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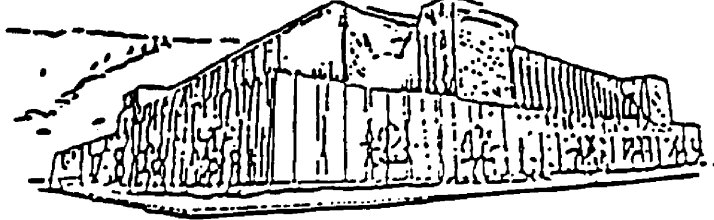
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A LOGIT ANALYSIS OF ABORTION TIMING

By

Susan R. Holmberg

B.A., The University of Montana, 1996

Presented in partial fulfillment of the requirements

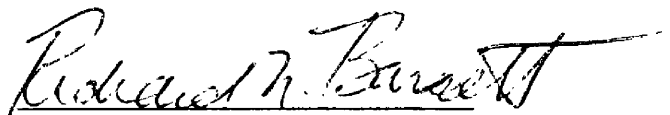
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2000

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Logit Analysis of Abortion Timing (100 pp.)

Director: Richard Barrett RUB

Much of the research that has examined abortion in its economic context has focused on measuring abortion demand, the role that economic costs, like those imposed by abortion regulation, and demographics play in a woman's decision to terminate her pregnancy. Another aspect of the abortion decision amenable to economic analysis is when a woman has her procedure. The National Abortion Federation argues that abortion regulations, in addition to deterring abortion regulations altogether, also cause a woman who does elect abortion to delay when she actually has it, a problematic effect given that the later in a pregnancy an abortion is performed, the greater the medical risk.

This issue was examined using the economic theory of fertility, which argues that the decision to have an abortion is made by weighing the costs and benefits of having an abortion versus having a child. It is hypothesized here that making this decision takes a certain amount of time; the time is determined by both how long it takes to gather the information on the costs of abortion and having the child as well as the degree of difference between these costs.

Using a logit model, this study estimated the probability that a woman defers her abortion past the 12<sup>th</sup> week LMP based on a set of economic and sociological factors. In the analysis, all the coefficients for the economic variables were insignificant, implying that their impact on abortion timing is minimal. The three significant results, TEEN, COLLEGE1, and PREVAB, all represented characteristics that illustrate a woman's ability to gather the relevant abortion information. In terms of the abortion timing hypothesis, it appears that what determines when a woman has her abortion is not the set of economic costs she faces but her ability to learn about such costs. What this suggests about state regulations that impose, at the very least, a time cost is that they are unlikely to lead women to defer when they have the procedure. However, given that a Mississippi study indicates that regulations do result in deferral, the economic issue of abortion timing deserves further research.

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## CHAPTER 1

### INTRODUCTION

Twenty-seven years ago, *Roe v. Wade* recognized a woman's right to an abortion based on the notion of the "trimester framework."<sup>1</sup> Within this framework, states were restricted from regulating first-trimester abortions, but were allowed to regulate abortions in the later months of pregnancy.<sup>2</sup>

In response to this ruling, individual states began regulating abortion in ways believed to be permissible under *Roe v. Wade*; one such state was Pennsylvania. Prior to 1991, Pennsylvania had three abortion regulations in place, informed consent, spousal notification, and parental consent.

Pennsylvania's informed consent statute mandated that, at least 24 hours prior to performing the abortion, a physician provide a woman necessary medical information

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<sup>1</sup> See Appendix A for a comprehensive history of Supreme Court decisions on reproductive issues.

<sup>2</sup> Emanuel (1998-99) provides an overview of reproductive constitutional law in the United States.

about the procedure and the estimated gestational age of the fetus. It also required an abortion provider or a qualified abortion staff to provide a woman information on non-abortion alternatives, such as adoption and available financial services. Pennsylvania's spousal notification provision required a married woman to sign a document stating that she had notified her husband of her pending abortion.<sup>3</sup> Finally, the state's parental consent law required either parent of a young woman under 18 to provide informed consent in order for the teenager to have an abortion.<sup>4</sup>

In 1991, Planned Parenthood of Southeastern Pennsylvania contested Pennsylvania's three abortion regulations on the basis that they violated *Roe v. Wade*. The Supreme Court's decision in this case upheld most of Pennsylvania's regulations and, in fact, overruled the "trimester framework." States were then allowed to impose abortion regulations in the first trimester so long as such laws did not place an "undue burden" on a woman's ability to choose to have an abortion.

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<sup>3</sup> This law included exceptions for both women whose pregnancy was the result of sexual assault and for women who believed that notifying their husbands would result in physical abuse.

<sup>4</sup> The provision allowed for a "judicial bypass," by which a court could authorize a young woman's abortion without her parent's informed consent.

What constitutes an undue burden on a woman's right to abort is certainly a litigious issue in the already contentious abortion debate. Yet, in *Penn. V. Casey*, the Supreme Court gave clear examples of what they did and did not consider an undue burden. For example, they ruled that Pennsylvania's spousal notification law did impose an undue restriction and overturned the decision on the basis that it neglected to protect a woman who would potentially face psychological abuse, rather than physical abuse, by notifying her spouse. On the other hand, the Court found that both the parental consent and informed consent statutes did not present an undue burden and, thus, upheld these provisions.<sup>5</sup>

Economists are studying the effects of state abortion regulations by treating them as though they imposed an economic cost and conducting demand analysis. These economic studies assess whether or not a woman is deterred by either the costs associated with abortion laws and/or other economic costs of abortion.

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<sup>5</sup> Appendix B provides the current status of all state mandatory delay, informed consent, and parental consent laws as well as present Medicaid funding restrictions. Appendix C provides Montana's current status of all abortion regulations. Currently, Montana does not impose either a parental consent or mandatory waiting period restriction. Also, Montana does not restrict their use of state Medicaid funds to pay for abortions.

While consumer demand theory is useful in studying a woman's abortion decision, it is not limited to just the study of whether or not a woman has the procedure. It can also be used to study the effect of state regulations on the timing of abortion.

The National Abortion Federation (NAF) argues that state regulations like Pennsylvania's parental consent and 24 hour informed consent laws affect women who have abortions by deferring when they have them.<sup>6</sup> In other words, they argue these laws may cause a woman to have a late abortion. If this is so, the laws that were designed to lessen the number of abortions are, ironically, also increasing the gestational age of some terminated pregnancies.

What is undesirable about this possible effect of state abortion laws is that the medical risk and physical pain associated with abortion increases as the gestational age increases. Through most of the first trimester, abortion procedures are considered relatively safe and uncomplicated.<sup>7</sup> However, as a pregnancy nears the end of the first trimester, at around 13 weeks, abortion becomes

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<sup>6</sup> This statement was obtained from the National Abortion Federation website [www.prochoice.org/facts/after12w.html](http://www.prochoice.org/facts/after12w.html) on June 15, 2000.

<sup>7</sup> See Gold (1990).

more problematic. Specifically, the risk of serious abortion complications increases as abortions are performed in the second trimester. These complications include infection; uterine perforation; cervical laceration; hemorrhaging; a missed abortion or "continued pregnancy;" postabortal syndrome<sup>8</sup>; and death<sup>9,10</sup>.

Do economic factors, including the costs imposed by state regulation, place a woman at greater medical risk by deferring when she has her abortion? This thesis will address this question by using consumer demand theory, the same theory used to determine whether or not a woman has an abortion at all, to determine the impact of economic factors on the timing of the abortion decision.

This study will focus on women who had abortions in Missoula, Montana. The reason for choosing this locale is that Blue Mountain Clinic (BMC), a Missoula based family practice clinic that provides abortion services, has made survey data of their abortion clients available to this study.

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<sup>8</sup> Postabortal syndrome happens when the uterus does not properly contract, preventing blood from leaving the uterus after the abortion procedure.

<sup>9</sup> The Alan Guttmacher Institute reports that the risk of death associated with abortion increases with the length of pregnancy, from 1 death for every 530,000 abortions at 8 or fewer weeks to 1 per 17,000 at 16-20 weeks and 1 per 6,000 at 21 or more weeks. See website [www.agi-usa.org](http://www.agi-usa.org).

<sup>10</sup> See *The New Our Bodies, Ourselves* (1992).

This study cannot directly assess the impact of abortion restrictions on abortion timing due to the limitations of the data.<sup>11</sup> However, it is possible to infer how a woman behaves when facing the costs imposed by abortion regulation by looking at her response to other economic costs. This study will indirectly measure the impact of regulation by treating regulation as another cost associated with abortion services.

### Thesis Organization

This thesis is organized as follows. Chapter Two reviews sociological and economic studies to build the economic logic of the decision when to have an abortion. Chapter Three describes the data and statistical model used to study abortion timing. Chapter Four presents results and discusses the economic and policy implications of these figures. Chapter Five summarizes the findings and includes suggestions for further research on the economics of abortion timing.

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<sup>11</sup> In order to directly assess the effects of abortion regulations on abortion timing, the data must be either multi-state, with which a comparison study of regulatory and non-regulatory states can be conducted, or time-series, with which an analysis of a state that has changed its abortion policies can be done.



## CHAPTER 2

### LITERATURE REVIEW

The hypothesis that economic variables affect when a woman terminates her pregnancy does not readily follow from consumer demand analysis and, thus, is not derived from an established economic model. However, by applying previous economic and sociological studies on abortion, a theoretical framework with which to study abortion timing can be developed.

This chapter first presents data on abortion trends in the United States, trends whose causes both economic and sociological researchers have been working to identify. Secondly, previous abortion demand studies will be described in order to provide the theoretical context with which to study abortion timing. Next, this chapter describes a sociological study that includes an analysis of the impact of restrictive laws on abortion timing. With these descriptions of previous abortion research in mind, the remaining portion of this chapter will develop how to

logically model the economic determinants of abortion timing.

### Abortion Trends

An important reason analysts study abortion, in both economic and sociological terms, is that while abortion legislation has become more cumbersome, the number of reported abortions has noticeably decreased. According to Henshaw (1998), abortion rates (abortions per 1,000 women aged 15-44 per year) gradually climbed from 16.3 in 1973 to 29.3 in 1981 and then steadily declined to almost 23 by 1996. Changes in abortion ratios (abortions per 100 pregnancies per year ending in abortion or live birth) were similar, ranging from 19.3 in 1973, up to approximately 30 in the early 1980's, and back down to 26.1 in 1996. See Table 2.1.

This pattern in abortion trends, from increasing once Roe v. Wade was decided to eventually decreasing has led economists to study what determines the decision to have an abortion. Have federal and state regulations affected the number of abortions? Do these trends reflect a woman's increasing participation in the work force? Economists interested in these questions have conducted abortion demand analyses, which essentially estimate the impact of

various economic and sociological factors on abortion rates.

TABLE 2.1.

NUMBER OF REPORTED ABORTIONS (in Thousands), ABORTION RATE\*, AND ABORTION RATIO\*\*, UNITED STATES, 1973-96<sup>12</sup>

Year	Abortions	Rate	Ratio
1973	744.6	16.3	19.3
1974	898.6	19.3	22.0
1975	1,034.2	21.7	24.9
1976	1,179.3	24.2	26.5
1977	1,316.7	26.4	28.6
1978	1,409.6	27.7	29.2
1979	1,497.7	28.8	29.6
1980	1,553.9	29.3	30.0
1981	1,577.3	29.3	30.1
1982	1,573.9	28.8	30.0
1983	1,575.0	28.5	30.4
1984	1,577.2	28.1	29.7
1985	1,588.6	28.0	29.7
1986	1,574.0	27.4	29.4
1987	1,559.1	26.9	28.8
1988	1,590.8	27.3	28.6
1989	1,566.9	26.8	27.5
1990	1,608.6	27.4	28.0
1991	1,556.5	26.3	27.4
1992	1,528.9	25.9	27.5
1993	1,500.0	25.4	27.4
1994	1,431.0	24.1	26.7
1995	1,363.7	22.9	26.0
1996	1,365.7	22.9	26.1

\*, \*\* indicate abortions per 1000 women aged 15-44 and abortions per 100 pregnancies ending in abortion or live-birth, respectively.

<sup>12</sup> This data was taken from Henshaw (1995-96).

### Abortion Demand

When economists began examining the effects of both abortion policy and other economic costs on abortion rates, economic fertility analysis was already well established. Robinson (1997) states that the economic theory of fertility had been developed and applied to the growing volumes of population and contraceptive use survey data that previously served only as the source of descriptive statistics. In other words, demography and other studies that focused on fertility were well-developed empirical disciplines but lacked any theoretical framework. Economics provided this framework by treating fertility as a result of rational decision making, incorporating fertility decisions into consumer demand theory.

According to Robinson, Harvey Leibenstein, in 1957, first articulated the economic theory of fertility by applying cost-benefit analysis, focusing on the decision making process of fertility at the margin. There, a couple rationally chooses whether or not to have another child by weighing the expected utilities and disutilities.

Later, Gary Becker brought Leibenstein's work into the household production function framework, where the household itself produces its own utility with internal resources, known as "household technology" and external, or

purchased, resources. Children, then, are the product of this "household technology," a special type of "capital good" who require initial and periodic maintenance expenditures. Children produce child-services over time, who provide utility for parents. As with Leibenstein, parents weigh the utility of the child's "production" against its disutility, or costs, when making their reproductive decision. If costs exceed benefits, fertility control is used. One such method of fertility control is abortion.<sup>13</sup>

The typical demand model of abortion services incorporates price, income, demographic factors which represent consumer preferences, and public policy constraints. Coelen and McIntyre conducted one of the first such studies in 1973 by analyzing abortion policy effects on Hungary's abortion rates. Three years after *Roe v. Wade*, Deyak and Smith did a similar analysis in the United States.

This chapter describes in detail two abortion demand studies, conducted by Medoff (1988) and Garbacz (1990). These analyses are the best examples available of abortion

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<sup>13</sup> Other fertility control options include contraception and adoption.

demand studies using fairly current data and reflecting the experience of the United States after Roe v. Wade in 1973.

Using regression analysis, Medoff estimates an equation of the form:

$$A_i = \beta_0 + \beta_1 P_i + \beta_2 Y_i + \beta_3 \text{SNGL}_i + \beta_4 \text{LFP}_i + \beta_5 \text{CATH}_i + \beta_6 W_i + \beta_7 M_i + u_i$$

The dependent variable is the number of abortions per 1,000 pregnancies for each state in 1980.

$P$  is the price of abortions. Its coefficient  $\beta_1$  can be used to assess the impact that prohibiting abortion would have on the abortion demand. Medoff argues that because abortion is not fundamentally different from other goods and services, the law of demand will apply to abortion; making it illegal would dramatically raise the service's price and decrease the abortion rate. In the estimation,  $P$  is measured by the average price of an abortion in nonhospital facilities performed in the first trimester in each state.

Income ( $Y$ ), which reflects the budget constraint, is the average income in each state of women fifteen to forty-four years old.

A woman's marital status ( $\text{SNGL}$ ) is relevant to the abortion decision because, for a single woman, the costs of

an additional child are much higher than for a married woman. Married women, presumably, have the advantage of shared household responsibilities with their spouse, lessening the costs of caring for an additional child. SNGL is the percentage of women aged fifteen to forty-four in each state who are unmarried and is argued to have a positive effect on the abortion rate.

The female labor force participation rate (LFP) shows the likelihood that a woman would be earning wages she would have to give up if she had a child.<sup>14</sup> Women who are working are expected to have a higher demand for abortions. LFP is the labor force participation rate for each state for women 15-44.  $\beta_4$ , the coefficient on LFP, is predicted to be positive.

Medoff argues that demographic factors influence consumer preferences. One such factor is religion. The Roman Catholic Church unambiguously disapproves of abortions. Being Catholic increases the psychological cost to a woman of obtaining an abortion and, therefore,

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<sup>14</sup> This particular opportunity cost seems to be a contentious issue within feminist economics. Considering that many women simultaneously work and raise children, it seems outdated to interpret a woman's wages as something they would give up to have children. On the other hand, women are both participating relatively more in the labor force and having relatively fewer children, a seemingly negative correlation.

decreases demand. The CATH variable is the percentage of Catholic population in each state.

Another difference that is relevant to the abortion decision is liberal convictions. Medoff states that most fertility studies assume constant tastes across populations. However, he asserts that states in the Far West (California, Oregon, Washington, Nevada, Arizona and Hawaii) are more liberal than other states in terms of social stability and social norms.<sup>15</sup> Thus, W is a dummy variable that equals 1 for states of the far West and is expected to have a positive effect on the abortion rate.

M is a dummy variable that equals one for states that provided Medicaid funding for poor women who sought abortions in 1988, the study year. Its impact is predicted to be positive given that women who receive state funding do not face the same costs as women who live in states that do not provide Medicaid insurance for abortions. U is the error term.

Medoff examines two policies in his abortion demand analysis, the overall constitutional prohibition of abortion and the cessation of Medicaid funded abortions.<sup>16</sup>

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<sup>15</sup> On the contrary, Arizona is arguably a politically conservative state.

<sup>16</sup> In 1996, the Hyde Amendment barred federal funding of abortions using Medicaid funds. In 1997, a revised Hyde Amendment allowed states to deny the use of Medicaid funds for abortions.



Medoff found that other things equal, in Medicaid states, women would have, on average, forty-four more abortions per thousand pregnancies than in states that do not provide public funding. In other words, states that eliminated Medicaid funding would have seen a 17.5% decrease in their 1980 abortion rates. Also, he found a significant negative relationship between price and abortion. Demand was inelastic at  $-.81$ .<sup>17</sup> Medoff argues that if, for example, the illegal price of abortion was 50% higher than the prevailing market price, making abortion illegal would decrease the abortion rate 40.5%, holding all else constant.<sup>18</sup>

Other results from the study were that the percent single and percent in the labor force were both found significantly positive; women in western states have eighteen more abortions per thousand pregnancies, *ceteris parabus*; income was significantly positive with an elasticity of  $.71$ ; and a state's Catholic population had little effect on the demand for abortions.

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<sup>17</sup> Elasticities for this study were calculated at the mean.

<sup>18</sup> Estimating that the price of abortion would increase by 50% seems to underestimate the total increase in costs that women would face if abortion was not legal. Not only would the price of an illegal abortion be higher, women would face the risk of going to jail, increased medical risks, and the emotional stress of not having abortion readily available.

Garbacz's abortion demand study is useful because he attempts to determine if teenagers behave differently than adult women in the abortion decision. He does this by running regressions for the total reproductive age group as well for separate age groups 15-17, 15-19, and 20-44. His equation for the total reproductive age group is of the form:

$$\text{TOTAL}_i = \beta_0 \text{PRICE}_i + \beta_1 \text{INCOME}_i + \beta_2 \text{MEDICAID}_i + \beta_3 \text{URBAN}_i + \beta_4 \text{BLACK}_i + \beta_5 \text{GALLUP}_i + \beta_6 \text{ED} + \beta_7 \text{SITE}_i + u_i$$

The dependent variable is the abortion rate per thousand pregnancies for each state (TOTAL) in 1982. For the overall 15-44 age group, data was available from all states. For the individual age groups, data was available from 37 states.

Garbacz's price variable (PRICE) is the average price in each state of an abortion using a local anesthetic, in nonhospital facilities, and performed the first ten weeks. Garbacz expects, like Medoff, that the abortion rate and price will have a negative relationship. However, he recognizes that the price variation between states is not very large<sup>19</sup>.<sup>20</sup> Income (INCOME) is the disposable personal

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<sup>19</sup> The standard deviation is 10.9% of the mean.

<sup>20</sup> Medoff did not address this price variation.

income per capita in each state for 1982. This measure is different from Medoff's, which was women's, rather than per capita, income.<sup>21</sup>

Unlike Medoff, Garbacz includes a variable for travel cost, which addresses the relevant problem that many women do not have adequate access to abortion services. Women who travel long distances have relatively higher costs associated with having an abortion than women who live close to an abortion provider. Garbacz's variable SITE represents the travel cost for women residing in rural areas. It is the number of abortion sites per million population of reproductive age that are located in rural areas of each state.

URBAN is the percentage of the population in each state that resides in an urban area. Garbacz argues the importance of including an urban variable (URBAN) in the model to measure access to abortion services. Yet, urban areas may also capture Medicaid effects because most states that are relatively more urban are more likely to provide Medicaid coverage.<sup>22</sup> He attempts to identify these effects separately by comparing regressions in which both MEDICAID

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<sup>21</sup> Garbacz notes this difference but does not explain it.

<sup>22</sup> Urban areas may also capture the effects of Garbacz's SITE variable. Presumably, women who live in urban areas have better access to abortion providers than women in rural areas, which is what Garbacz intended for SITE to measure.

and URBAN and only MEDICAID, without URBAN, are included. MEDICAID is a dummy variable for states that provide funding for abortions. The coefficients on both URBAN and MEDICAID are hypothesized to be positive.

Instead of the female labor force participation rate, Garbacz uses education (ED) to represent the opportunity cost of having a child. ED is the percentage of the population twenty-five years or older that had earned a high school degree or GED.

Garbacz's specification of demographic variables reflecting preferences is slightly different than Medoff's. Instead of a Far West variable for liberal taste, he includes an attitudinal measure from the GALLUP Poll (GALLUP), which is the percentage of the population from four census regions that support Roe v. Wade.

Because black women have a greater abortion rate than white women, Garbacz includes the variable BLACK, the percentage of women of child-bearing age who are black in each state.<sup>23</sup> He expects the effect to be positive for adults and negative for teenagers.  $U$  is the random variable.

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<sup>23</sup> However, white teenagers have 1.45 the abortion rate of black teenagers.

For the overall age group, Garbacz's price and income coefficients were found to be statistically significant with elasticities of  $-.68$  and  $.84$ , quite similar to Medoff's.<sup>24</sup>

In the model that includes all ages, both URBAN and SITE were found positive and statistically significant. As opposed to Medoff's analysis, MEDICAID was not found to be statistically significant. Yet, when URBAN is dropped from the model, MEDICAID has almost the same elasticity as in Medoff's. This suggests that the true effect MEDICAID has on the abortion rate is unknown, leaving the issue of Medoff's significant MEDICAID variable unresolved.

For the model that includes all ages and both URBAN and MEDICAID, BLACK, GALLUP, and ED are not found to be significant. Garbacz finds that BLACK is both negative and significant for teenagers. Neither URBAN nor GALLUP have a significant effect on teenage abortion rates.

#### Abortion Timing

Both Medoff's and Garbacz's abortion demand models are examples of how abortion trends are being studied by economists. No comparable economic research has been

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<sup>24</sup> Garbacz's elasticities are also calculated at the mean.

conducted on the timing of abortion. Sociologists, however, have addressed this pertinent issue.

While examining the effects of state mandatory delay laws on abortion trends, Althaus and Henshaw (1994) studied both abortion rates for women in Mississippi and gestational ages at the time of abortion. Mississippi's mandatory delay law went into effect in August 1992. It requires that a woman receive, in person, information on abortion 24 hours before her scheduled procedure. This includes the name of the abortion provider; the medical risks associated with abortion; the estimated gestational age of the fetus; the medical risks of carrying the pregnancy to term; and the financial options made available to women who decide against abortion. Because the law mandates that women must receive this information in person, it requires two visits to the provider clinic.

Althaus and Henshaw acquired their data from the Mississippi State Department of Health, Division of Public Health Statistics. The data are tabulations of the number of Mississippi residents and nonresidents who received abortions each month in 1992. For residents of Mississippi, age, race, education level, county of residence and gestation of the pregnancy were recorded. To determine whether women went to neighboring states for

abortions, the same data was collected for Mississippi residents from the adjacent states of Alabama and Tennessee.

After controlling for monthly fluctuations in abortion rates, abortions performed dropped 22% in the six months following the imposed mandatory delay law. Simultaneously, the number of residents of other states who had abortions in Mississippi decreased by 30% and 17% more Mississippi residents had abortions in Alabama and Tennessee than before the state law.

The gestational ages at which pregnancies were terminated changed significantly. Among Mississippi residents having abortions, the percentage having the procedure at less than 9 weeks fell by 25%. Abortions performed at greater than 12 weeks increased by 17% in the two periods.<sup>25</sup>

Althaus and Henshaw also examined which women may have been more affected by the 24-hour delay law. For those without a high school degree, there was a 28% decrease in abortion as compared to a 10% decline for high school graduates. Neither age nor race was statistically significant. Also, the abortion rates among women who lived within a county with an abortion provider, within 50

miles of a provider, and lived farther than 50 miles from a provider did not vary after the mandatory delay law was imposed.

### Economic Theory and Abortion Timing

Developing the argument that economic variables determine when a woman decides to have her abortion requires using the abortion demand model applied in the previously described research. The abortion demand model hypothesizes that a woman chooses to have an abortion or keep her pregnancy by using the utility maximizing cost-benefit analysis. If the net costs of having the child are higher than the net costs of aborting it, the abortion demand model states that a woman will terminate her pregnancy.

There are, arguably, two components to a woman's fertility decision process, learning about the relevant cost information and weighing it. A woman learns what the costs and benefits of having an abortion are and having a child and then she weighs those costs in order to make her decision.<sup>26</sup>

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<sup>25</sup> No information was reported for between weeks between 9 and 12.

<sup>26</sup> Costs associated with abortion include the price of the abortion, the travel cost, the physical discomfort of the procedure, and the psychic or spiritual cost of terminating a pregnancy. The costs of keeping the child include the financial costs of raising the child; the opportunity cost of lost wages;



Inherent to this two-step process is that it requires a certain amount of time. Given that women evidently abort their pregnancies at different times, it seems women take different amounts time to make their decisions. Because the abortion decision process has two components, this varied time could be attributed to either the time it takes to learn about their fertility options, the time it takes to weigh them, or both.

In terms of gathering the fertility option information, a woman who is well educated and has accomplished goals that require initiative, would arguably take a relatively short amount of time collecting information about her fertility decision. Alternatively, a young girl who does not have the personal experience necessary to collect information on the net costs of fertility options would take a relatively longer time obtaining such information.<sup>27</sup>

In the economic model of fertility, the relative economic costs determine if a woman aborts or keeps her

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the opportunity cost of future opportunities related to education, employment, or recreation; and the physical cost of the pregnancy.

<sup>27</sup> The Alan Guttmacher Institute states that 20% of all abortions are performed on teenagers. Of second trimester abortions, that percentage increases to 33%. This information was obtained from the Alan Guttmacher Institute website [www.agiusa.org/pubs/fb-induced-abortion.html](http://www.agiusa.org/pubs/fb-induced-abortion.html).

pregnancy.<sup>28</sup> The costs and benefits associated with making the abortion decision may also well determine when the decision is made. From the fertility model, a woman who terminates her pregnancy considers the costs of having the child to be higher than the costs of the abortion. How long it takes her to make the decision to abort could be determined by the relative difference between her net costs. More specifically, if a woman has low costs associated with abortion relative to the costs of having the child, it is a clearer, more obvious decision for her to make and, thus, she will make it earlier. Consider, for example, a woman who lives close to an abortion provider and has no moral dilemma associated with abortion. Simultaneously, she has a high paying job, and therefore, a high opportunity cost of having a child. Given these choices, she will presumably have greater ease in making her decision to have an abortion and will make it earlier.

Alternatively, if a woman's costs of having an abortion are relatively close to the opportunity costs of her having the child, she will have a harder time making

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<sup>28</sup> Another fertility option is adoption. Throughout the literature, however, adoption was intentionally ignored because it is chosen so rarely. Despite this omission, it is still a relevant option and warrants mentioning. In terms of the economic model of fertility, then, adoption is presumably rarely

the decision. This difficulty requires a longer time. For example, if a woman is conservative and finds terminating her pregnancy morally troublesome, which is a high psychological cost associated with abortion, and she is married, which Medoff argues lessens the cost of having a child, she has a more complicated choice to make. Because her options are more ambiguous, she will take a longer time to make her decision.

#### Chapter Conclusion

The hypothesis that economic factors affect when a woman aborts her pregnancy is somewhat intuitive rather than formal. However, previous research in both sociology and economics provide the empirical and theoretical contexts within which to think about this hypothesis. Sociologists have illustrated how abortion trends have changed, indicating that the timing of abortions requires analyses in an economic framework. Abortion demand studies are useful to this study by both demonstrating that the decision to have an abortion can be placed in a cost-benefit decision making framework and by determining which costs and benefits are weighed in the decision. In this theoretical framework, a woman has her abortion only after

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chosen because the psychic cost of carrying a child and then giving that child up is very high.

enough time has elapsed for her to weigh the costs and benefits of her abortion decision. Both learning about the costs associated with the abortion decision and the degree of separation between these costs are what determine how long it takes a woman to decide whether or not to have an abortion.

## CHAPTER 3

### DATA AND EMPIRICAL SPECIFICATION

This chapter describes the data used to study the determinants of gestational ages at the time of abortion. It then builds an econometric model of the abortion timing decision based on client economic and sociological characteristics. Each of the independent variables is described and a hypothesis presented regarding their individual effects on abortion timing. The model seeks to explain the factors that delay abortion beyond 12 weeks from the last menstrual period. Following the model explanation, descriptive statistics on the model's independent variables are provided.

#### Data

The data used in this study is from Blue Mountain Clinic (BMC), a family practice clinic in Missoula, Montana that provides abortion services.<sup>29</sup>

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<sup>29</sup> Planned Parenthood of Montana, as well as various private physicians, also provide abortions in Missoula.

The data was collected in two ways. First, BMC clinic administered a survey to all of its abortion clients from the first abortion service day in October 1998 to the last abortion service day in September 1999.<sup>30</sup> Three hundred and forty one clients were asked to complete the survey.<sup>31</sup> Each patient was asked to provide information on her income level; number of people supported by household income; ethnicity; education level; employment status; student status; medical insurance coverage status; means of payment (including insurance, when available); and reasons for choosing Blue Mountain Clinic as her provider.<sup>32</sup>

The second set of data was from the chart information of the surveyed clients.<sup>33</sup> For each client, these included the gestational age of the pregnancy at the time of abortion; the number of days between the date of her positive pregnancy test and when she called the clinic to seek an abortion; number of previous pregnancies, including the number of previous live births, miscarriages, and abortions; city of residence; and her age.

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<sup>30</sup> Blue Mountain Clinic typically provides abortions three times per month. The number of patients provided abortions on these days ranges from as few as 5 to as many as 20.

<sup>31</sup> Each client filled out at least some portion of the survey. However, not every client completed the survey.

<sup>32</sup> A copy of the survey is provided in Appendix D.

<sup>33</sup> This information has been treated confidentially.

Not all of the variables obtained were used in this analysis. However, descriptives for all of the variables were calculated at the request of Blue Mountain Clinic and are reported in Appendix E.

### General Model and Hypothesis

This thesis seeks to estimate the probability that a woman defers her abortion past the 12<sup>th</sup> week LMP. A model predicting this probability is given by:

$$P_g = f[\text{TRAVEL, TEEN, PREVAB, INCOME, COLLEGE1, WHITE, LFP, MARRIED}] \quad (3.1)$$

$P_g$  is the probability that a woman will defer her abortion past the 12<sup>th</sup> week LMP. The reason for choosing this gestational age is that the 13<sup>th</sup> week is nearing the second trimester and is when medical risks associated with the abortion service increase.

**TRAVEL** is the miles that a woman traveled to obtain an abortion. TRAVEL represents the travel cost associated with having an abortion; the farther a woman must travel to obtain an abortion, the higher the abortion cost. The higher the costs associated with abortion, the less clearly preferable it is to have the procedure. It is hypothesized

that a higher travel cost will increase the probability that a woman will have an abortion after the 12<sup>th</sup> week.

Montana does not currently have any active abortion restrictions. However, TRAVEL can be used to assess the effects of a mandatory delay law, which imposes a time cost on women seeking abortions. Like a delay law, travel imposes costs in the form of time loss and, in some cases, out of pocket expenses for overnight stays away from home.

As mentioned in the previous chapter, Garbacz used SITE, or the number of abortion sites per million population of reproductive age that are located in rural areas of each state, to capture the travel cost effect. TRAVEL is a more precise measurement. It was calculated by measuring the distance in miles between a client's city of residence and Missoula, the locale of Blue Mountain Clinic.<sup>34</sup> If a client's city of residence was Missoula, it was assumed that their miles traveled was 5.

**TEEN** is a dummy variable measuring whether a woman is younger than eighteen years old. The control group is adult women eighteen or older. As discussed in Chapter 2, teenagers might take a longer time in gathering and

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<sup>34</sup> This was estimated in November 1999 by an Infoseek website that calculated distances. The web address is [www.mapquest.com/infoseek/mqtripplus](http://www.mapquest.com/infoseek/mqtripplus).



assessing their information on the costs of both abortion and maintaining the pregnancy. Thus, they are hypothesized to terminate their pregnancies later rather than earlier. TEEN is hypothesized to have a positive coefficient.

**PREVAB** is a dummy variable measuring whether or not a woman has had a previous abortion. Its inclusion follows the line of reasoning that the amount of time it takes to gather the necessary information relevant in making the abortion decision determines the timing of the decision. If a woman has had an abortion, she has already taken the time to gather information; the timing of the decision only depends on the time it takes to weigh the relative costs and benefits. PREVAB is hypothesized to be negatively associated to the probability that a woman has her abortion at 13 weeks or later.

**INCOME1** is the level of a client's household income. Medoff and Garbacz contend that abortion is a normal good, indicating that when income increases, demand for abortion increases. This implies that the higher a woman's income, the higher is the opportunity cost associated with having a child. In this study, it is hypothesized that the greater the relative difference between the costs of the abortion and the cost of childrearing, the faster the choice to

abort or not is made. Thus, the higher the income level, the lower the probability that a woman will defer her abortion past the 12<sup>th</sup> week. Income is argued to be negatively related to  $P_g$ .

In the survey, INCOME is recorded in one of eight categories.<sup>35</sup> Inclusion in a category is represented by dummy variables, with household income under \$5,000 being the base case. Thus, there are 7 dummy INCOME variables, each labeled by number. For example INCOME2 is the dummy variable for the 2<sup>nd</sup> lowest income category, "\$5,001-\$15,000." INCOME8 is the income category, over "\$65,000."

**COLLEGE1** is a dummy variable indicating whether a woman has gone to one year of college. It is assumed that the timing of the abortion decision is informed by how long it takes a woman to gather the information that is weighed in the fertility decision. If a woman is educated, she may already have that information or she may be more efficient, from experience, in getting the information.

It is hypothesized that having completed a year of college indicates a level of experience not necessarily

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<sup>35</sup> The income categories are: \$5,000, \$5,001-\$15,000, \$15,001-\$25,000, \$25,001-\$35,000, \$35,001-\$45,000, \$45,001-\$55,000, \$55,001-\$65,001, and over \$65,000.

obtained with a high school diploma.<sup>36</sup> Women who have gone to college have taken the initiative to apply for college and complete two semesters. This demonstrates a level of maturity required to gather the fertility decision information. Thus, COLLEGE1 is hypothesized to be negatively related to Pg.

**WHITE** is a dummy variable measuring whether a woman is Caucasian. The base case represents women who are Native American, African-American, Spanish, or Asian.

This ethnic variable is included in this study to be congruent with both Garbacz's study, which included a dummy variable for the percentage of women of child-bearing age who are black in each state, and other sociological studies that measure abortion trends by racial groups.<sup>37</sup> Garbacz stated that black women have a higher abortion rate than white women. Presumably, any factor that raises the abortion rate for a group tends to reduce the probability of delay. Thus, WHITE is hypothesized to be positively related to the probability that a woman defers past the 12<sup>th</sup> week LMP.

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<sup>36</sup> Garbacz measured education as the percentage of the population twenty-five years or older that had earned a high school degree or GED.

<sup>37</sup> One example of such a study is "Sociodemographic Determinants of Abortion in the United States" by Powell-Griner and Trent (1987).

**LFP** is a dummy variable measuring whether a woman is employed. According to Medoff, a woman who is working is earning wages she would have to give up if she had a child and is expected to have a higher demand for abortions. That logic applied to this study would mean that a woman who was employed would make her abortion decision faster than women who do not work. However, women who work also have higher costs associated with abortion. LFP could represent the opportunity cost of arranging to miss and losing a work day to have an abortion, which would arguably have a positive effect on the probability of deferring an abortion. Thus, the effect LFP has on the probability that a woman has her abortion past the 12<sup>th</sup> week LMP is unknown.<sup>38</sup>

**MARRIED** is a dummy variable representing women who are married. The base case represents women who are single, divorced, or separated. Medoff included a variable for single women arguing that single women have higher costs associated with having the child than married women. Alternatively, married women have lower costs associated with having the child. Married women, based on their set

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<sup>38</sup> Because the expected sign the coefficient is unknown, a two-sided t-test is necessary.

of costs, are expected to be more ambivalent about abortion than single women and, therefore, more likely to delay.

### Variable Description

Table 3.1 presents descriptive statistics for AGE, AB, and LMP, and TRAVEL. AGE is the client's age. AB is the number of previous abortions each client has previously had. LMP is the gestational age (by last menstrual period) of each client's terminated pregnancy. TRAVEL is miles each client traveled to Blue Mountain Clinic.

TABLE 3.1

#### DESCRIPTIVES

	N	Minimum	Maximum	Mean	Std. Deviation
LMP	285	3.5	14.5	8.067	2.565
TRAVEL	294	5.0	711.7	90.729	94.651
AGE	295	15	46	25.13	6.71
AB	285	0	5	.47	.82

Table 3.2 presents frequencies for the model's dummy variables. LMP13, TEEN, and PREVAB are the dummy variables formed from LMP, AGE, and AB. LFP, or labor force participation, is a dummy variable for women who work. COLLEGE is a dummy variable for women who have gone to at least one year of college. WHITE is a dummy variable representing a Caucasian woman, rather than a Native American, African-American, Hispanic, or Asian woman.

Finally, INCOME1 through INCOME8 represent the different levels of household income. INCOME1 is the base case.

TABLE 3.2

## FREQUENCIES FOR DUMMY VARIABLES

VARIABLE	N <sup>39</sup>	0 Values	1 Values	1 Values/N
LMP13	285	263	22	7.7
TEEN	295	270	25	8.5
PREVAB	285	190	95	33.3
MARRIED	324	272	52	16.05
WHITE	317	30	287	90.5
COLLEGE1	327	130	197	60.2
INCOME1	300	58	242	19.3
INCOME2	300	96	204	32.0
INCOME3	300	58	242	19.3
INCOME4	300	34	266	11.3
INCOME5	300	16	284	5.3
INCOME6	300	13	287	4.3
INCOME7	300	8	292	2.7
INCOME8	300	7	293	5.7

As illustrated in Table 3.2, over 50% of the clients indicated their household income was less than \$15,000.

Pie Chart 3.1 illustrates the distribution of household income for clients under 23 years old. Pie Chart 3.2 illustrates the distribution of household income for clients 23 and older. When comparing these graphs, it is noticeable that almost 70% of the clients under age 23 indicated their income was \$15,000 or less and

<sup>39</sup> The number of observations differs for each variable because some clients did not complete the survey.

approximately 37% of women 23 and older reported income \$15,000 or less.

It is not realistic that most of the younger women live in households with low income and women over 22 live in relatively high-income households. Presumably, many of the younger women, rather than indicating their household income, reported their personal income. If this is so, INCOME is mismeasured.

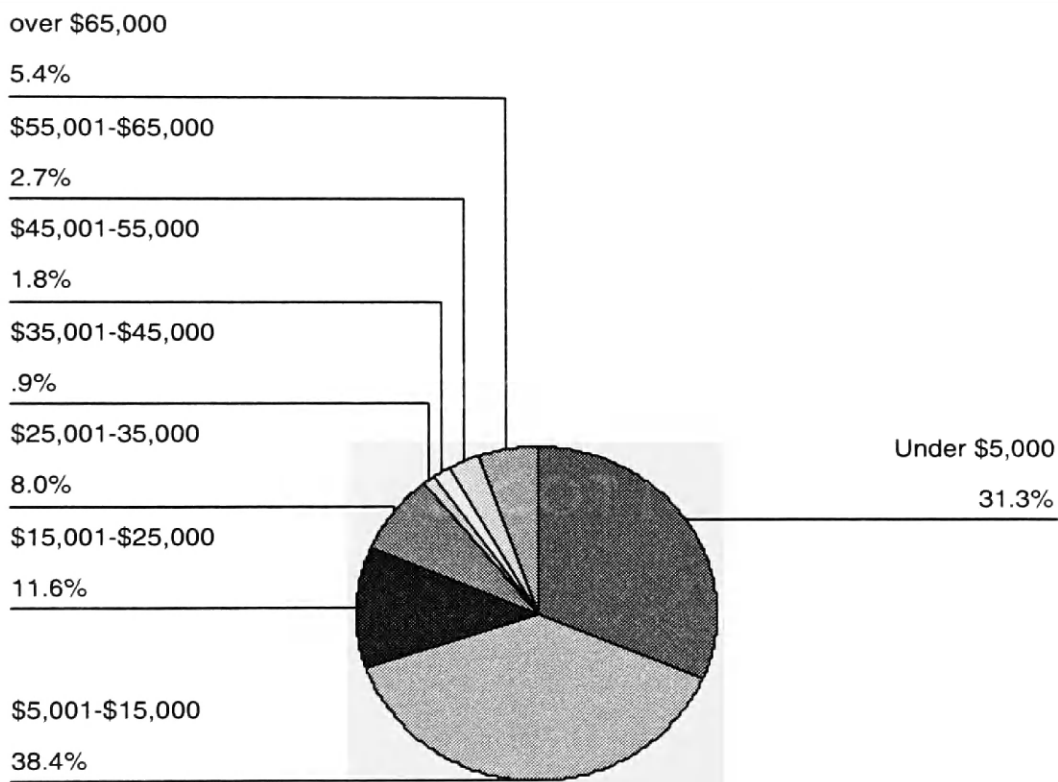
Despite this potential sampling problem, INCOME is retained in the model because of its theoretical importance. The problem can be lessened by reducing INCOME from 8 categories to 2.<sup>40</sup>

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<sup>40</sup> INCOME1 and INCOME2 represent the 1 values.

PIE CHART 3.1

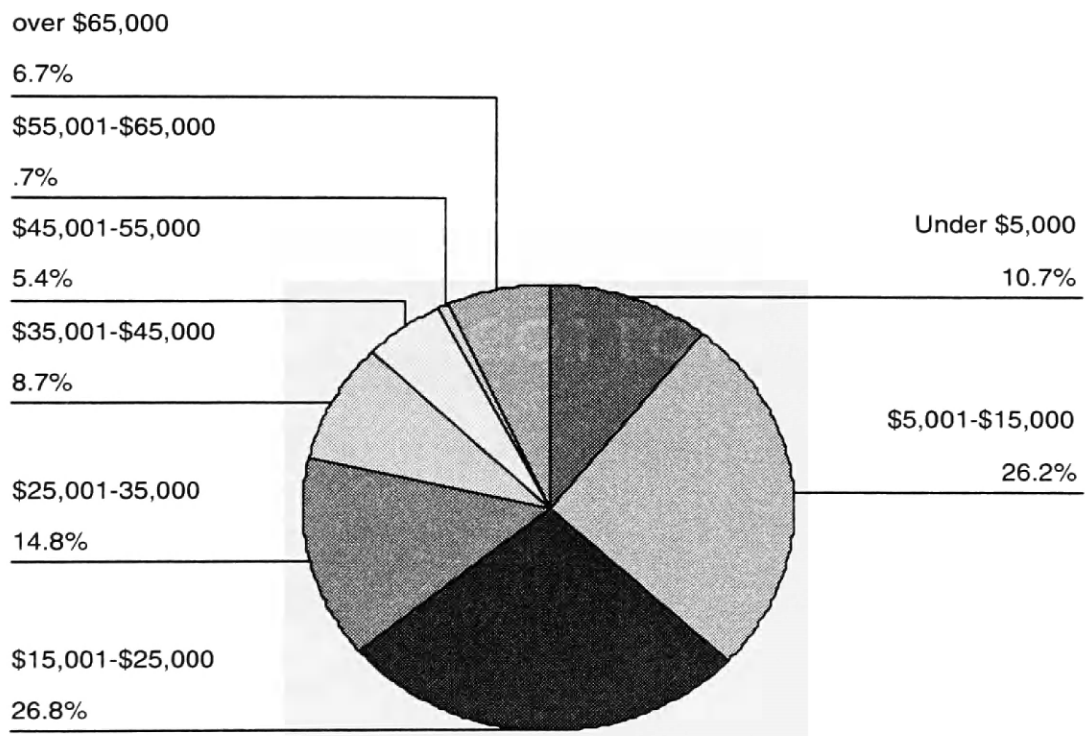
HOUSEHOLD INCOME OF 22 AND YOUNGER





PIE CHART 3.2

HOUSEHOLD INCOME OF 23 AND OLDER



## CHAPTER 4

### EMPIRICAL RESULTS

The first section of this chapter derives the logit equation used to estimate the abortion timing model and then presents the model results.<sup>41</sup> The second section interprets the model results and discusses these estimations in terms of their economic significance.

#### Logit Estimation Method

Given that the dependent variable  $P_g$  measures the probability of whether or not a woman terminates her pregnancy after 12 weeks LMP, the appropriate measurement tool is logit, in which the dependent variable is continuous but bounded between 0 and 1.

Deriving the logit model begins with the cumulative logistic distribution function 4.1.<sup>42</sup>

$$P_i = E(Y = 1|X_i) = 1 / (1 + e^{-(B_1 + B_2X_i)}) \quad (4.1)$$

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<sup>41</sup> SHAZAM was used to estimate the Logit model.

<sup>42</sup> Discussion and derivation of the logit model was acquired from Gujarati (1995).

To simplify the expression, it can be written as equation 4.2.

$$P_i = 1 / (1 + e^{-Z_i}) \quad (4.2)$$

where the index  $Z_i = B_1 + B_2X_i + U$

$P_i$  ranges from 0 to 1 as  $Z_i$  ranges from negative infinity to positive infinity.  $P_i$  is nonlinearly related to  $Z_i$  in terms of both the independent variables and the betas. However, this is easily resolved by transforming equation (4.2). If  $P_i$  is the probability of abortion after 12 weeks LMP, then  $(1 - P_i)$  is the probability of abortion at 12 weeks or earlier.

$$1 - P_i = 1 / (1 + e^{Z_i}) \quad (4.3)$$

Equation (4.4) is the odds ratio in favor of terminating pregnancy after 12 weeks. In other words, it is the ratio of the probability of deferring abortion after 12 weeks to the probability of having it at 12 weeks or earlier.

$$P_i / (1 - P_i) = (1 + e^{Z_i}) / (1 + e^{-Z_i}) \quad (4.4)$$

When the log of the odds ratio is taken,  $L$  (4.5) is both linear in  $X$  and the parameters.  $L$  is called the logit.

$$L_i = \ln (P_i / (1 - P_i)) = Z_i \quad (4.5)$$

As  $P_i$  ranges from 0 to 1, the logit model goes from negative infinity to positive infinity. In linear regression equations, the estimated slope-coefficient represents the average effect on the dependent variable for a one unit change in the explanatory variables. Interpreting the coefficients of the logit model is not so straightforward.

$$L_i = \ln (P_i / (1 - P_i)) = B_1 + B_k X_{i.k} + U_i \quad (4.6)$$

In equation (4.6),  $B_k$  represents the change in  $L$  for a unit change in  $X$ . In other words, it illustrates how the log-odds in favor of deferring an abortion changes as the explanatory variables change. The intercept  $B_1$  is the value of the log-odds ratio in favor of abortion occurring after 12 weeks when the independent variables are all zero.

In terms of probability for continuous variables, these marginal effects can be derived with calculus.

$$P_i = 1 / (1 + e^{-Z_i}) = \quad (4.7)$$

$$= e^{Z_i} / (1 + e^{Z_i}) \quad (4.8)$$

$$= e^{Z_i} * (1 + e^{Z_i})^{-1} \quad (4.9)$$

In equation (4.9), taking the partial derivative of  $X$  with respect to the probability  $P_i$  gives:

$$dP_i/dX_k = (e^{Z_i} * (1 + e^{Z_i})^{-1}) / dX_k = (4.10)$$

$$= B_k * e^{Z_i} / (1 + e^{Z_i})^2 = (4.11)$$

$$= B_k * P(1 - P) \quad (4.12)$$

As shown in equation 4.12, measuring the rate of change in probability with respect to  $X$  involves both  $B_k$  and the level of probability from which the change is measured. The given probabilities are typically evaluated at the means.

Interpreting changes in probability for binomial dummy variables requires first picking baseline values and computing the log of the odds-ratio for these values. Then, exponentiating the log of the odds-ratio isolates the odds-ratio. Solve for the probability at the two values (0,1) of the relevant dummy variable. Calculating the

difference gives the probability change resulting from the specific event, holding other variables constant.<sup>43</sup>

### Logit Results

Table 4.8 presents the results for the logit model.

TABLE 4.1

#### LOGIT RESULTS

	B	S.E.	Asymptotic T-Ratio	P-Value
INCOME	.35811	.65498	.54675	.701
COLLEGE1	-1.6574*	.72722	-2.2791	.011
TEEN	1.3614*	.78939	1.7246	.042
MARRIED	-.55104	1.1762	-.46850	.682
PREVAB	-1.7624**	1.0805	-1.6310	.051
WHITE	-.0514	1.1968	-.042945	.517
TRAVEL	-.001275	.003767	-.33838	.638
LFP <sup>44</sup>	.42720	.71156	.60037	.548
Constant	-2.1803	1.4485	-1.5052	.066

\*, \*\* indicate significance at the 5% and 10% levels, respectively.

Three of the estimated coefficients are significant and four are not. COLLEGE1, a dummy variable for women who have completed one year of college, is significant at the 5% level. TEEN, a dummy variable for women who are under 18 years old, is also significant at the 5% level. PREVAB, a dummy variable indicating if a woman has had a previous abortion, and the constant are significant at the 10% level.

<sup>43</sup> Explanation by Roncek (1991).

<sup>44</sup> The P-Value for LFP is two-sided.

The remaining five variables, INCOME, MARRIED, WHITE, TRAVEL, and LFP are insignificant. All of the estimated coefficients, except for TRAVEL and MARRIED, have the expected signs. In the previous chapter, both TRAVEL and MARRIED were hypothesized to have a positive effect on the probability that a woman defers her abortion to the 13<sup>th</sup> week. Their coefficients are actually negative.

In terms of goodness of fit, the conventional  $R^2$  measures are not appropriate when the dependent variable  $y$  takes on values 0 or 1. Maddala provides several  $R^2$ -type measures for such qualitative dependent variables, including both McFadden's  $R^2$  and the percentage of correct predictions.<sup>45</sup>

McFadden's  $R^2$  is given by the expression

$$1 - (\log L_{UR} / \log L_R)$$

For this model, the McFadden goodness of fit measure is .208<sup>46</sup>

Table 4.2 shows the number of both  $y=1$  values and  $y=0$  values correctly and incorrectly predicted. An observation is correctly predicted as  $y=1$  if the estimated  $\text{prob}(y=1)$  is

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<sup>45</sup> See Maddala (1992).

<sup>46</sup> Both Craig and Uhler and McFadden's  $R^2$  are calculated in SHAZAM.

greater than 0.07. The percentage correctly predicted is called the count- $R^2$  which is 79.0 for this model<sup>47</sup>

TABLE 4.2

CLASSIFICATION TABLE

	Predicted Before 12 Weeks	Predicted After 12 Weeks	Percentage Correct
Observed Before 12 Weeks	175	44	79.9
Observed After 12 Weeks	5	10	66.7
Overall Percentage			79.0

\*The threshold level is 0.07.

### Policy Implications of Model Results

This section presents the estimated probabilities and their relative changes that occur when a determinant variable changes. With these probabilities, this section then discusses the policy implications of the independent variables.

#### *Marginal Effects and Probability Changes*

All of the variables, except for TRAVEL, are dummy variables. As described in the previous chapter, the probability resulting from a change in dummy variables from 0 to 1 can be calculated by estimating the difference

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<sup>47</sup> For a detailed explanation of classification tables, see



between the mean probabilities when the dummy is 1 and when the dummy is 0. For TRAVEL, the marginal effect can be estimated by taking the derivative of the independent variable with respect to P. Table 4.3 presents these estimated effects on the probability that a woman will defer her abortion to the 13<sup>th</sup> week.<sup>48</sup>

TABLE 4.3

## PROBABILITIES

VARIABLES	Changes in Probabilities
INCOME	0.01821
COLLEGE1	-0.08675
TEEN	0.10110
MARRIED	-0.02487
PREVAB	-0.06508
LFP	0.02205
WHITE	-0.02708
TRAVEL	-0.00009

In Chapter 2, it was hypothesized that the time it takes a woman to decide on abortion is a function of both

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Kennedy (1992).

<sup>48</sup> These figures are calculated using the mean values of all the independent variables except for the variable for which the probability change is being calculated.

the ability of the woman to gather the relevant cost information and how high the abortion costs that she faces are relative to the cost of having a child. These results suggest that what affects abortion timing is not the set of costs a woman faces, but how long it takes her to learn about the costs.

TRAVEL, INCOME, LFP, and MARRIED, all variables that the fertility model stated represent various opportunity costs, were found insignificant. In other words, the margin of error was high enough that the effect was not significantly different from zero. For TRAVEL, WHITE, and MARRIED, the margin of error was high enough that the effect is possibly opposite of what was hypothesized. For TRAVEL, if her miles traveled were to increase by 10, the probability that she will defer her abortion decreases by .09 percentage points, *ceteris parabus*. Being married rather than single, divorced, or widowed, decreases the probability by 37%, from 6.7% to 4.2% that a woman will have her abortion past 12 weeks, all else held constant.

If a woman has a household income of \$15,000 or less, the probability that she will defer her abortion is 5.4%. If she is in a higher income bracket, that probability increases by 1.8 percentage points to 7.2%, all else held constant.

The probability that a woman will defer her abortion past the 12<sup>th</sup> week decreases from 5% to 7.1% if she has a wage-earning job, *ceteris parabus*. When a woman is white, rather than of African-American, Hispanic, Native American, or Asian descent, the probability that she defers decreases from 6.7% to 6.4%, a 4% change, *ceteris parabus*.

Given that the coefficients of the various cost variables were found insignificant, it appears that the economic costs in this model are not relevant to the timing of the decision. Further, by associating the costs of mandatory delay laws with the economic costs in this model, these results indicate that abortion regulations do not affect abortion timing.

These results, which indicate that costs imposed by mandatory delay laws do not affect when a woman has her abortion, do not follow Althaus and Henshaw's study of Mississippi's mandatory delay laws and gestational ages. They observed an increase in gestational ages when a mandatory delay law was imposed. It is quite possible that determining how abortion regulations affect abortion timing by inferring from the effects of other economic costs is not a suitable way to measure regulatory effects.

As noted in Chapter 2, it is not persuasive to presume, as Medoff does, that the net increase in the full

cost of an abortion which would result from making abortion illegal can be captured by the estimated 50% increase in price. In this the same way, TRAVEL may not be a suitable proxy variable for the costs imposed by a mandatory delay law. The time cost associated with traveling long distances might only be a small portion of the economic costs that a mandatory delay law would potentially impose. Without Montana abortion regulations, Blue Mountain Clinic's clients who travel relatively far distances typically do not stay overnight in Missoula but drive there in the early morning.<sup>49</sup> If a mandatory delay law required women to meet with their provider on two different occasions, it would automatically require a two day visit in Missoula. This would entail staying overnight or traveling twice to the clinic. Other opportunity costs that would potentially increase are days missed from work; if the client is under eighteen, secretly arranging to miss more school; and the psychological cost of being required to prolong the abortion process.<sup>50</sup>

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<sup>49</sup> Personal experience working at Blue Mountain Clinic.

<sup>50</sup> Provider availability complicates the matter further. If a woman is required to meet with her doctor on both visits, the time required to get an abortion may be more than two days. Blue Mountain Clinic's providers have private practices and are typically available for abortions one day a week. In this case, a woman would meet with her physician one day and the following week return for the abortion, lengthening the time it takes to get the abortion by five days.

The fact that the variables of this model representing various economic costs were not found statistically significant indicates that these particular economic costs do not affect whether Blue Mountain Clinic's abortion clients defer their procedures until the 13<sup>th</sup> week LMP. Because abortion regulations represent an economic cost, it seems logical to deduce how abortion regulations affect when a woman has her procedure. However, given that Medoff's interpretation of the possible effects of prohibiting abortion from his price variable seemed to undervalue how women would respond to such legislation and that Althaus and Henshaw illustrated a contrary result, it may not be appropriate to interpret how the economic cost of abortion regulation affects abortion timing.

The statistically significant variables COLLEGE1, PREVAB and TEEN represent various levels of experience that determine how quickly a woman gathers the fertility cost information. Everything else held constant, going to college for at least one year decreases the probability that a woman will defer her abortion by 77%, or a decrease from 11.1% to 2.5%. This dramatic decrease indicates that a woman's college experience, which arguably provides her with skills conducive to gathering fertility information, reduces the time it takes for her to get an abortion.

The probability that a woman who has had a previous abortion will defer her abortion is 6.5 percentage points lower, or 79% less, than for a woman who has not had the procedure, *ceteris parabus*. This indicates that a woman who has had at least one previous abortion takes less time to have another one, presumably because she has already gathered and weighed the fertility information. Thus, when she makes the decision again, she need not take the same amount of time.

When the woman having an abortion is a teenager, the probability that she will have her abortion past 12 weeks LMP is 15% while the probability that a woman older than 17 will defer is 5%. The probability, then, increases by 200% when the woman having the abortion is younger than 18, *ceteris parabus*. Quite possibly, teenagers lack the experience that calling an abortion facility or other services, such as pregnancy counseling, would require. Lacking this experience, it seems they postpone or put off taking the initiative to get the cost information, lengthening the time it takes for them to decide on abortion.

The fact that COLLEGE1, PREVAB and TEEN, which all signify a woman's ability to gather relevant fertility cost information, all demonstrate strong effects on abortion

timing indicates that this is should be an area of concern for those who provide this relevant information. In terms of facilities that provide abortions and organizations that provide pregnancy and adoption services, the more readily available and thorough the cost information is, the easier it is for women to learn about it and, therefore, the faster they will do so.<sup>51</sup> Since teenagers noticeably differ by having their abortions past the 12<sup>th</sup> week (LMP), it seems that they are less adept at learning the relevant information and would possibly benefit from learning skills with which they could navigate fertility information.<sup>52</sup>

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<sup>51</sup> Providing cost information in a nonjudgmental manner is, arguably, also a way to make it easily accessible.

<sup>52</sup> One example of how to do this is Blue Mountain Clinic's Healthapalooza Festival. This annual event is specifically designed to provide teenagers the opportunity to learn about important reproductive information.

## CHAPTER 5

### CONCLUSION

This chapter summarizes the hypothesis and results of this study and makes suggestions for further research on the topic of abortion timing.

#### Summary

In 1991, the Supreme Court permitted states to impose abortion regulations on women so long as such restrictions did not interfere with a woman's ability to have the abortion. Although states vary in which, if any, regulations they impose, typical state regulations include mandatory delay laws, parental consent laws, and restrictions on Medicaid funding.

As abortion rates change over time, economists have been using demand analysis to assess whether state restrictions, as well as other economic costs, decrease the demand for abortion. Their results have shown that abortion rates do, in fact, respond to changes in economic costs.



Another relevant abortion issue amenable to economic analysis is what determines when a woman has the procedure. Do economic costs affect the timing of abortion? More specifically, do state regulations, like mandatory delay laws, defer when a woman has her abortion? This thesis studied this question by using the economic theory of fertility to analyze the timing element of the abortion decision.

According to the abortion demand model, the decision to have an abortion is made by weighing the costs and benefits of having an abortion versus having a child. It was hypothesized here that making this decision takes a certain amount of time. This amount of time is determined by both how long it takes to gather the information on the costs of abortion and having the child as well as the degree of difference between these costs.

Using a logit model, this study estimated the probability that a woman defers her abortion past the 12<sup>th</sup> week LMP based on a set of economic and sociological factors. These factors included whether a woman has had a previous abortion (PREVAB), if a woman has completed at least a year of college (COLLEGE1), her race (WHITE), and whether she was under the age of eighteen (TEEN). Variables that represented an economic cost were the miles

a woman traveled to the clinic (TRAVEL), whether she was employed (LFP), her marital status (MARRIED), and her income (INCOME).

In the analysis, all the coefficients for the economic variables were insignificant, implying that their impact on abortion timing is minimal. The three significant results, TEEN, COLLEGE1, and PREVAB, all represented characteristics that illustrate a woman's ability to gather the relevant abortion information.

In terms of the abortion timing hypothesis, it appears that what determines when a woman has her abortion is not the set of economic costs she faces but her ability to learn about such costs. What this suggests about state regulations that impose, at the very least, a time cost is that they do not deter abortions into the later part of the first trimester.

#### Suggestions for Further Research

Given that Althaus and Henshaw's results, that mandatory delay laws do affect the gestational age at which a woman aborts her pregnancy, are contrary to the results reported here, the hypothesis that when a woman has her abortion is determined by a set of economic and social factors deserves further attention. This study used data

for one state for one year while no abortion regulations were in place. The sociological study was conducted for one year for Mississippi and its adjacent states. In that time, the mandatory delay law was imposed and the effects of that change were examined. For further research on abortion timing in economics, it would be sensible to conduct a study analogous to the Mississippi study. In other words, analyze the gestational ages of terminated pregnancies in a state which first has no mandatory delay law in effect and then imposes one. This would directly measure the effects of abortion regulations on when a woman has an abortion, analysis not possible given this data set.

Another possibility for examining the effect of state regulation on abortion timing would be to conduct a multi-state study, as Medoff and Garbacz both did in their abortion demand research, and include a dummy variable for the presence of mandatory delay laws. In this case, the average gestational age in each state could be measured as a function of, among other factors, the presence or absence of state mandatory delay laws.

In order to examine the effects of parental consent laws on teenagers' abortion timing, one could do a separate regression for teenagers, similar to Garbacz's. Again, if it was conducted nationwide, a dummy variable would be

included for the presence of parental consent laws. Alternatively, if research on teenagers is conducted for one state, as was suggested for studying effects of mandatory delay laws, a time-series study would be appropriate, one that examines the before and after effects of a parental consent law.

In this particular study, a binary logit model statistically estimated the probability that a woman deferred her abortion past the 12 week LMP. How the independent variables affect gestational ages could also be measured by doing a multinomial logit model, in which the dependent variable Y has more than 2 categories. This model would provide for more explanation because it would define the dependent variable in less definitive terms.

#### Concluding Remarks

Abortions that are performed both late in the first trimester and in the second trimester are of great concern given the increased medical risk associated with such procedures. These results demonstrated that, although the economic costs analyzed do not seem relevant to when a woman aborts her pregnancy, women who are relatively less adept at acquiring important fertility information are more likely to defer their procedures.

When a woman has her abortion is a topic that has not been thoroughly considered in either sociology or economics. Given that many argue the restrictions states impose on women who seek abortions place them at medical risk and that Althaus and Henshaw's results are so contrary to the results found here, the question of what determines why some women defer their abortions is clearly not answered and continuing research on this issue seems imperative in order to do so.

**APPENDIX A**HISTORY OF SUPREME COURT DECISIONS REGARDING REPRODUCTIVE RIGHTS<sup>53</sup>Griswold v. Connecticut, 381 U.S. 479 (1965)

By a vote of 7-2, the Supreme Court invalidated a Connecticut statute that prohibited the use of contraceptives, holding that the statute violated the constitutional right to marital privacy.

Eisenstadt v. Baird, 405 U.S. 438 (1972)

By a vote of 6-1, the Court invalidated a law prohibiting the distribution of contraceptives to unmarried people, holding that the constitutional right to privacy extends to the reproductive decisions of both married and unmarried people.

Roe v. Wade, 410 U.S. 113 (1973)

By a vote of 7-2, the Court invalidated a Texas law prohibiting abortions not necessary to save the woman's life. The Court held that the fundamental right to privacy extends to a woman's decision whether or not to have an abortion and that any governmental interference with that

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<sup>53</sup> This information was obtained by the National Abortion Rights Action League website [www.naral.org/publications/facts/sup.html](http://www.naral.org/publications/facts/sup.html). on April 23, 2000.

right is subject to strict judicial scrutiny. The Court recognized two compelling state interests sufficient to justify restrictions on a woman's right to choose. States may regulate the abortion procedure after the first trimester of pregnancy in ways necessary to promote a woman's health. After the point of fetal viability -- approximately 24 to 28 weeks -- a state may, to protect the potential life of the fetus, prohibit abortions not necessary to preserve the woman's life or health.

Doe v. Bolton, 410 U.S. 179 (1973)

Decided with *Roe v. Wade*. By a vote of 7-2, the Court invalidated provisions of a Georgia law that required that (1) any abortion be performed in a hospital; (2) a woman secure the approval of three physicians and a hospital committee before obtaining an abortion; and (3) a woman seeking to obtain an abortion be a resident of the state.

Bigelow v. Virginia, 421 U.S. 809 (1975)

By a vote of 7-2, the Court invalidated the application of a Virginia statute that prohibited the advertisement of abortion services.

Connecticut v. Menillo, 423 U.S. 9 (1975)

The Court unanimously upheld the use of a Connecticut statute that prohibited the performance of abortion to prosecute a non-physician.

Bellotti v. Baird (I), 428 U.S. 132 (1976)

The Court unanimously ruled that the district court should have abstained from deciding the constitutionality of a Massachusetts statute requiring parental consent until the state court had interpreted the statute. The Court noted, however that a state may, in some circumstances, require a minor woman to obtain parental consent before obtaining an abortion.

Planned Parenthood of Central Missouri v. Danforth, 428 U.S. 52 (1976)

By a vote of 6-3, the Court invalidated provisions of a Missouri statute that (1) required a married woman to obtain the consent of her husband prior to obtaining an abortion; (2) required a physician to preserve the life and health of the fetus at every stage of pregnancy; and (3) prohibited the use of saline amniocentesis as a method of abortion. By a vote of 5-4, the Court struck down a requirement that an unmarried minor woman obtain the written consent of one parent before obtaining an abortion



because the statute provided no alternative to parental consent such as judicial waiver of the consent requirement. The Court upheld provisions that (1) required facilities to keep confidential records, available only for statistical purposes to public health officials, intended to preserve maternal health and life by increasing medical knowledge and to monitor whether abortions are performed in accordance with the law; (2) required that a woman sign a consent form prior to an abortion; and (3) defined "viability" as "that stage of fetal development when the life of the unborn child may be continued indefinitely outside the womb by natural or artificial life-supportive systems."

Maier v. Roe, 432 U.S. 464 (1977)

By a vote of 6-3, the Court upheld a Connecticut prohibition of the use of public funds for abortions, except those "medically necessary," even though the state provides funding for childbirth.

Beal v. Doe, 432 U.S. 438 (1977)

Decided with *Maher v. Roe*. By a vote of 6-3, the Court upheld a Pennsylvania regulation that prohibited the use of public funds for abortions not "medically necessary."

Poelker v. Doe, 432 U.S. 519 (1977)

By a vote of 6-3, *per curiam*, the Court upheld the refusal of a public hospital to provide publicly funded abortions when there was no threat to the health or life of the woman.

Carey v. Population Services, 431 U.S. 678 (1977)

By a vote of 7-2, the Court invalidated a New York law prohibiting the sale or distribution of contraceptives to minors.

Colautti v. Franklin, 439 U.S. 379 (1979)

By a vote of 6-3, the Court invalidated as unconstitutionally vague a Pennsylvania statute that required a physician, under threat of criminal penalties, to use the method and "degree of care" most likely to preserve the life and health of the fetus if the physician determined the fetus was viable or had "sufficient reason to believe that the fetus may be viable."

Bellotti v. Baird (II), 443 U.S. 622 (1979)

By a vote of 8-1, the Court invalidated a Massachusetts law that required a minor to obtain the consent of both parents before obtaining an abortion. Four Justices reasoned that the procedure for judicial waiver was unconstitutional because it required parental consultation in every case before the minor woman was permitted to go to court to demonstrate that she was mature enough to make her own decision or that an abortion was in her best interests. Four other Justices considered the statute unconstitutional because it provided an absolute veto over a minor woman's abortion decision to a third-party, whether a parent or a judge.

Harris v. McRae, 448 U.S. 297 (1980)

By a vote of 5-4, the Court upheld the Hyde amendment, which prohibits the use of federal funds for abortions not necessary to preserve the woman's life. The Court also held that states that participate in the Medicaid program are not required by Title XIX of the Social Security Act to fund medically necessary abortions for which federal funds are unavailable under the Hyde amendment.

Williams v. Zbaraz, 448 U.S. 358 (1980)

Decided with *Harris v. McRae*. By a vote of 5-4, the Court upheld an Illinois statute prohibiting the use of state funds for abortions not necessary to save the woman's life.

H.L. v. Matheson, 450 U.S. 398 (1981)

By a vote of 6-3, the Court upheld as not invalid on its face a Utah statute requiring a physician to notify a minor woman's parent before performing an abortion, but the Court did not decide whether the statute would be unconstitutional as applied to a mature minor because the plaintiff had not alleged that she was mature.

City of Akron v. Akron Center for Reproductive Health, 462 U.S. 416 (1983)

By a vote of 6-3, the Court invalidated those provisions of a city ordinance that (1) required physicians to give their patients anti-abortion information, including telling them that "the unborn child is a human life from the moment of conception;" (2) required a 24-hour waiting period following these lectures; (3) mandated that all abortions after the first trimester be performed in a hospital; (4) required parental consent for a minor woman to obtain an abortion, without providing a procedure for

waiver of the consent requirement; and (5) required physicians to dispose of fetal remains in an unspecified "humane and sanitary manner."

Planned Parenthood Association of Kansas City, Mo. v. Ashcroft, 462 U.S. 476 (1983)

Decided with *Akron Center*. By a vote of 6-3, the Court invalidated a provision of a Missouri statute that required all second-trimester abortions to be performed in a hospital. By a vote of 5-4, the Court upheld requirements that (1) a second physician be present during a post-viability abortion; (2) a minor woman obtain either parental consent or a judicial waiver; and (3) a pathology report be made for each abortion.

Simopoulos v. Virginia, 462 U.S. 506 (1983)

By a vote of 8-1, the Court affirmed the criminal conviction of a physician for performing a second-trimester abortion outside a licensed hospital, noting that Virginia's definition of "hospital" differed from Missouri's and Akron's in that it included "outpatient hospitals," and was therefore broad enough to include any adequately equipped clinic. Thus, the Court held that the Virginia restriction on abortions after the first trimester

was necessary to promote the health of women obtaining abortions.

Thornburgh v. American College of Obstetricians and Gynecologists, 476 U.S. 747 (1986)

By a vote of 5-4, the Court invalidated provisions of a Pennsylvania statute that required (1) physicians to give their patients anti-abortion information, including pictures of fetuses at various stages of development, to discourage them from obtaining abortions; (2) the filing of detailed reports, available to the public for copying, including identification of the attending physician and information about the woman obtaining an abortion; (3) a physician performing a post-viability abortion to use that "degree of care" required to preserve the life and health of any unborn child intended to be born and to use the method of abortion most likely to preserve the life of the fetus, even at some risk to a woman's health; and (4) the presence of a second physician at post-viability abortions without providing an exception for a medical emergency.

Webster v. Reproductive Health Services, 492 U.S. 490  
(1989)

By a vote of 5-4, the Court upheld provisions of a Missouri statute prohibiting the use of public facilities or public personnel to perform abortions and requiring a physician to make determinations and perform tests concerning gestational age, weight and lung maturity when he or she has reason to believe a woman to be 20 weeks or more pregnant. For the first time in the sixteen years since *Roe v. Wade*, only a minority of the Justices on the Court -- four Justices -- voted to reaffirm *Roe*.

Hodgson v. Minnesota, 497 U.S. 417 (1990)

By a vote of 5-4, the Court invalidated as having no rational basis a Minnesota law requiring notification of both parents without a procedure for judicial waiver of the notice requirement. However, by a vote of 5-4, the Court upheld another provision that required two-parent notification but included a procedure for judicial waiver, as well as a 48-hour waiting period for minors.

Ohio v. Akron Center for Reproductive Health, 497 U.S. 502  
(1990)

By a vote of 6-3, the Court upheld an Ohio statute that required a minor woman to notify one parent or obtain a judicial waiver, rejecting a facial challenge alleging that the burdensome judicial procedure did not fulfill the constitutional requirement of a meaningful bypass procedure.

Rust v. Sullivan, 500 U.S. 173 (1991)

By a vote of 5-4, the Court upheld federal regulations prohibiting health care professionals at family planning clinics that receive Title X funds from counseling or referring women regarding abortion, or even informing a pregnant patient that abortion is a legal option.



Planned Parenthood of Southeastern Pennsylvania v. Casey,  
505 U.S. 833 (1992)

By a vote of 7-2, the Court upheld provisions of a Pennsylvania statute that required (1) physicians to provide patients with anti-abortion information, including pictures of fetuses at various stages of development, to discourage women from obtaining abortions; (2) a mandatory 24-hour delay following these lectures; (3) the filing of reports, available for public inspection and copying, including the name and location of any facility performing abortions that receives any state funds; and (4) a one-parent consent requirement for minors with a judicial bypass. The Court explicitly overruled parts of *Akron* and *Thornburgh*. The plurality opinion of three Justices abandoned the strict scrutiny standard of review applied to fundamental rights for a less protective "undue burden" standard of review, which these restrictions passed. Two Justices voted to continue to protect the right to choose as a fundamental right under *Roe* by subjecting state restrictions to strict scrutiny. These five Justices voted to strike down a provision that barred a married woman from obtaining an abortion unless she notified her husband. Four Justices voted to uphold all challenged provisions and overturn *Roe* completely, stating that it was wrongly

decided and the Constitution does not protect the right to choose.

Bray v. Alexandria Women's Health Clinic, 506 U.S. 263  
(1993)

By a vote of 5-4, the Court held that a federal civil rights law, known as the "Ku Klux Klan" Act, 42 U.S.C. § 1985(3), does not protect women from anti-choice blockaders obstructing access to reproductive health clinics. The Court held that anti-choice blockades do not constitute sex-based discrimination for the purpose of the statute.

National Organization for Women v. Scheidler, 510 U.S. 249  
(1994)

By a vote of 9-0, the Court held that claims under the Racketeer Influenced and Corrupt Organizations (RICO) act do not require proof of an economic motive, and that the National Organization for Women (NOW) and a group of women's health centers could pursue their civil suit against Joseph Scheidler, the Pro-Life Action Network (PLAN) and others anti-choice clinic blockaders.

Madsen v. Women's Health Center, 512 U.S. 753 (1994)

By a vote of 5-4 the Court upheld provisions of a Florida injunction that (1) created a 36-foot buffer zone outside the entrance to a reproductive health clinic; and

(2) prohibited anti-choice protesters from making noise that could be heard by patients inside the clinic during the hours in which surgical procedures were performed. The Court noted that such injunctions burden "no more speech than necessary to serve a significant government interest." The court invalidated provisions creating a 300-foot "no approach" zone around the clinic, a ban on signs and images visible to people inside the clinic, and a 300-foot ban on picketing outside the residences of clinic employees.

Schenck v. Pro-Choice Network, 117 S. Ct. 855 (1997)

By a vote of 8-1, the Court invalidated the provision in a New York injunction that created a 15-foot "floating" buffer zone around any person or vehicle seeking access to or leaving a clinic. The Court held that the "floating" buffer zones "burden more speech than necessary to serve the relevant government interests." The Court limited this holding to the facts of this case and noted that it did not address "whether the governmental interests involved would ever justify some sort of zone of separation between individuals entering the clinics and protestors, as measured by the distance between the two." By a vote of 6-3, the Court upheld a provision creating a 15-foot "fixed" buffer zone outside of clinic doorways, driveways, and

parking lot entrances. The Court also upheld a "cease and desist" provision that permits two "sidewalk counselors" to approach a person inside the "fixed" buffer zones unless and until the person indicates a desire for the counselor to withdraw; the "sidewalk counselor" must then retreat 15 feet from the person he/she had been counseling and remain outside of the buffer zone.

Mazurek v. Armstrong, 117 S. Ct. 1865 (1997)

By a vote of 6-3, the Court reversed a lower court ruling that would have permitted health care providers to move forward with their challenge to a Montana law banning the performance of abortion by licensed physician assistants working under the supervision of a doctor. Without full briefing or oral argument, the Court found that, in general, physician-only requirements are constitutional. As the Court's first application of the "undue burden" standard since *Planned Parenthood of Southeastern Pennsylvania v. Casey*, this decision indicates that the standard is less protective than it initially appeared and that regardless of a law's intended effect, the Court will not invalidate state restrictions on abortion before viability unless the actual effect is to

create a substantial obstacle on women obtaining an  
abortion.

## APPENDIX B

## CURRENT STATUS OF STATE ABORTION LAWS

TABLE B.1

## RESTRICTIONS ON MINORS' ACCESS TO ABORTION\*

State	One Parent	Two Parent	Consent	Notice	Mandatory Counseling	Judicial Bypass	Enjoined/ Not Enforced	Enforced
AL	X		X			X		X
AK	X		X			X	X <sup>1</sup>	
AZ	X		X			X	X <sup>1</sup>	
AR		X		X		X		X
CA	X		X			X		
CO		X		X			X	
DE	X <sup>2</sup>			X <sup>3</sup>		X		X
GA	X			X		X		X
ID		X <sup>4</sup>		X				X
IL	X <sup>2</sup>			X		X	X <sup>1</sup>	
IN	X		X			X		X
IA	X <sup>2</sup>			X		X		X
KS	X			X	X	X		X
KY	X		X			X		X
LA	X		X			X		X
ME	X <sup>6</sup>		X <sup>7</sup>		X	X		X
MD	X			X <sup>3</sup>				X
MA	X <sup>8</sup>		X			X		X
MI	X		X			X		X
MN		X		X		X		X
MS		X	X			X		X
MO	X		X			X		X
MT <sup>†</sup>	X			X		X	X <sup>1</sup>	
NE	X			X		X		X
NV	X			X		X	X <sup>1</sup>	
NM	X		X				X <sup>1</sup>	
NC	X <sup>2</sup>		X			X		X

\* The information in this appendix on parental consent laws and state funding was obtained from the National Abortion Rights Action League website [www.naral.org/publications/facts/minor.html](http://www.naral.org/publications/facts/minor.html) on April 23, 2000.

<sup>†</sup> In 1999, Montana's abortion restrictions were overturned. See Appendix C for a summary of Montana's current abortion legislation status.

ND		X	X			X		X
OH	X <sup>9</sup>			X		X		X
PA	X		X			X		X
RI	X		X			X		X
SC	X <sup>2</sup>		X			X		X
SD	X			X		X		X
TN	X		X			X	X <sup>1</sup>	
UT		X <sup>4</sup>		X				X
VA	X			X		X		X
WV	X			X <sup>3</sup>		X		X
WI	X <sup>10</sup>		X			X		X
WY	X		X			X		X
Total	32	7	21	18	2	34	9	30

December 1998

Notes:

1. This statute has been declared unenforceable by a court or attorney general.
2. This statute also allows consent of or notice to a grandparent under certain circumstances.
3. This requirement may be waived by a specified health professional under certain circumstances.
4. This statute requires notice to a minor's parents, if possible.
5. This statute also allows consent of or notice to a grandparent or step-parent.
6. This statute also allows consent of an adult family member.
7. This statute offers mandatory counseling as an alternative to one-parent or adult family member consent with a judicial bypass.
8. This statute, as written, requires two-parent consent, but a court has issued an order that the law be enforced as requiring the consent of one parent.
9. This statute also allows notice to a grandparent, step-parent, or adult sibling over the age of 21 under certain circumstances.

10. This statute allows consent of or notice to a grandparent or certain other adult family members over the age of 25.



TABLE B.2

PUBLIC FUNDING FOR ABORTION<sup>†</sup>

State	Life Endangerment Only <sub>1</sub>	Life, Rape, and Incest Only	Life, Rape, Incest, and Some Health Circumstances	All or Most Circumstances
AL		X		
AK		X		
AZ		X		
AR		X <sub>2</sub>		
CA				X <sub>3,7</sub>
CO		X <sub>2</sub>		
CT				X <sub>3</sub>
DE		X <sub>6</sub>		
DC		X		
FL		X		
GA		X		
HI				X
ID			X <sub>3,6</sub>	
IL			X <sub>2,4</sub>	
IN		X		
IA			X <sub>5,6</sub>	
KS		X		
KY		X <sub>2</sub>		
LA		X <sub>2,6</sub>		
ME		X		
MD				X <sub>6</sub>
MA				X <sub>3,6</sub>
MI		X <sub>2</sub>		
MN				X <sub>3</sub>
MS	X			
MO		X <sub>2</sub>		
MT				X <sub>3,6</sub>
NE		X <sub>2</sub>		
NV		X		
NH		X		
NJ				X <sub>3</sub>
NM				X <sub>3</sub>
NY				X

<sup>†</sup> The information on public funding was obtained from the National Abortion Federation website [www.naral.org/publications-facts/1991/public\\_funding.html](http://www.naral.org/publications-facts/1991/public_funding.html).

NC		X		
ND		X2		
OH		X6		
OK		X2, 6		
OR				X3
PA		X2, 6		
RI		X		
SC		X6		
SD	X			
TN		X		
TX		X		
UT		X2		
VT				X3
VA			X5, 6	
WA				X
WV				X3
WI			X6	
WY		X6		
Total	2	30	5	14

December 15, 1998

Notes:

1. Such state policies violate federal law prohibiting participating states from excluding abortion from the Medicaid program in cases of life endangerment, rape, and incest.
2. A court has ruled that this state must comply with federal law prohibiting the exclusion of abortion from Medicaid in cases of rape or incest as well as life endangerment.
3. A court has ruled that the state constitution prohibits the state from restricting funding for abortion while providing funds for costs associated with childbirth.
4. A court has ruled that the state constitution prohibits the enforcement of a state law restricting funding to the extent it bars funding for an abortion necessary to preserve the woman's health.
5. This statute provides funding for some cases of fetal anomaly.
6. This state requires that cases of rape and incest be reported to a law enforcement or social service agency

in some circumstances in order for the woman to be eligible for a publicly funded abortion.

7. For publicly funded abortions after 20 weeks, a physician must certify that the fetus is nonviable or that pregnancy would endanger the woman's life or health.

## REQUIRED INFORMED CONSENT AND MANDATORY DELAY LAWS<sup>§</sup>

Fourteen states require a delay following state-directed counseling before a woman may obtain an abortion:

- Idaho, 24 hours
- Indiana, 18 hours
- Kansas, 24 hours
- Louisiana, 24 hours
- Michigan, 24 hours
- Mississippi, 24 hours
- Nebraska, 24 hours
- North Dakota, 24 hours
- Ohio, 24 hours
- Pennsylvania, 24 hours
- South Carolina, 1 hour
- South Dakota, 24 hours
- Utah, 24 hours
- Wisconsin, 24 hours

In five states, such requirements are enjoined:

- Delaware, 24 hours
- Kentucky, 24 hours<sup>1</sup>
- Massachusetts, 24 hours
- Montana, 24 hours
- Tennessee, 48-72 hours

Eight additional states require state-directed counseling (without a mandatory delay) before a woman may obtain an abortion:<sup>2</sup>

- Alaska
- California
- Connecticut
- Maine
- Minnesota

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<sup>§</sup> This information was obtained from The Alan Guttmacher Institute website [www.agi-usa.org/pubs/abort\\_law\\_stat.html](http://www.agi-usa.org/pubs/abort_law_stat.html) on April 23, 2000.

- Nevada
- Rhode Island
- Virginia

In two states, such requirements are enjoined:

- Florida
- Missouri

<sup>1</sup> Enforcement of this law is delayed, pending resolution of a legal challenge.

<sup>2</sup> The provisions in these laws vary widely—from standard informed consent requirements to prescriptive counseling requirements.

**APPENDIX C**A HISTORY OF MONTANA'S REPRODUCTIVE CONSTITUTIONAL DECISIONS<sup>1</sup>

- A court has ruled that the Montana Constitution protects the right to reproductive choice as a fundamental right and to a greater extent than the Federal Constitution.
- A court struck down under the state constitution a regulation limiting state medical assistance for abortion to cases of life endangerment, rape, and incest. *Jeannette R. v. Ellery*, No. BDV-94-811 (Mont. Dist. Ct. May 22, 1995). A similar restriction has been upheld by the U.S. Supreme Court under the Federal Constitution. *Williams v. Zbaraz*, 448 U.S. 358 (1980).
- A court struck down under the state constitution a law requiring either notice to one parent or a judicial waiver before a minor could obtain an abortion. *Wicklund v. State*, No. ADV-97-671 (Mont. Dist. Ct. Feb. 12, 1999) (summary judgment), No. ADV-97-671 (Mont. Dist. Ct. Feb. 25, 1999) (permanent injunction),

appeal filed, No. 99-311 (Mont. Apr. 15, 1999), *appeal dismissed* (Mont. Nov. 29, 1999). Prior to this state court decision, this law had been upheld by the U.S. Supreme Court under the federal Constitution. *Lambert v. Wicklund*, 520 U.S. 292 (1997).

- A court has struck down under the state constitution a provision mandating a 24-hour waiting period prior to an abortion. *Planned Parenthood of Missoula v. State*, No. BDV-95.722 (Mont. Dist. Ct. Mar. 12, 1999), *appeal dismissed* (Mont. Nov. 29, 1999). A similar restriction has been upheld by the U.S. Supreme Court under the federal Constitution. *Planned Parenthood of Southeastern Pennsylvania v. Casey*, 505 U.S. 833 (1992).
- A court struck down under the state constitution provisions prohibiting certified physician assistants from performing abortions. *Armstrong v. State*, No. BVD 97-627 (Mont. Dist. Ct. Dec. 8, 1999). Prior to this state court decision, the U.S. Supreme Court held that it was unlikely that plaintiffs would prevail on their claim that these provisions constituted an undue

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<sup>1</sup> This summary of Montana's reproductive legislative history was obtained from the National Abortion Rights Action League website

burden under the federal Constitution, *Mazurek v. Armstrong*, 520 U.S. 968 (1997).

- A court struck down under the state constitution a law banning so-called "partial-birth" abortion.

*Intermountain Planned Parenthood v. State*, No.BDV 97-477 (Mont. Dist. Ct. June 29, 1998), *modified* (Mont. Dist. Ct. Aug. 19, 1998). Montana amended its law banning so-called "partial-birth" abortion in 1999, which has prompted a new court battle concerning the constitutionality of such laws, see *Ban on Abortion Procedures*. The U.S. Supreme Court has yet to rule on this issue.



BLUE MOUNTAIN CLINIC  
CONFIDENTIAL CLIENT QUESTIONNAIRE

Patient # \_\_\_\_\_

The information is voluntary, and confidential. We appreciate your opinion because it helps us evaluate our services and make changes as necessary to accommodate our clients.

1. Have you been a client at the Clinic before?  
Yes \_\_\_\_\_ no \_\_\_\_\_ If so, last date \_\_\_\_\_

2. In choosing Blue Mountain Clinic for today's visit, how important were each of the following:

Not Important	Little Importance	Important	Very Important
Cost of the procedure: _____	_____	_____	_____
How soon an appointment was available: _____	_____	_____	_____
Ease of scheduling an appointment: _____	_____	_____	_____
Reputation of Clinic: _____	_____	_____	_____
Recommendation of friend, etc.: _____	_____	_____	_____
Security of building: _____	_____	_____	_____
Privacy: _____	_____	_____	_____
Already a patient at Blue Mountain: _____	_____	_____	_____

3. Did you know that the Clinic provides:

a) family practice health care                    yes \_\_\_ no \_\_\_

b) pediatric and adolescent health care                    yes \_\_\_ no \_\_\_

c) prenatal care                    yes \_\_\_ no \_\_\_

- c) osteopathic and naturopathic medicine      yes \_\_\_ no \_\_\_
- e) mental health counseling      yes \_\_\_ no \_\_\_
- f) massage therapy      yes \_\_\_ no \_\_\_
- g) vasectomies      yes \_\_\_ no \_\_\_
- h) acupuncture      yes \_\_\_ no \_\_\_

4. How far did you travel to get here(one-way)?

\_\_\_\_\_

5. How did you pay for today's visit: Check all that apply.

- Personal Savings \_\_\_\_\_ Advanced Wages \_\_\_\_\_
- Credit card \_\_\_\_\_ Pawned Something \_\_\_\_\_
- Family/Friend \_\_\_\_\_ Car Loan \_\_\_\_\_
- Cashed a Post \_\_\_\_\_ Other \_\_\_\_\_
- Dated Check \_\_\_\_\_

6. Do you currently have medical insurance?

yes \_\_\_ no \_\_\_

If yes, will you be billing your insurance for today's visit?      yes \_\_\_ no \_\_\_

6. Please evaluate your experience today.

STRONGLY AGREE      STRONGLY DISAGREE      AGREE

The Doctor:

- a)exhibited competence and professional skill  
\_\_\_\_\_
- b)treated me with respect  
\_\_\_\_\_
- d) answered my questions clearly  
\_\_\_\_\_

The Nurses:

- a)exhibited competence and professional skill  
\_\_\_\_\_
- b)treated me with respect  
\_\_\_\_\_
- c) answered my questions clearly  
\_\_\_\_\_

The Counselor:

- a) listened to me \_\_\_\_\_
- b) answered my questions clearly \_\_\_\_\_
- c) explained the abortion procedure clearly \_\_\_\_\_
- d) established a trusting and comfortable relationship with me \_\_\_\_\_

7. Are you: (Circle one)  
 single            married            separated  
                  divorced            widowed

8. Are you: (Circle one)  
 White            Native Amer.    Asian  
 Hispanic            Other\_\_\_\_\_

9. Highest grade completed in school: 1 2 3 4 5 6 7 8 9 10  
 11 12

10. Number of years of college: 0 1 2 3 4 5+

11. Are you employed? yes \_\_\_\_\_ no \_\_\_\_\_  
 If yes, do you work (please circle) full time    part  
 time    full year    part year

12. Is your partner employed?  
 (Circle one) full time    part time    no  
 Is your partner a student?  
 (Circle one) full time    part time    no

13. Are you a student?  
 (Circle one) full time    part-time    no

14. Check the space provided to indicate your household income:

- Under \$5,000/year \_\_\_\_\_
- \$5,001-\$15,000/year \_\_\_\_\_
- \$15001-\$25,000/year \_\_\_\_\_
- \$25,001-\$35,000/year \_\_\_\_\_
- \$35,001-\$45,000/year \_\_\_\_\_
- \$45,001-\$55,000/year \_\_\_\_\_
- \$55,001-\$65,000/year \_\_\_\_\_
- \$Over \$65,000/year \_\_\_\_\_

15. Number of people supported by your household income  
(Circle one) 1 2 3 4 5 6 7 8+

*Thank you so much for taking the time to fill out this survey.*

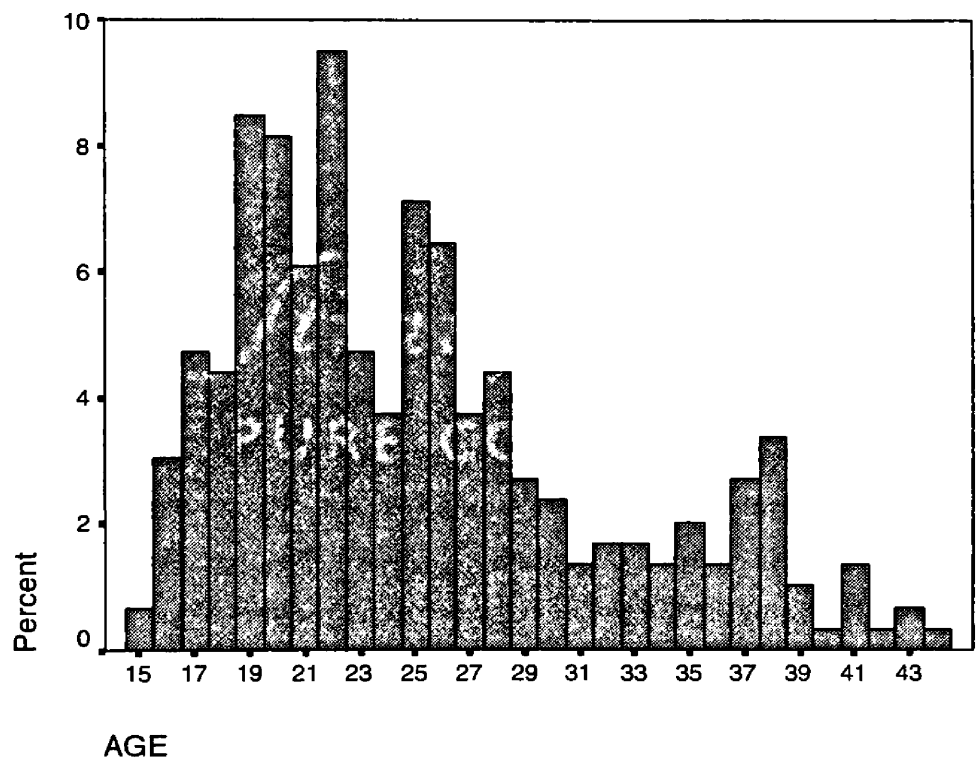
**APPENDIX E**STATISTICAL DESCRIPTION OF ABORTION CLIENTS<sup>1</sup>Age

Blue Mountain Clinic's abortion clients ranged from ages 15 to 46. The average client was 25.13 years old and 22 year olds represented the largest percentage of clients (9.5%). The median age was 24 and standard deviation 6.71. Of the applicable 295 patients, 8.5% were minors. Nineteen percent were in their thirties and 3% were in their forties.

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<sup>1</sup>See Chapter 4 for a thorough discussion of INCOME's statistical distribution.

Bar Chart E.1  
Age Distribution



### Ethnicity

Almost 91% of Blue Mountain Clinic's clients were white. Approximately 7 percent (23) were Native American, 1.3% (4) Hispanic, .6% (2) Black, .3% (1) Asian. Of the patients that were under 18, 91.7% were white and 8.3% were Native American. Almost 90% of those 18 and older were white. Approximately 7.5% were Native American, 1.6% Hispanic, .8% Black, and .4% Asian.

### Marital Status

All of the clients between the ages of 15 and 17 were unmarried. Approximately 68% of those 18 and over were single. Seventeen percent were married, 4% percent were separated and 10.9% were divorced.

### Employment

Seventy-five percent of Blue Mountain Clinic's patients reported employment. Amongst those wage-earners, 63.1% worked full-time while the remaining worked part-time. Considering clients aged 23 and over, 82.5% were employed and, of those, 74.3% worked full-time.

### Education

Amongst clients over 18, 92% had graduated from high school. Almost 70% had attended at least one year of

college. Although they were not asked whether they held a college degree, the clients did indicate the number of years of college they attended. The average number of college years attended was 1.92. Twenty-four percent attended at least four years of college, possibly earning a college degree. Almost 10% of those surveyed have attended 5 or more years of college.

Amongst patients older than 18, 30.9% indicated that they were currently attending post-secondary school. Of those, 74% were attending school full-time and the remaining were attending part-time. Eighty percent of clients attending school were between the ages of 19-24. Eleven percent were between 25 and 29. Seven percent were 30-35. No clients aged 35-40 were attending school. One client (2%) aged 46 was attending post-secondary school.

#### Previous Pregnancies

Half of all clients surveyed have been pregnant before. The maximum number of previous pregnancies, which includes live births, abortions, and miscarriages, was 9. The average number was 1.40. Amongst those older than 18, 64.2% have had previous pregnancies and 1.58 was the average number. For clients between the ages of 15 and 18,



22% have been pregnant before. The largest number of pregnancies was 2 and the average was .25.

Amongst all clients surveyed, 44% have at least one child. The average number of children was .86 and the maximum number was six. For clients younger than 18, one was the maximum number of children and 11.1% had one child.

Amongst all patients, 44% had had at least one abortion. The highest number of abortions was 5 and the average was .53. Amongst women over 18, approximately 37% had terminated a pregnancy and 27% had terminated just one pregnancy. The average number of abortions was .47. Of those 18 and younger, the maximum number of abortions was 1, 11% had terminated a pregnancy and .11 was the average.

#### Gestational Age

For all clients surveyed, the gestational ages (LMP) at the time of abortion ranged from 3.5 to 14.5 weeks. The most common week of termination (20.7%) was 7 weeks, the median was 7 weeks, and the average was 8.067 weeks. For women above 18 years old, the mode and median were still 7 weeks. The average gestational age was 7.824. Only 1.5% of these patients terminated their pregnancy at either 14 or 14.5 weeks. For patients between ages 15 and 19, the largest percentage (14%) terminated their pregnancy at 14

weeks. The average gestational age was 9.472 and the median was 9 weeks.

#### Health Insurance

Approximately 56% of clients surveyed had health insurance of some kind. Of those insured, 81% did not file a claim to pay for their abortion. Fifty-five percent of clients above 18 were insured and 82.6% of those clients did not file a claim with their insurance company. Amongst clients 18 and younger, 63.2% were insured and 87.5% did not attempt to pay for their abortion with insurance.

#### Travel Cost

Of the clients surveyed, 94.6% lived in Montana. Ten clients (3.3%) were Idaho residents. Six (2%) were from other states but were presumably in Missoula for other reasons besides terminating their pregnancy. Of clients from Montana, 35.9% were Missoulians.

The average number of miles a client traveled to Blue Mountain Clinic was 91. The median number of miles was 57 and the standard deviation 94.651. The maximum number of miles a Montana client traveled was 711.7. The minimum was approximately 5 miles. The average Montana resident traveled 87.23 and the standard deviation was 94 miles. The minimum number of miles an Idaho patient traveled was

134.1. The maximum was 311.3. The average number of miles an Idaho resident traveled was 178.6 and the standard deviation was 65.465.

#### How They Paid

The patients were asked to distinguish how they paid for at least part of their procedure. Their methods of payment included savings, credit card, help from a friend or family member, borrowing money "against" their car, pay check advance, a post-dated check, and pawning a possession. Over half of the clients paid for their abortions with savings. Thirty-three percent paid with help from friends or family. Almost 18% put at least a portion on their credit card. Approximately 11% specified other choices, half of which were taking out a loan. Three percent took an advance on their paycheck. The remaining options mentioned, borrowing against their car, post-dating a check, and pawning a possession were each only checked by three clients.

### Preferences

The clients were provided possible reasons for deciding to have their abortion at Blue Mountain Clinic and were asked to value them on levels of importance, from very important to not important. Their choices were cost, availability, ease of scheduling, reputation, security, and privacy. Almost 74% of those surveyed indicated that privacy was very important in their decision. Sixty-two percent deemed the clinic's reputation as highly important. Availability was very important to 57% of the patients. Forty-six percent felt that the ease of scheduling was very important and 42% stated security.

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