

Abstract for “The Marginal Child throughout the Life Cycle:  
Evidence from Early Law Variation”

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The fetal origins hypothesis originally developed by Barker (1992) and others has recently been explored in economics research by testing the effects of early life and pre-natal circumstances on adult life expectancy; examples include the 1918 influenza epidemic (Almond 2006), and season of birth (Costa and Lahey 2005), among many others. In a separate literature, researchers have recently estimated effects of wantedness on childhood living circumstances and early adult outcomes and imputed from these estimates the characteristics of the “marginal child” (Gruber et al. 1999, Angrist and Evans 1999, Ananat and Hungerman 2007, Ananat et al. forthcoming, among others.) However, the two lines of research have not been in dialogue because the variations in wantedness exploited in previous papers were the introduction of the pill and abortion legalization, changes which occurred too recently to allow researchers to test the effects on adult life expectancy and other long-term outcomes. Investigations of the long-run effects of wantedness, including the essential question of the relationship between wantedness and life expectancy, will not be possible using such variation for another 30 or more years.

However, there have been previous legal changes that, like abortion legalization and oral contraception diffusion, amounted to natural experiments in which cohorts born in some states and years included fewer unwanted births than those born in other states and years. Until now, these changes have not been documented or exploited. We take advantage of these legal changes by using 19<sup>th</sup>-century state legal codes to compile a

dataset on the introduction and amendment of laws restricting activities related to birth control and abortion that occurred in states during the 19<sup>th</sup> century.<sup>1</sup>

For each of the 50 states, we collected laws from the earliest possible date through the 1920s. We collected laws concerning: obscene supplies (“articles or instruments of immoral use,” such as devices, appliances, apparatuses, or drugs); obscene information (any material containing obscene language or images, including information on how to obtain supplies); laws specifically outlawing information or actions related to the “prevention of conception” (birth control); and laws specifically outlawing information or actions related to “procuring a miscarriage” (abortion). For each law, we noted how what share of possible activities it restricted: importing; sale; advertisement; distribution (including circulating or printing information); verbal communication (including “uttering” or giving oral information); using the postal service; possession; possession with intent to sell or distribute; or singing. We recorded each law’s severity: whether the offense was classified as a misdemeanor or a felony (or left unclassified), as well as the punishment, if specified. We also noted exemptions, coding for each law whether it contained a clause indicating that it did not apply to the following: scientific or medical works or books; medical colleges; practitioners of medicine (can refer to physicians, nurses, druggists, midwives, etc.); artists and works of art; or activities for saving the life of the mother.

Using Census data compiled by Haines (in Carter et al. 2006) on state ratios of children aged 0-9 to women aged 15-44,<sup>2</sup> we demonstrate that introducing a law

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<sup>1</sup> Birth control and abortion technologies available in the 19<sup>th</sup>-century U.S. included: condoms (which became inexpensive after the vulcanization of rubber in 1844); diaphragms and cervical caps (then called pessaries); IUDs; the rhythm method (which required instruction); herbal abortifacients that were effective in early pregnancy; and surgical abortion (which was common throughout the 19<sup>th</sup> century and increased in frequency after the modern dilation and curettage, or “D&C,” method was popularized in mid-century).

restricting these activities resulted in an increase in birthrates among whites of approximately 7 percent, comparable to the effect sizes of laws restricting abortion and birth control in the 1970s. We find that more restrictive laws have slightly larger effects, while laws with significant exemptions for health professionals have weaker effects. We find that socially conservative laws that do not regulate birth control and abortion (i.e., restrictions on obscene songs) do not affect the birth rate. We demonstrate that the adoption of such laws cannot be predicted by potentially endogenous state characteristics such as: percent immigrant, lagged birthrates, the state ratio of female to male population, or the share of the population that died in the Civil War. We argue that these results imply that 19<sup>th</sup>-century state laws against abortion and birth control caused increases in the birthrate, and that these marginal births can be considered “unwanted” in the spirit of the 1970s legal reform and birth rate literature.

Using this variation in 19<sup>th</sup>-century legal environment, we investigate the effects of wantedness on adult life expectancy using Census data from 1900 to 2000. We find that individuals in the 1850-1919 cohorts born in states and years with laws outlawing abortion and birth control were 5 percent less likely to survive their 60s or 70s. It is notable that these are the age ranges in life expectancy considered to be most affected by the fetal environment (Barker 1992). The effect is slightly larger for women than for men, and is not significant for African-Americans (whose birth rates may also not have been affected by these laws). Laws restricting obscene songs, which did not affect birth rates, also do not affect longevity. These results imply that the marginal (or the typical

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<sup>2</sup>Unfortunately the Census provides reliable 19<sup>th</sup>-century data on these measures only for whites (Carter et al. 2006); hence our results cannot be generalized to other races.

“unwanted”) child who was born due to fertility control restrictions was 69 percent less likely to survive to old age than was the average child born in that era.

### References

Almond, Douglas. 2006. “Is the 1918 Influenza Pandemic Over? Long-term Effects of *In Utero* Influenza Exposure in the Post-1940 U.S. Population.” *Journal of Political Economy* 114 (4): 672-712.

Ananat, Elizabeth Oltmans, Jonathan Gruber, Phillip B. Levine, and Douglas Staiger. (forthcoming). “Abortion and Selection,” *Review of Economics and Statistics*.

Ananat, Elizabeth Oltmans, and Daniel M. Hungerman (2007). “The Power of the Pill for the Next Generation.” National Bureau of Economic Research Working Paper #13402.

Angrist, Joshua and William N. Evans. (1999). “Schooling and Labor-Market Consequences of the 1970 State Abortion Reforms,” in Solomon Polachek and John Robst (eds.), *Research in Labor Economics* 18 (1999),

Barker, D. J. P. 1992. *Fetal and Infant Origins of Adult Disease*. London: British Medical Publishing Group.

Carter, Susan B., Scott Sigmund Gartner, Michael R. Haines, Alan L. Olmstead, Richard Sutch, and Gavin Wright. 2006. *Historical Statistics of the United States*. New York: Cambridge University Press.

Costa, Dora L and Joanna N. Lahey. 2005. “Becoming Oldest-Old: Evidence from Historical US Data.” *Genus*. 61(1): 125-6. 1.

Gruber, Jonathan, Phillip B. Levine, and Douglas Staiger. (1999). “Abortion Legalization and Child Living Circumstances: Who is the ‘Marginal Child?’” *Quarterly Journal of Economics* 114(1), 263-292.