

Economic Research into the Abortion Decision: A Literature Review and a New Direction

Andrew Yuengert
Joel Fetzer

ABSTRACT: Recent economic research on abortion has emphasized the demand side of the market. Theoretical work has highlighted the role of abortion as insurance against “undesirable” children and against abandonment by the child’s father. It places abortion in the context of decisions about pregnancy and birth. Empirical work has focused on the effects of policy on abortion demand, the economic effects of abortion on women, and the characteristics of those aborted. Few researchers have explored the supply side of abortion.

1. INTRODUCTION

Since *Roe v. Wade*, social scientists and public health researchers have explored the determinants and effects of abortion in the U.S. Economists also have been active in abortion research, beginning with Deyak and Smith (1976), but research activity has picked up considerably in the past fifteen years. In this paper we will review the insights of this research, and suggest a new direction for it.

Although the “economic” analysis of abortion is assumed by most to mean the inclusion of “economic” variables—income and costs—in the analysis, the material costs and purported benefits of abortion are only part of the economic approach. Economists bring to this research two additional sets of skills. First, in their theories economists take seriously the effects of policy on human interactions. The decision to engage in sex, to abort, to marry, to give birth, and even to legislate about abortion are all interrelated, and are social in nature. Economists, in spite of their

simplified assumptions about self-interested human nature, take social interconnectedness seriously, and as a result have introduced into the abortion literature a much-needed respect for the ways in which legal abortion affects courtship, marriage, and motherhood. Second, economists bring to their empirical analysis a healthy skepticism about causation. Correlation does not always imply causation. In their research on abortion, economists attempt to slice the data in ways that reveal structural effects.

For all of the contributions that economists have made in this field, they have done surprisingly little research on the abortion industry itself. Aside from its crucial role in the provision of abortion, and the changing nature of abortion provision, the industry should be of interest to economists for its own sake: it is one of the few lightly regulated providers of medical procedures in the U.S., it is dominated by non-profits, and it faces a shortage of doctors.

The next section will describe the economic theoretical approach to abortion; section three reviews the empirical literature on abortion's effects and the effects of policy restrictions on abortion; section four outlines a proposal for research into the supply side of the abortion market.

2. ECONOMIC THEORIES OF ABORTION

Economic theories of the abortion decision are embedded in economic theories of fertility (Becker 1981, Rosenzweig and Schultz 1983). In these theories, children are treated as an investment that produces benefits over time. Parents trade off the benefits of children against the costs of having them and raising them. Contraception and abortion are methods for achieving the number of children desired by the household. Abortion in particular is treated as a sort of insurance against several events: against contraceptive failure, against the event that the child has traits not desired by the couple (female, birth defects, etc.), and against the event that the man will not assume his responsibilities to provide for the baby.

The language of the economic approach is coarse—children are consumption goods, abortion is insurance, there is a supply and a

demand for children—but it captures an important aspect of the couple's decision. It predicts that those who face the highest costs of bearing and raising children (young women who have not yet finished school, couples who face the prospect of a child with severe physical problems), and those who are least able to afford children (the poor) should be at the highest risk of having abortions.

This model also predicts that any increase in the cost of abortion—an increase in monetary price, a reduction in the number of providers, or legal limitations on accessibility—should lead to a decrease in the percentage of pregnancies resulting in abortion. Economic researchers have noted, however, that decreases in abortion rates do not necessarily lead to increases in birth rates, because decisions to risk pregnancy are related to decisions to abort. The number of births is related to the abortion rate as follows:

$$\text{births} = \text{pregnancies} - \text{abortions (spontaneous and induced)}$$

If the number of abortions falls and the number of pregnancies is unchanged, the birth rate will rise, of course. Those who assume that a fall in the abortion rate must mean a rise in the birth rate are implicitly assuming that the pregnancy rate is fixed. If instead the same factors that decrease abortion also decrease the pregnancy rate, then the birth rate may rise or fall, depending on which falls furthest. Several researchers have modeled circumstances under which this may in fact happen.¹

¹ Note that a decrease in the number of abortions can lead to a fall in the birth rate only if the number of pregnancies falls faster—if some pregnancies that would normally result in births no longer occur after the abortion rate falls. This is more likely to occur when abortion is treated as a form of insurance.

Levine et al. (1999) and Levine (2002) model the tradeoff between the costs of avoiding pregnancy and the costs of becoming pregnant (the cost of an abortion or the cost of raising a child). Because an increase in the costliness of abortion makes pregnancy less desirable, such an increase should lead to a reduction in the pregnancy rate (through contraception or a reduction in sexual activity). For small increases in the cost of abortion (say, through restrictions on Medicaid funding for abortion) both the abortion rate and the birth rate may fall, because fewer women will become pregnant. For large increases in abortion costs (say, through the recriminalization of abortion), the abortion rate will fall and the birth rate increase: even though fewer women will become pregnant, those who do will have their children, since abortion will have become too costly.

The logic of this model is underscored by a forecast in Levine et al. (1999). These researchers predict that, if abortion were recriminalized, there would be roughly 320,000 more births per year. This is much less than the decrease in abortions (at least one million) that would result. The difference is a reduction in the pregnancy rate that would result from a ban on abortion.

Kane and Staiger (1996) extend this model to describe the effect of abortion on teen motherhood. Their motivation is the seemingly puzzling empirical observation that restrictions on abortion appear to lead both to a reduction in abortion and to a reduction in births to teenagers. Because nearly one-third of teen pregnancies are legitimized by marriage before birth, Kane and Staiger suggest that abortion acts as an insurance policy in the event that the male refuses to marry the female if she becomes pregnant. If abortion is cheap, then insurance against male abandonment is cheap; more females will risk pregnancy, more will become pregnant, and those who are not married by their partners will abort their children. If abortion becomes expensive, then it will not function as insurance, and fewer women will risk pregnancy. The ones who do will be those who are most certain that their boyfriends will marry them, so a greater proportion of pregnancies will result in marriage. County-level data confirms these predictions: teen birth rates are lower in U.S. counties that have more restrictive abortion laws, or less access to abortion clinics.

Akerlof, Yellen, and Katz (1996) go beyond Kane and Staiger (1996) to explore the effect of legal abortion on the norm of marriage itself. Through the sixties, “shotgun marriage” was normative: a young man was expected to marry a young woman whom he impregnated. Such an expectation seems alien today. What led to the destruction of this norm?

The authors claim that cheap, legal abortion destroyed the rationale for the norm of shotgun marriage, by reducing the bargaining power of women in their relationships with men. When abortion is unavailable, almost all women will be able to exact a promise of marriage in the event of pregnancy, even those who would take the risk of pregnancy without such a promise, because men have no alternatives. When abortion is easily available, the strategic balance shifts. Since some women would choose abortion in the event of pregnancy, those who would not will be in a weaker position to exact a promise of marriage in the event of pregnancy. Moreover, men will be less willing to promise marriage when abortion is an option.² The destruction of the norm of shotgun marriage accounts for the increase in unwed motherhood better than competing theories, according to the authors.³

3. EMPIRICAL RESEARCH ON ABORTION

3.1. THE EFFECTS OF ABORTION

Several researchers have measured the effects of abortion on the average health of those children who are born, on the economic condition of those women who abort their children, and on the number of adoptions.

As mentioned above, Levine et al. (1996) calculate that abortion lowers American birth rates by about 8%, while it increases the pregnancy rate substantially.⁴ Joyce and Mocan (1990) document the

² The logic of the model is unchanged if the term “contraception” is substituted for “abortion.”

³ Murray (1984) claims that the generosity of the welfare system encourages unwed motherhood. Wilson (1987) claims that it is the dearth of employed males that is responsible. Although both theories are borne out in data, neither effect is large enough to explain much of the rise in unwed motherhood. See Moffitt (1992) and Wood (1995).

⁴ Klerman (1999), in a disaggregated difference in differences analysis, finds a

18% fall in adolescent birth rates in New York around the time of legalization in that state. Ananat, Gruber, and Levine (2004) examine the effect of abortion legalization on lifetime fertility and find that abortion legalization reduced the number of children born during a typical woman's fertile years, principally through an increase in the number of childless women. As a consequence of the decline in fertility, the adoption rate fell dramatically, first in those states that legalized abortion before *Roe v. Wade*, and then in the rest (Bitler and Zavodny 2002a).

The economic literature on the effects of abortion does not calculate the value or disvalue of those aborted. It is characterized by a striking disregard for the value of those aborted; the effect on a pro-life reader is jarring. A prime example of this blindness to the dignity of the unborn is Corman, Joyce, and Grossman (1988), who calculate the cost-effectiveness of abortion as a strategy to reduce child mortality without taking into account the mortality of the children aborted. Abortion is taken seriously as a way to reduce the probability of infant death in the first year, by making death certain in the womb.

smaller decline in birth rates from legalization: 2% for whites and 5% for blacks. Klerman does not, however, control for the ability of women to cross state lines to seek abortions in early legalizing states; the failure to do so may explain his smaller estimates.

Although the evidence in this literature is irrelevant to the debate over the morality of abortion, it does offer a portrait of the children aborted. Grossman and Jacobowitz (1981), Joyce (1987), and Joyce and Grossman (1990) document the increase in average birthweight and decrease in child mortality as a result of abortion.⁵ The flip side of this finding is that children at greater risk of dying soon after birth or of having a low birth weight, due either to the poverty of the parents or the physical problems of the mother, are more likely to be aborted. Those children who are aborted would have pulled down average infant health had they been born.

Several researchers analyze the lives that these aborted children might have had. Gruber, Levine, and Staiger (1999), by comparing the generations born before and after legalization across various states, assert that the “marginal children” aborted would have had greater than average probability of being born into single-mother households, of dying in the first year of life, and of being on welfare.⁶ They use their estimates to place a price tag on the government services that have been saved through abortion: \$14 billion.

Donohue and Levitt (2001), noting that the recent decreases in crime began earlier in states that legalized abortion early, assert that legalized abortion decreased crime, since those aborted were more likely to be born into at-risk groups (poor, single-parent families). Joyce (2004a) disputes this, claiming that Donohue and Levitt do not sufficiently control for the effect of the crack cocaine epidemic. Donohue

⁵ See also Grossman and Joyce (1990) and Meier and McFarlane (1994).

⁶ Bitler and Zavodny (2002b) investigate whether rates of reported child abuse decline with abortion legalization. The evidence that abortion has led to lower rates of child abuse is somewhat mixed.

and Levitt (2004) is a reply to Joyce; Joyce (2004b) continues the debate. Charles and Stephens (2002) offer support for Donohue and Levitt's hypothesis by documenting the lower rates of drug addiction among those generations born after abortion was legal.

A related set of papers investigates the effect of abortion on the economic experience of those teenagers who abort. It is a well-established result that those who give birth while teenagers have lower levels of schooling, employment, marriage, and lower earnings later in life (Hofferth 1987). Angrist and Evans (1999), using census data, note that those who lived in states that had legal abortion when they were teens have more education and are more likely to be employed later in life. Hotz, Mullin, and Sanders (1997) and Hotz, McElroy, and Sanders (1999) dispute the received wisdom that teenage childbearing results in worse economic outcomes. They compare employment rates and schooling levels of those who conceived and gave birth during their teenage years with those who conceived and miscarried during their teen years, claiming that this second group is the appropriate control group for teen mothers. This comparison yields very little impact of teen childbearing on life prospects. Teen mothers do experience worse economic outcomes than those who do not become teen mothers, but it is not motherhood that holds them back: it is the same factors that make them likely to conceive in their teen years.

3.2. THE EFFECTS OF PUBLIC POLICY ON ABORTION AND CHILDBEARING

A large literature (going back to Coelen and McIntyre 1978) investigates the effects of government restrictions and the number of providers on abortion rates and birthrates. Researchers pay most attention to Medicaid funding restrictions, the number of and distance to abortion providers, and parental involvement laws.⁷ Blank, George, and London (1996) is

⁷ Recent research uses abortion rates by state. There are two sources for this data: the Center for Disease Control (CDC), which collects the data from state agencies, and the Alan Guttmacher Institute periodic surveys of abortion providers (AGI). The CDC data is yearly in frequency, but may not be as comprehensive as the AGI data, which is not yearly. See New (2004) for a discussion of both data sets.

typical. In a panel of states covering the years 1974-1988, they find that the state abortion rate increases in relation to the number of abortion providers, decreases in states that have Medicaid funding restrictions, and is unaffected by parental involvement laws. They also find that much of the effect of Medicaid and provider restrictions is undone by the willingness of women to cross state lines to get abortions. Ananat, Gruber, and Levine (2004) confirm this cross-border travel for abortion.

These three results—that provider access increases abortion, that Medicaid restrictions decrease abortion, and that parental notification laws are ineffective—are representative of the literature. The positive effect of the number of abortion providers is almost universal. The negative effect of Medicaid restrictions is found in Lundberg and Plotnick (1995), Levine et al. (1999), Matthews, Ribar, and Wilhelm (1997), Medoff (1997), Cook et al. (1999), New (2004), and Klerman (1999). Meier et al. (1996) is the only exception to this finding.

The insignificant effect of parental involvement laws is similarly universal in these state studies. New (2004) finds no significant effect across states. Joyce and Kaestner (1996), in a more detailed study of three southern states, find little effect from parental notification laws, because many teenagers tell their parents they are pregnant, and a significant number are willing to cross state lines to get an abortion. Lichter, McLaughlin, and Ribar (1998) find a positive effect from parental notification laws on the number of female-headed households, but this effect is sensitive to the measure of household.

More recent work has evaluated the effect of informed consent and mandatory waiting periods on abortion rates. New (2004) finds that informed consent laws reduce abortion rates.⁸ Joyce and Kaestner (2000) find that the Mississippi informed consent and mandatory waiting period law resulted in some interstate travel to obtain abortion,

⁸ New (2004) also finds a negative effect of partial birth abortion bans on abortion rates.

and in a postponing of abortion into the second trimester.

As mentioned above in section two, increases in the costliness of abortion should also affect pregnancy and birth rates. This effect has been found by several researchers. Kane and Staiger (1996) find that restrictions on Medicaid funding lower the teen birthrate. Matthews, Ribar, and Wilhelm find a decrease in overall birthrates in states that restrict abortion funding. Levine, Trainor, and Zimmerman (1996) find that Medicaid restrictions also decrease the pregnancy rate. Levine (2002) finds that parental involvement laws decrease pregnancy rates through greater contraceptive use.

These studies, taken together, teach us the following lessons about government policy toward abortion:

1. Those children who are at greatest risk of poverty, crime, drug abuse, or physical problems are also at greatest risk of abortion.
2. Medicaid restrictions decrease the abortion rate modestly. In states whose neighbors do not have such restrictions, a significant number of women cross state borders to get abortions.
3. Parental notification laws do not appear to reduce abortion rates.
4. Informed consent and mandatory waiting periods reduce abortion rates modestly.
5. Abortion policy affects not only abortion: decisions about sexual activity, contraception, and marriage are all affected by the availability of abortion.

3.3. ECONOMETRIC CONCERNS: CAUSATION IN ABORTION DATA

Among the many differences between social science and natural science is the inability of social scientists to conduct randomized experiments. For example, if a natural scientist wants to test the effect of brain damage on mice, he will not look for mice that happen to be brain damaged and compare them to those who are not, because brain damaged mice may be systematically different from other mice in ways that are not due to the brain damage but simply correlated with it. Instead, the scientist will choose a random sample of mice and inflict brain damage on them, and then compare them to some lucky control

group. Any differences between the treatment and control groups may then be attributed to the brain damage.

Social scientists cannot do this because they work with human subjects, families, and political communities. If we want to see the effect of Medicaid restrictions on abortion rates, we cannot simply compare states with restrictions and those without restrictions. There may be differences in cultural or political climate that lead both to abortion restrictions and to lower abortion rates, independent of those restrictions. Neither can we get funding and randomly assign states to the “restrictions” and “non-restrictions” treatment categories. We must make do with data that reflects the free choices made by the subjects we are studying.

The challenge of non-randomized data is addressed in two ways in the empirical abortion literature. The first is to use the unit of observation (the state, the teenager) as its own control across time, through the use of panel data. The second is to look for “natural experiments,” events that assign individuals to different policy environments in close to random ways.⁹

Blank, George, and London (1996) is typical of the first approach. They wish to judge the effects of abortion policy restrictions on state abortion rates, but they are suspicious of comparisons of across states. States that have restrictions may have lower abortion rates, not because of the restrictions, but because of political and cultural factors that lower the abortion rates and at the same time make the passage of abortion funding restrictions more likely. To solve this problem, they use each state as its own control, employing “fixed effects.” Their data consists of fourteen years of observations on each state; in their regressions, they add a dummy variable for each state. This converts the analysis from a

⁹ Grossman and Joyce (1990) make use of a third approach, correcting for endogeneity at the individual level, using two-stage methods to correct for the simultaneity of the abortion decision and the determinants of the health of the child to be born or aborted.

comparison of levels to a comparison of differences from state averages: any time-invariant cultural or political environmental effects that explain low or high abortion rates in a state are excluded from the analysis.

Blank, George, and London (1996) cite as evidence of these unmeasured effects the fact that Medicaid funding restrictions that are blocked by courts still appear to reduce abortion rates. Since the restrictions are not themselves binding, there must be some factor that leads both to lower abortion rates and the passage of the enjoined restrictions. Kane and Staiger (1996), Matthews, Ribar, and Wilhelm (1997), Meier et al. (1996), and Lichter, McLaughlin, Ribar (1998), and New (2004) all employ fixed effects at either the state or the country level. Lichter, McLaughlin, and Ribar (1998) argue that state-fixed effects do not effectively control for important unmeasured factors at the county level, and argue for county-level fixed effects.

A second way to address the non-randomness of abortion data is to take advantage of “natural experiments”—events that are not the choice of the two groups being compared and that are assigned randomly. The most important natural experiment in this literature is the staggered legalization of abortion. Although *Roe v. Wade* resulted in the legalization of abortion in every state, five states (New York, California, Washington, Alaska, and Hawaii) liberalized their abortion laws in 1970. If this abrupt legalization of abortion (and the subsequent rapid increase in the abortion rate) can be treated as a random assignment, at least from the point of view of women living in the states, then those states that did not legalize abortion early can serve as controls for those that did.

Several studies have taken advantage of this staggered abortion legalization to explore the effects of abortion. Angrist and Evans (1999) document the earlier fall in the teen birth rate in states that legalized abortion earlier and (for women from those states) higher education levels and employment rates for women who were teenagers in the states that legalized abortion first. Ananat, Gruber, and Levine (2004) compare the lifetime fertility of women in early legalizing states with that of women in late legalizing states; they found a decline in the number of children born during the fertile years. Most of the decline in lifetime fertility rates are due to a large increase in the number of childless

women. Gruber, Levine, and Staiger (1999) compare children born in the early liberalizing states with those born in other states, and find that the former have lower rates of poverty, are more likely to live with two parents, and have lower rates of welfare usage. The differences are attributed to selective abortion. Charles and Stephens (2002) make a similar comparison and find that children born into the early legalizing states from 1970 to 1973 are less likely to be drug addicts than those born into the other states at the same time. The work of Donohue and Levitt (2001) and Donohue and Levitt (2004) also makes use of this natural experiment, claiming that those states that legalized abortion early experienced declining crime rates in the 1990s earlier than other states.¹⁰

A third empirical concern in the economics literature on abortion is simultaneity of abortion access variables. All of this research has concentrated on the demand side; many studies declare that they are exploring the demand for abortions. The number of abortions, however, is a product of the interaction of demand and supply considerations. Any time a researcher puts an "abortion access" variable, such as the number of abortion providers or price, into a regression, he risks confounding supply and demand effects. For example, if the number of abortion providers is found to be correlated with the number of abortions performed, is this due to there being a greater demand for abortions when they are more easily available, or is it instead due to the fact that there will be more providers when there is greater demand? The answer to this question matters, both to those who wish to increase and those who wish to decrease the number of abortions. The relative effectiveness of strategies aimed at the supply or the demand side of this market hinge on the relative shapes of the supply and demand curves.

Since most research to date has addressed the demand side of this market, instrumental variables approaches have been used to isolate demand effects of abortion access variables. Blank, George, and London

¹⁰ Hotz, Mullin, and Sanders (1997) and Hotz, McElroy, and Sanders (1999) make use of another natural experiment: miscarriage. They use teenagers who miscarry as a control group for teens who give birth to assess the effect of teen motherhood on future economic well-being.

(1996) use the number of abortion providers as a proxy for the price of abortion, and instrument it with variables reflecting the local cost of providing medical care (number of doctors, number of hospitals). Medoff (1997) puts no supply-side measures in his demand equation, but instead uses them as instruments for the price of abortion, in order to separate out the effect of price on the demand and supply of abortion.

These attempts to separate the demand and supply side of the market raise an important issue in this literature: why so little interest in the supply side of this market? It is to this question that we now turn.

4. STUDYING THE SUPPLY SIDE

It is surprising that so little research has been conducted on the supply side of the abortion market. It is not because there are no policy concerns about abortion access, or a lack of data. The Alan Guttmacher Institute periodically conducts a thorough survey of abortion providers (Henshaw, Forrest, and Blaine 1984, Henshaw 1995, Henshaw 1998, Finer and Henshaw 2003), and has documented a decrease in their number. Most of the research on the supply side is purely descriptive and has the stated goal of documenting access to abortion and abortion training: Henshaw and Finer (2003) present survey results on pricing and availability; Orr and Forrest (1985) describe the provision of contraceptives and abortion by private U.S. physicians; Almeling, Tews, and Dudley (2000) report on abortion training in U.S. residency programs; Ferris, McMain-Klein and Iron (1998) describe the provision of abortion in Toronto hospitals.

The first task for our research into the economics of abortion will be a more thorough study of the supply side of this industry. We discern three themes on the supply side:

1. *Industry structure*: what sort of industry is this? Is it competitive, oligopolistic, monopolistically competitive? How profitable is abortion
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to clinics, to doctors? Do abortion providers compete over price? Are there significant barriers to entry? If so, are these barriers to entry caused by the unwillingness of abortion doctors to train others? Are lobbying efforts to allow non-MDs to perform abortions related to these entry barriers?

2. *The diversity of institutions*: how is the industry affected by its many non-profit providers (Planned Parenthood, in particular)? Why has much of the growth in provision been through small clinics? What role do HMOs play in this industry (Matthews, Ribar, and Wilhelm 1997 find that HMOs are associated with higher abortion rates)? What role does the pharmaceutical industry play?

3. *New technologies*: How is the introduction of over-the-counter abortifacients affecting the abortion industry? What is the relationship between abortion providers and drug companies?

These themes give a rough outline of our research interests. Our first project will be to investigate the location decisions of abortion providers. We hope to collect U.S. abortion provider data by county and to investigate its relationship to general cost factors, to policy conditions (abortion restrictions, regulatory environment), to pro-life activity in the county, and to demand factors (teen population, proximity to colleges and universities, poverty rates). By approaching this industry from a new direction—from the supply side—we hope to understand its role in promoting abortion—its successes and failures—better.

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