicators, but we can say that no such link is demonstrated in the data that we analyzed here. Permitting gay marriage does no harm, and making it legal may even be beneficial, since it seems to raise marriage rates, reduce abortions, and reduce the chance that children grow up in single-headed households. We believe it is incumbent upon those that posit a link between permitting gay marriage and harm to families and children to put forth evidence that supports their claims about same-sex marriage rights, especially when confronted with evidence that directly refutes their claims.

It is undeniable that many families do fail, and that these failures have negative social externalities, especially for the children who are forced to grow up in single-parent families. But it is not clear that laws permitting same-sex marriage bear any relevance to this problem. Although not the focus of this study, the results suggest that a major cause of family failure is incarceration (Lynch and Sabol, 2003). Incarceration rates increased rapidly during the period of our study, and they vary considerably among the states. Even with controls for time period, state dummies, and numerous other variables, incarceration appears to raise abortion rates and the percent of children born out of wedlock.

Admittedly, it may be too early to tell exactly what the effects of laws regulating same-sex marriage are at this point because the debates over gay marriage and its legal recognition and bans are in their infancy. Although Badgett (2004) shows that gay marriage laws outside the United States also have no adverse effects on families and children, additional study as more states and nations experiment with permitting gay marriage may provide more conclusive results. Micro-level studies of the impact of such laws in single nations, or in single U.S. states and counties, and aggregate studies using a longer timeframe, may provide more nuanced information.

Our results are limited by the small number of states that have approved gay marriage, and the limited duration of time during which the support has existed. Even with multiple controls, the lack of variance in a key policy variable biases the results in favor of a "no impact" finding; yet we actually find that when states approve gay marriage, there is a beneficial impact for three of five outcomes, and no adverse effect for the other two. Further

research at the micro level, using a longer timeframe would strengthen evidence about the absence (or presence) of societal negative externalities of same-sex marriage or whether the externalities simply are a distaste of the majority. If the latter is the case, there can be no economic justification for state bans of same-sex marriage. Nonetheless, this is the first study to apply data to an important political claim in order test its empirical validity in the United States.

As it stands, governments in the United States have been involved in banning same-sex marriage and its equivalents at local, state, and national levels. This interference into the "open" marriage market is simply not economically justified and results not only in a solution in search of a problem, but also in unintended adverse consequences from the governmental intervention.

For example, the ban on gay marriage induces failures in insurance and financial markets. Because spousal benefits do not transfer (in most cases) to domestic partners, there are large portions of the population that should be insured, but instead receive inequitable treatment and are not insured properly. Larger insurance pools reduce costs for all. This is equally true in the treatment of estates on the death of individuals. In married relationships, it is clear to whom an estate reverts, but in the cases of homosexual couples, there is no clear right of ownership, resulting in higher transactions costs, widely regarded as socially inefficient (Coase, 1960; Demsetz, 1967; Dahlman, 1979). This disruption in the insurance and financial markets would not exist if not for the governmental involvement in banning same-sex marriages.[9]

It is clear from the study here that more information and analysis is warranted in this area. However, our results clearly suggest that no negative externality would result from marriage being open to same-sex couples and there may even be external benefits from legalizing it. We should reexamine our policies in this arena and work toward a more equitable, economically efficient, and judicious legal framework that enables all citizens access to the rights of marriage, the exercise of which does not diminish anyone else's ability to exercise the same right. In this way, we can heed James Madison's (1961) warning that "the instability, injustice, and confusion, introduced into public councils, have, in truth, been the moral diseases under which popular governments have everywhere perished."

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[9]There may also be tax consequences, but it is not clear that this is a market (or nonmarket) failure. For example, Alm, Badgett, and Whittington (2000:201) calculate that "legalizing these marriages would lead to an annual increase in federal government income taxes of between $.03 billion and $1.3 billion, with the likely impact toward the higher range of estimates."

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