

The Power of Contraception in Australia

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Abstract

This paper compiles a history of Australian age of majority laws, mature minor doctrines, and abortion regulations to build a measure of when women aged 18–20 in each Australian state had legal autonomy in making medical decisions relating to their fertility. We extend past work on the US population by using variation in the between-states timing of autonomy to identify the effect of autonomy on oral contraceptive (the Pill) use in a synthetic monthly panel of both married and unmarried Australian women from the Australian Family Project, finding that the ability to consent to oral contraceptive treatment at ages 18–20 increases the probability of using the Pill in a given month by around 20 percentage points. We find no effect on rates of abortion in the same synthetic panel. We then use this variation in the between-states timing of autonomy to identify the effects on incomes and educational attainment using the Australian Census of Population and Housing. Estimates of effects are broadly consistent with but somewhat smaller than those from the US. We find that liberalized youth consent at ages 18–20 reduces incomes by 10% during ages 25–29 but that the effect is non-negative afterward and rises to an increase of 5% by age 45. Youth consent increases bachelor degree attainment by around 1 percentage point for women (from a baseline of about 14%).

1 Introduction

Goldin and Katz (2002) made a groundbreaking contribution to our understanding of women’s economic freedom by using differently-timed changes in state age of majority laws and mature minor doctrines in the United States as potentially exogenous variation in the cost of obtaining and using oral contraceptives (“the Pill”). Their work, and others’ extensions of this framework (Ananat and Hungerman 2012; Bailey 2006; Bailey, Guldi, et al. 2011; Bailey, Hershbein, and Miller 2012; Browne and LaLumia 2014; Hock 2007) showed that unmarried women in cohorts that gained the ability to legally make their own medical decisions in late adolescence and early adulthood had later fertility, higher incomes late in life, and more educational attainment and were more likely to participate in careers that had been historically male. As far as we know, all of the work to date using this identification strategy has focused on people in the United States. We show that many of the same arguments for the value of legal changes in the US as exogenous shocks also apply in Australia and use the same framework to analyze the effect of legal autonomy on Pill and abortion use, lifetime income paths, educational attainment, completed fertility, and career choice for women in Australia.

Past work interpreted effects of liberalization of youth consent as primarily affecting life outcomes by giving “early legal access” (ELA) to contraceptives for young women (although Myers 2017 argues that errors in other researchers’ data caused them to conflate effects of abortion policy with effects of the pill). This claim is based mainly on three facts: the ability to consent to medical treatment is crucial to the use of oral contraceptives, which require a prescription; oral contraceptive use was higher in 1971 in US states with liberalized youth consent laws (Goldin and Katz 2002) and also higher among cohorts of married women treated with liberalized youth consent laws even when conditioning on (US) state of residence and birth cohort characteristics shared across states (Bailey, Hershbein, and Miller 2012); and the effects of the legal changes appeared to be mostly concentrated in the experiences of women rather than men (e.g. Hock 2007). We present evidence that liberalized youth consent laws in Australia increased Pill use and had little effect on abortion prevalence among young women. Our estimates extend past work by showing results for Australia but also by estimating the effect for both married and unmarried women and for panels of women whose data extend over the entire set of legal changes we are considering.¹

Section 2 outlines the historical legal environment determining youth consent in Australia and presents evidence that these laws were the result of a general nation-wide sense that youths deserved more rights rather than a drive for women to be able to consent to medical treatments. Section 3 looks at the mechanisms by which these laws would effect women’s life outcomes and specifically addresses the question of whether being considered a legal adult increased Pill and abortion use. Section 4 describes our method for estimating effects of youth consent on income and education, Section 5 describes the Census data we use for this purpose, and Sections 6 and 7 describe the results.

2 Overview of youth consent and abortion laws in Australia

We focus on two major classes of legal rules in our analysis: age of majority laws, mature minor doctrines, and laws and court decisions regarding abortion. As we will show, consent laws in Australia do not clearly provide “Early Legal Access” to oral contraceptives and not abortion. Thus we eschew this term popularized by Bailey (2006) and instead use the general term “youth consent” (or “YC”) to refer to the ability of a person aged 18-20 (inclusive) to have the same autonomy in making medical decisions as an adult.

2.1 Age of majority and mature minor doctrines

Every state and major territory has its own age of majority law (hereafter “AoM”) lowering the age of majority from 21 to 18 years old. Table 1 gives the dates when each law came into force (“commenced”). Two states (New South Wales and South Australia) have separate statutory minimum ages for medical consent. For further discussion of the legal environment by state, see Appendix A.

Most states and territories have a mature minor doctrine that is based on an English case *Gillick v West Norfolk and Wisbech Area Health Authority* (1986) and the “Fraser Guidelines” developed in that case. The ruling from *Gillick* was approved in Australia on 6 May 1992 in *Secretary, Department of Health and Community Services v JWB and SMB (Marion’s Case)* (1992) 175 CLR 218, FC 92/010. The ruling states that “A minor is capable of giving informed consent when he/she achieves a sufficient understanding and intelligence to enable him/her to understand fully what is proposed”. Interestingly,

¹Goldin and Katz (2002) used a cross-section in the 1971 National Survey of Young Women (US). Bailey, Hershbein, and Miller (2012) were able to improve on those estimates by identifying differential treatment of separate birth cohorts in the 1970 National Fertility Survey, but only five US states had ELA before 1970, and those five states may have had atypical reasons for legal changes.

Table 1: Dates of age of majority laws and mature minor doctrines by state and territory (MM is “mature minor doctrine” and AoM is “age of majority of 18” unless otherwise specified)

State or territory	MM commenced	AoM Commenced	Separate age for medical consent
New South Wales	6 May 1992	*1 Jul 1971	*1 Jul 1971 (min. age: 14)
South Australia	**1 May 1987	15 Apr 1971	**1 May 1987 (min. age: 16)
Western Australia	6 May 1992	1 Nov 1972	
Tasmania	6 May 1992	1 Aug 1973	
Australian Capital Terr.	6 May 1992	1 Nov 1974	
Northern Territory	6 May 1992	1 Nov 1974	
Queensland	6 May 1992	1 Mar 1975	
Victoria	6 May 1992	1 Feb 1978	

**Minors (Property and Contracts) Act 1970*

***Consent to Medical and Dental Treatment Act 1985*

Gillick was a question of whether children under 16 could give consent, whereas most Australian states at the time had no law explicitly granting consent privileges to children aged 16 to 18 (NSW and SA are exceptions).

Gillick competence also grants a right of confidentiality to the minor. However, it is not clear that parents would not find out about a child’s treatment because in most cases there was a record of treatment attached to the parent’s Medicare account that the parent may have been able to view before 2003. After 2003, it became easier for young people to get their own Medicare card, and bulk billing codes made it easier for children to obscure their treatment from parents. (Research and sources on this topic are still a gap in my work.)

Even before Marion’s Case in 1992, *Gillick* was effectively in force in Australia. A report from The Law Reform Commission of Western Australia in 1988 stated that “The common law has already given minors under 16 the right to consent to medical treatment if they are mature” and pointed out that the decision had been used in Australian courts as early as 1987 and that medical organizations in Australia used *Gillick* as the basis for their guidelines. The Family Planning Association of Western Australia is a particularly relevant organization whose 1986 guidelines for medical practitioners incorporated the *Gillick* rules.

The Law Reform Commission of Western Australia report also repeatedly makes the case that there was never a time in Australian history when youths were barred from making every medical decision for their selves. Instead, accepting the consent of 16-year-olds (and sometimes younger people) was the norm. It seems likely to me that acceptance of youth consent by physicians grew gradually over the 1960s to 1980s, but I do not yet have clear evidence on this. The Commission also suggested that some physicians feared that providing contraceptive services to girls under age 16 would make them guilty of inciting a violation of the criminal code (it was a crime to have sex with a girl under age 16).

2.2 Abortion

Abortion laws in Australia follow four major regimes.

1. Early on, all states banned “unlawful” abortions, but these laws did not specify which abortions were unlawful. Presumably, interpretation of these laws would be based on English common law.
2. South Australia legalized abortion in many cases in 1969 through legislation.

3. Most other states clearly had common law allowances for “lawful” abortions to protect the pregnant woman that flowed from Australian court decisions starting in 1969.
4. Most (but not all) states liberalized their abortion laws within the last 20 years. These changes are outside the scope of our analysis.

2.2.1 Abortion in the common law

Early in the 20th century, Australian states had criminal laws based on the English *Offences Against The Person Act 1861 (England)*, which made “unlawful” abortions a crime. An English case, *King v Bourne* (1939), established that abortion was lawful to protect the life (broadly defined by Justice MacNaghten to include protecting her from becoming a “physical or mental wreck”) of the pregnant woman. British common law applied to Australia into the 1960s (A. C. Castles 1963), so this case should have been the legal framework for Australian courts. The test came in 1969 when police in Melbourne, NSW, raided abortion clinics (in response to doctors failing to pay bribes, (Gleeson 2009)), leading to the case of *R v Davidson*. The “Menhennitt ruling” in this case followed *Bourne* and specified that abortion could be lawful if it were “necessary to preserve the woman from a serious danger to her life or her physical or mental health (not being merely the normal dangers of pregnancy and childbirth)” (Victorian Law Reform Commission 2008) and became the basis for subsequent ruling in other states.

The ruling still implies great ambiguity, and we must look to medical history to know what impact it had on actual provision of abortion services. It is possible that physicians interpreted this as an indication that as long as they discussed the costs of pregnancy with patients that they were defended from prosecution. In NSW, whose courts adopted nearly identical rules in 1972 (*R v Wald*), a doctor was convicted of unlawful abortion in 2006 precisely because she did not discuss the possible costs of not terminating the pregnancy with the patient before the procedure. The implication was that if a physician made a decision about abortion after deliberation and discussion with the patient that the abortion would be lawful, and in this case the only reason a jury could claim that the termination was not justified was that there was evidence that the physician had not treated the case with sufficient concern. This implies de facto legal authority of physicians over whether to allow abortions.

2.2.2 Statutory abortion law in South Australia

Since 1969, South Australia has allowed abortions if “continuing the pregnancy would involve *greater* risk of injury to the physical or mental health of the woman, or involve *greater* risk to the life of the woman than termination” (Criminal Law Consolidation Act 1935, emphasis added; this was a 1969 amendment based on English common law in *Bourne*) or to end pregnancies where the child would likely “suffer from such physical or mental abnormality as to be seriously handicapped”.

Although the standard in SA is to compare the risk of continuing the pregnancy to not continuing the pregnancy, and the standard in other states is to compare the risk of continuing the pregnancy to the risk of a typical pregnancy, in practice the two standards are often treated similarly by medical practitioners (Victorian Law Reform Commission 2008). A patient must have lived in SA for at least two months before the abortion unless the abortion is needed to preserve the life of the patient or due to some serious expected abnormality of the child. Abortions are generally only allowed after 28 weeks to preserve the life of the mother.

2.3 Age of majority changes as a result of the Vietnam War

The age of majority (hereafter AoM) changes started as a nationwide effort to lower the voting age. The Attorneys General of the various states and of the Commonwealth agreed that voting age laws would need to be uniform throughout the nation, and the issue was discussed at a conference of state Premiers and a conference of Attorneys General in 1968 and was subject to a great deal of discussion and cooperation between the national Attorney General and the governments of the individual states in the following years. The original recommendation for the lower voting age was from a committee in New South Wales in a report that was then considered by the Standing Committee of Commonwealth and State Attorneys-General, and it was agreed that all states would adopt the recommendations of the report if there was overall agreement to the terms of the report. The Canberra Times reported that the national Attorney General called the efforts “constructive federalism”. The point we are making here is that the age of majority changes were products of one national-level motivation, whereas the differential timing of the laws might be due to bureaucratic issues. After New South Wales lowered its voting age to 18 in 1970 (effective in 1973), the Canberra Times reported that the Attorney General of Tasmania, Max Bingham, predicted that a voting age of 18 would be “Australia-wide policy within 18 months” (“NSW in favour of voting age cut” 1970).

The case for exogeneity of these legal changes is strengthened by the reasons for their adoption. As in the United States, Australia participated in the war in Vietnam starting in the 1960s. Like the US, Australia conscripted soldiers to fight in Vietnam, and like in the US this led to intense public opposition.² As in the US, males over age 18 were eligible for conscription in Australia but were often ineligible to vote due to their age. The apparent injustice of this led to the extension of voting rights for members of the armed forces over age 18 serving in South Asia starting in 1966 (*Commonwealth Electoral Act 1966*).

There was likely a direct effect of perceptions of an unjust conflict between conscription at age 20 and voting at age 21. The authors conducted a search of Australian newspapers throughout the 1960s and 1970s for results related to synonyms for “conscription” and “voting age”. The articles came mostly from the Canberra Times and The Australian Women’s Weekly but included some smaller publications. Debates about lowering the voting age and the age of majority often mentioned military service but never mentioned a desire by young women to obtain contraception or consent to medical treatment (although the right to consent to marriage was discussed). This direct effect on attitudes toward a lower voting age is likely compounded by an indirect effect of youth military service and conscription due to some young armed forces members having the vote.

²Prior to a few years before wide-scale Australian participation in the Vietnam war, Australian conscription generally did not allow for drafted persons to be required to serve outside of Australian territory. For instance, the National Service Act 1951 states that, “A person is not liable to render service under this Act beyond the limits of Australia.” The only exception was a minor case from WWII where conscripts were required to serve in the South-West Pacific in Dutch territories [CITE], but this was still viewed as defense of Australian territory because Japanese forces there were close to Australian territory [CITE]. The National Service Act 1964 (assented to on November 24, 1964) amended the National Service Act 1951–1957 to place conscripts into the Regular Army Supplement rather than the Citizen Military Forces (CMF) and to remove the restriction preventing conscripts from being sent outside of Australian territory. The restriction limiting the CMF to Australian territories remained in the Defense Act 1964, but conscripts would no longer be placed in that branch of the Military Forces, so this gave young men an opportunity to avoid being sent to Vietnam if they joined the CMF before being conscripted. The age requirements were different from previous conscription requirements. The 1951 Act allowed for males aged 18–26 (and 17-year-olds who voluntarily registered for conscription) to be called up for compulsory military service, whereas the 1964 Act limited the ages to 20–26. 20 was still below the age of majority and below the voting age in any state or territory.

3 Effect of youth consent on Pill uptake and abortion

Oral contraceptives became available in Australia in 1961, and, as we will show, their use quickly spread in the early 1970s—just when Australian states were lowering their ages of majority from 21 to 18.

In order to make the argument that consent law changes are a good proxy (or possibly instrument) for contraceptive choices in an analysis of contraceptives' effect on life outcomes, we need to show that these legal changes impact life outcomes primarily (or exclusively in the case of instruments) through their impact on contraceptive choices. A minimum standard of evidence is to show that consent law changes actually do impact contraceptive choices.

One important question that follows is *which* contraceptive choices we think that consent law impacts. Past researchers have focused mostly on oral contraceptives. The primary argument for this choice is that oral contraceptives generally require a prescription. Myers (2017), however, argues that much of the claimed effects of oral contraceptives can be attributed to abortion access. Although past work does attempt to control for abortion laws and practices, the validity of their methodology relies primarily on the reader's acceptance of the historical arguments for the exclusion restriction that consent law impacts the outcome variables only through Pill access—not based on estimates including abortion controls. The reasons are that consent law changes generally predated abortion law liberalization and that the arguments for abortion law exogeneity are weaker than the argument for consent law exogeneity. If consent law changes represent a pseudo-random assignment of only Pill access, then the methodology is sound even if they do not control for abortion laws. This methodology fails if increases in abortion access were coincident with consent law changes (for instance, in the handful of US states that legalized abortion before lowering their ages of majority) or if consent law changes increased access to abortion and the estimates did not properly control for abortion.

In this section of the paper, we attempt to provide additional evidence on the mechanisms by which consent laws affect life outcomes by estimating the effects of consent law changes on oral contraceptive and abortion use. Goldin and Katz (2002) and Bailey, Hershbein, and Miller (2012) provided estimates of the effect of liberal state consent laws in the US on Pill use. Our estimates extend the analysis to Australia and improve on theirs in three ways. First, the data we use observe Pill use patterns over a longer period of time for each individual. Second, Goldin and Katz (2002) are able to estimate only within-time-period variation in Pill use across states with their data, whereas observing Pill use over an extended period allows us to use a difference-in-difference strategy that removes pre-treatment differences between states (we also show estimates based only on within-time-period variation for comparison).³ Third, the 1970 National Fertility Sample used by Bailey, Hershbein, and Miller (2012) gives Pill use only for the set of married women, whereas we expect the primary effect of consent laws to be on unmarried women (Goldin and Katz 2002, for instance, discuss the fact that married or engaged women were typically able to get oral contraceptives even when unmarried women of the same age could not), and the Australian Family Project data we use include both married and unmarried women. Despite calling these improvements, we caution the reader that Australia and the US have different cultures and legal environments and that the effects of youth consent laws on Pill use may not be the same in the two countries.

³Bailey, Hershbein, and Miller (2012) also did this. Unlike them, we observe Pill use patterns over the entire set of age of majority changes within Australia, whereas Bailey, Hershbein, and Miller (2012) can only estimate the effect of liberalized consent laws on Pill use based on a few states in the US that changed their laws before 1970. However, it is not clear that this suggests a strong benefit from our estimates, as the US has more states, anyway. The sample sizes are very similar.

3.1 Data: Australian Family Project

The Australian Family Project surveyed women aged 20 to 59 in 1986 and 1987 in Australia. The survey asked detailed questions about where each respondent had lived throughout their lives and which contraceptive methods they used. We observe many of these data with monthly precision, so we reconstruct a synthetic panel of individual lifetimes. With this panel, we observe in which state each person was living, whether she was using the Pill, and how old she was in each month of her life. The details of the panel construction are in the data appendix.

3.2 Pill use

Figure 1 shows our estimates of the proportion of women aged 18–20 in each state using the Pill in each month and the date on which the state lowered the age of majority from 21 to 18. Although the long-term upward trend in Pill use is clear from the plots, it is not clear whether there is evidence here of a post-AoM jump in Pill use.

We might suspect that the age of majority changes would particularly impact women who had not previously been married, so Figure 2 presents the same data but broken down into populations that had and had not been married at any time up to the given date. Pill use grew quickly for unmarried women in New South Wales after the age of majority change, but otherwise the patterns are hard to interpret.

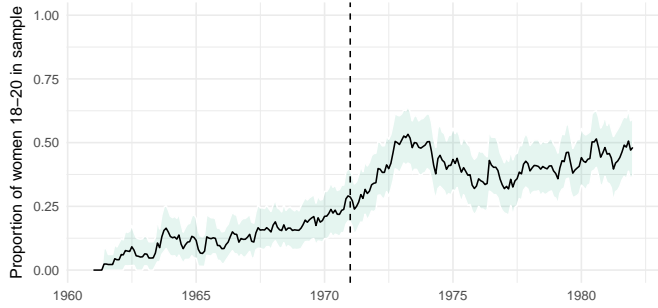
3.2.1 Regression evidence on concurrent Pill use

To further explore the effect of AoM on Pill use, we estimate a linear probability model of the choice by an individual to use or not use the pill in any given month as a function of the age of majority in her state during that month:

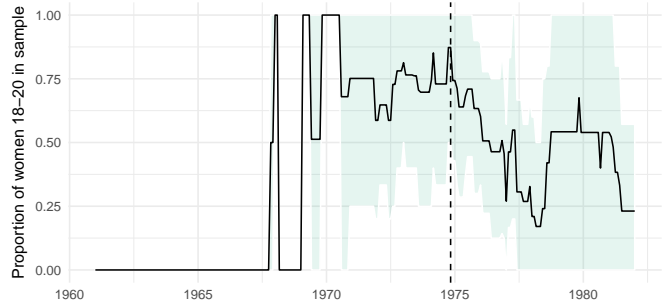
$$\begin{aligned} \text{Pill}_{it} = & \alpha \text{EffectiveLowerAoM}_{it} + \beta \text{LowerAoM}_{it} \\ & + \rho_1 \text{MarriedBefore}_{it} + \rho_2 \text{MarriedBefore}_{it} \times \text{EffectiveLowerAoM}_{it} \\ & + \gamma_1 \text{Pill}_{it-1} + \gamma_2 \text{UsedPillBefore}_{it} \\ & + \sum_s \delta_s D_{its} + \sum_t \delta_t D_{it} + \sum_a \delta_a D_{ita} + \varepsilon_{it} + \eta_{it} > 0 \quad (1) \end{aligned}$$

where

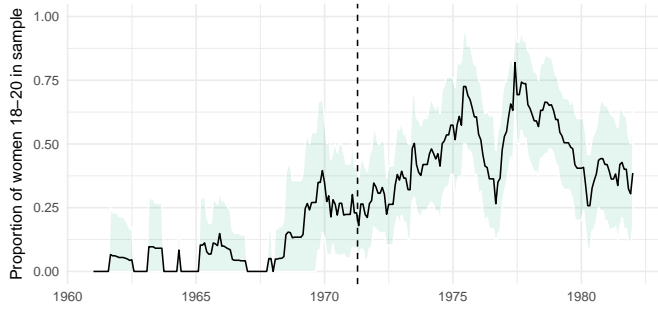
i	Indexes individuals
t	Indexes the time period (month)
s	Indexes state
Pill_{it}	1 if person i used the Pill at any time in time t
$\text{EffectiveLowerAoM}_{it}$	1 if the state in which person i lived at time t had lowered the age of majority to 18 from 21 by time t and the person is age 18–20 (our main treatment variable)
LowerAoM_{it}	1 if the state in which person i lived at time t had lowered the age of majority to 18 from 21 by time t
$\text{MarriedBefore}_{it}$	1 if person i had been married at any point before time t
$\text{UsedPillBefore}_{it}$	1 if person i had used the Pill in any month before time t
D_{its}	1 if person i lived in state s during time t
D_{it}	1 if this observation of person i was measured at time t
D_{ita}	1 if i was age a (in years) at time t
ε_{it}	a set of dummies for educational attainment



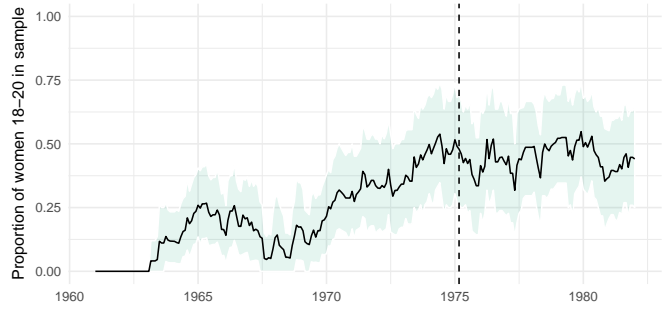
(a) New South Wales



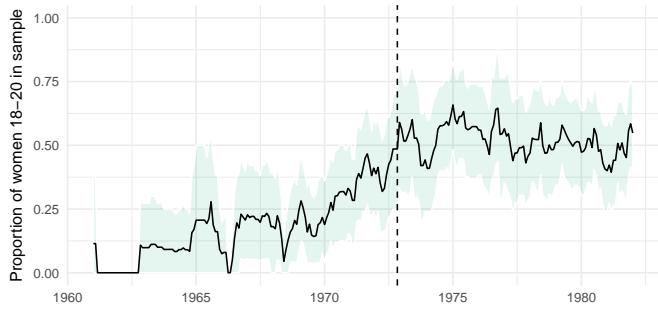
(e) Australian Capital Territory and Northern Territory



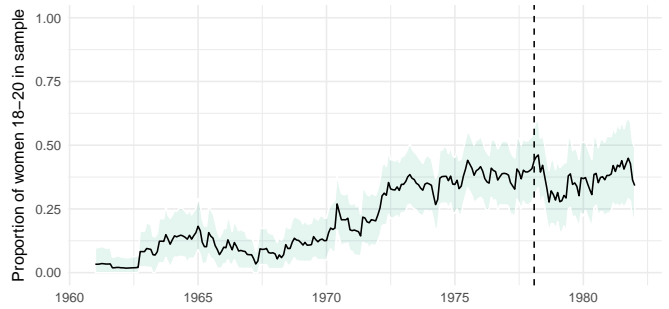
(b) S. Australia



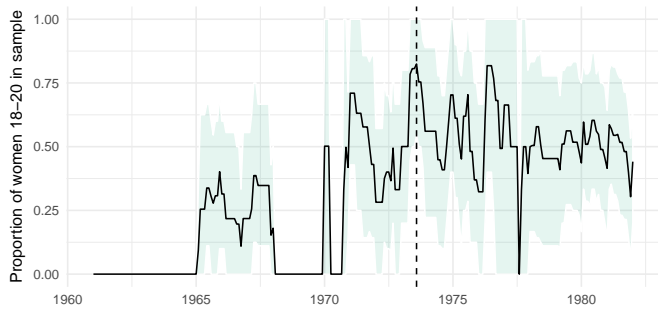
(f) Queensland



(c) W. Australia

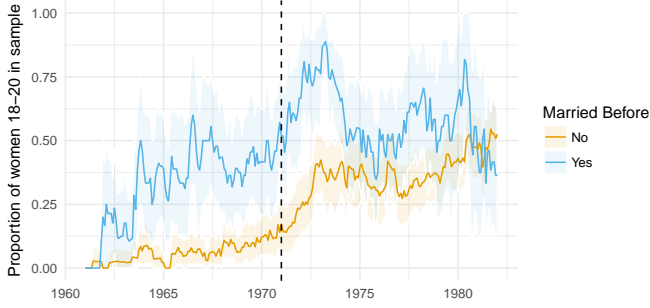


(g) Victoria

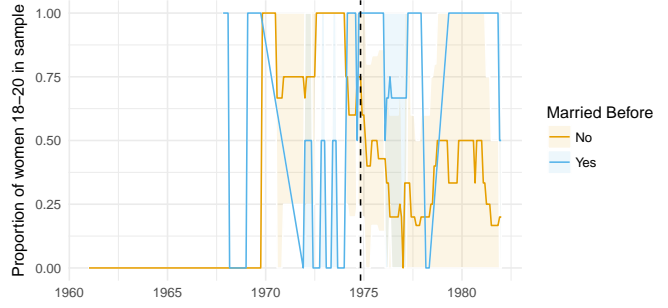


(d) Tasmania

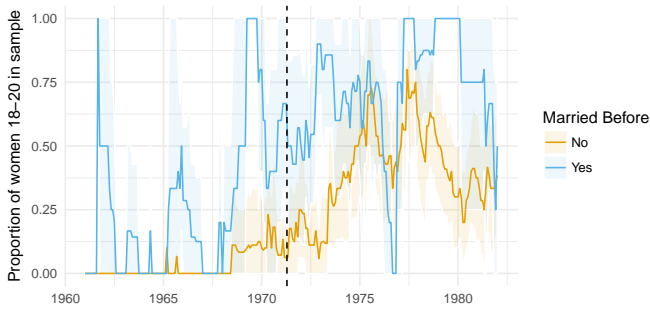
Figure 1: Proportion of women aged 18–20 in the Australian Family Project data using the Pill in each state during each month (weighted). The shaded region indicates 95% confidence intervals. Dashed lines show the date on which the age of majority in the state was lowered from 21 to 18.



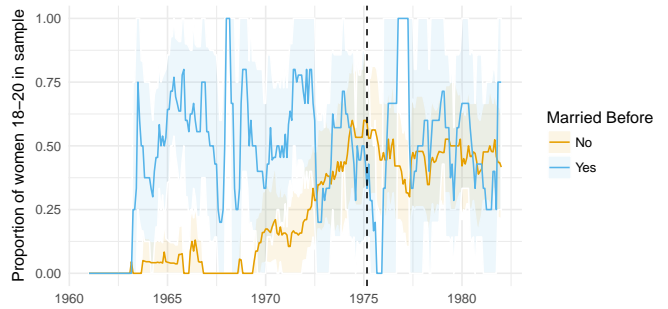
(a) New South Wales



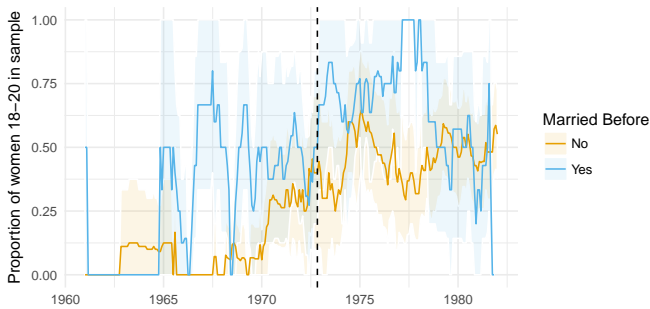
(e) Australian Capital Territory and Northern Territory



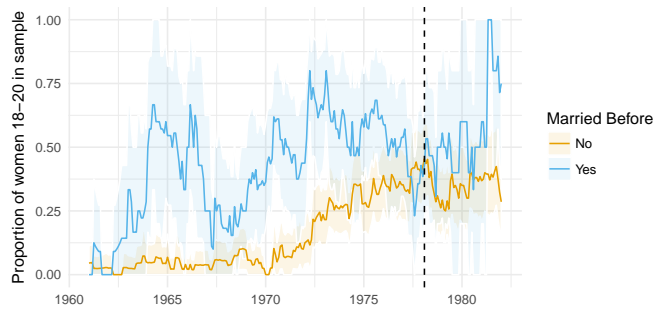
(b) S. Australia



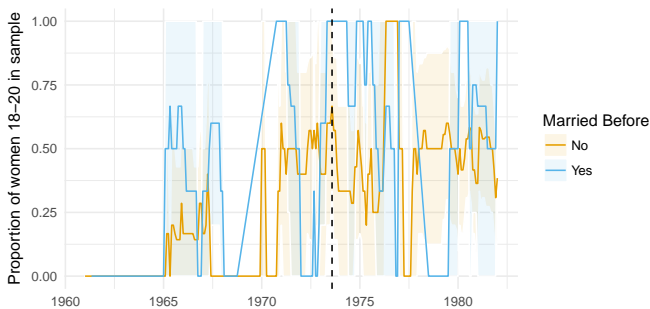
(f) Queensland



(c) W. Australia



(g) Victoria



(d) Tasmania

Figure 2: Proportion of women aged 18–20 in the Australian Family Project data using the Pill in each state during each month by marriage condition. The shaded region indicates 95% confidence intervals. Dashed lines show the date on which the age of majority in the state was lowered from 21 to 18.

α is our coefficient of interest. We include indicators both for a lower age of majority and a lower age of majority combined with being age 18–20 in order to differentiate between generic effects of the lowered age of majority on a culture of youth from those effects that are directly due to increasing the legal autonomy of women aged 18–20. We estimate this model both with and without the indicator for marriage and the lagged pill use variables. The intuition behind the lagged Pill use variables is that oral contraceptives are most effective when taken consistently. These variables also capture some individual-level propensity toward Pill use. We emphasize, however, that much of the estimated marginal effect of these variables might be part of the effect of a lower age of majority, as we expect the lower age of majority to induce a choice to use the Pill over an extended period of time (precisely because that is when the Pill is useful). Thus, lagged Pill use is likely a proxy capturing many of the effects of past lower AoM treatment. We include these variables for transparency, but our main emphasis is on the cases without these variables.

We use data only on women from the Australian Family Project who were living in Australia during a given month of life.⁴ Because no one in the sample uses the Pill before age 10, and no one uses the Pill after age 50, we limit the sample to this range. We assume that Pill use reported in any month in which a legal change occurs happens after the day of the legal change. Most of the laws commenced on the first of the month (the exception is that SA’s AoM commenced on April 15), so this is probably a minor assumption. Our age in years variable is constructed by rounding down to whole number years—consistent both with how ages tend to be reported in Australia and with the way they are treated in law. For instance, the *Age of Majority Act 1977 (Vic)* states that “For all the purposes of the laws of the State the time at which a person attains a particular age expressed in years shall be the commencement of the relevant anniversary of the date of his birth.”

Estimates of α , the effect of a lower age of majority on probability of Pill use during the month, are in Table 2. All regressions include a full set of state, birth year, and age (yearly) dummies. Column (1) suggests that being treated by a lower age of majority when 18–20 increases the probability of Pill use by around 20 percentage points. Column (2) shows that this effect is beyond any general effect of living in a state with a lower age of majority and applies specifically to people in the age range in question.

Because NSW explicitly extended protections to doctors who allowed youth over age 14 to consent to medical treatment at the same time as lowering the age of majority to 18, estimates of the “After lower AoM” coefficient are likely biased upward (because 14–17-year olds in NSW were treated with a right to consent after 1971 but are not in the 18–20-year old age range). Thus, we estimate the model without the NSW data in Table 3 and find that we do, in fact, get lower estimates in the second row.

The coefficient estimate in the first row of column (4) in Table 2 looks small, but this is the contemporaneous effect of current laws on the choice to use the Pill today. There is also a cumulative effect that may be more informative. Imagine that a woman who has never used the Pill lives in a state that lowers its age of majority to 18 on her 18th birthday. That month, her probability of using the Pill is about 1 percentage point higher than it would have been without the legal change (assuming that one of the estimates of the effect is the actual population effect). If she does not move in the future, her probability of using the Pill in the next month is higher by 1 percentage point plus 0.967 times 1 percentage point because her increased probability of use in the first month increases her probability of use in the second month (assuming homogeneous effects of legal changes on Pill use). This means that she is 1.967 percentage

⁴Using the 1995 and 2001 Australian National Health Surveys, we could possibly estimate the effect of a lower age of majority on the probability that a woman used the Pill because the survey asks when the respondent first started taking oral contraceptives, but this question was only asked to women who were currently taking oral contraceptives, and that gives an impractically small sample of women who would have been 18–20 in the 1970s. Also, making inferences about the entire population of women based on these extremely truncated data would require strong assumptions about the distribution of the underlying data even if we had a large sample of women currently using the Pill who would have been 18–20 in the 1970s.

Table 2: OLS estimates of the effect of lowered age of majority on the probability of pill use

	<i>Dependent variable:</i>			
	Whether using the Pill			
	(1)	(2)	(3)	(4)
After lower AoM and age 18–20	0.204 (0.016) ^{***} [0.012] ^{***} {0.020} ^{***}	0.207 (0.017) ^{***} [0.012] ^{***} {0.017} ^{***}	0.186 (0.018) ^{***} [0.013] ^{***} {0.013} ^{***}	0.010 (0.001) ^{***} [0.001] ^{***} {0.001} ^{***}
After lower AoM		−0.009 (0.010) [0.011] {0.025}	−0.009 (0.010) [0.011] {0.024}	−0.004 (0.000) ^{***} [0.001] ^{***} {0.001} ^{***}
Married Previously			0.083 (0.013) ^{***} [0.011] ^{***} {0.006} ^{***}	−0.001 (0.001) [0.001] {0.000}
Married, lower AoM, and 18–20			0.090 (0.030) ^{***} [0.025] ^{***} {0.028} ^{***}	−0.005 (0.002) [*] [0.003] [*] {0.002} ^{**}
Used Pill Before				0.006 (0.000) ^{***} [0.000] ^{***} {0.000} ^{***}
Used Pill Last Month				0.967 (0.001) ^{***} [0.001] ^{***} {0.001} ^{***}
Persons	2,545	2,545	2,545	2,545
Person×Month Obs	755,856	755,856	755,856	755,856

Notes:

All regressions include state, birth year, age, and educational attainment fixed effects
 Using probit estimates produces no substantial changes
 (): SEs allowing for error correlation at state × birth year level
 { }: SEs allowing for error correlation at state × current year level
 []: SEs allowing for error correlation at state level
 * p<0.1; ** p<0.05; *** p<0.01

Table 3: OLS estimates of the effect of lowered age of majority on the probability of pill use (no NSW)

	<i>Dependent variable:</i>			
	Whether using the Pill			
	(1)	(2)	(3)	(4)
After lower AoM and age 18–20	0.205 (0.019) ^{***} [0.015] ^{***} {0.024} ^{***}	0.218 (0.020) ^{***} [0.015] ^{***} {0.020} ^{***}	0.196 (0.020) ^{***} [0.016] ^{***} {0.014} ^{***}	0.010 (0.001) ^{***} [0.001] ^{***} {0.002} ^{***}
After lower AoM		−0.037 (0.012) ^{***} [0.010] ^{***} {0.010} ^{***}	−0.035 (0.012) ^{***} [0.010] ^{***} {0.010} ^{***}	−0.005 (0.000) ^{***} [0.001] ^{***} {0.001} ^{***}
Married Previously			0.079 (0.015) ^{***} [0.013] ^{***} {0.010} ^{***}	−0.001 (0.001) [0.001] [*] {0.001} ^{**}
Married, lower AoM, and 18–20			0.100 (0.032) ^{***} [0.026] ^{***} {0.047} ^{**}	−0.005 (0.003) [*] [0.003] [*] {0.003}
Used Pill Before				0.006 (0.001) ^{***} [0.000] ^{***} {0.000} ^{***}
Used Pill Last Month				0.966 (0.001) ^{***} [0.001] ^{***} {0.001} ^{***}
Persons	1,828	1,828	1,828	1,828
Person×Month Obs	498,506	498,506	498,506	498,506

Notes:

All regressions include state, birth year, age, and educational attainment fixed effects
 Using probit estimates produces no substantial changes
 (): SEs clustered at state × birth year
 { }: SEs clustered at state × current year
 []: SEs clustered at state
 * p<0.1; ** p<0.05; *** p<0.01

points more likely to use the pill in the second month. This probability increase grows to 3 percentage points by the third month. After two years of continuously living in that state, her probability of Pill use is about 17 percentage points higher than it would have been without the legal change. Considering that the timing of age of majority changes spans seven years, this is not a small effect and helps explain how we get to the coefficients in the first row of the first two columns.

Column (3) of Table 2 suggests that the effect of a lower age of majority was smaller for *un*married women than for married women. This is a bit surprising, but column (4) reveals that this pattern is reversed when we condition on previous Pill use. If marriage makes it lower cost to access the Pill (consistent with the coefficient on “Married Previously” in column (3)), then being married at some point before the current date means that the woman is more likely to have started using the Pill. Perhaps the story would be different if we were looking at the effect of a lower age of majority on the probability of starting the Pill, which is where we turn next.

Table 2 shows a great deal of persistence of Pill use over time. The proportion of women using the Pill in the previous month who go on to use it in the next month is 97 percentage points higher than the same proportion for women not using the Pill in the previous month. This should be expected both because the Pill is most effective when taken consistently over an extended period [CITE] and because the Pill use data were not collected by asking, “Were you using the Pill in this particular month?” (and so on). Rather, the respondent was asked when she started using the Pill, when she stopped, when she started again, when she stopped that time, and so on. The synthetic panel was constructed from these reported spells of Pill use, and it is possible that someone who simply failed to take the Pill as prescribed for a month would still include that month in a spell spanning that month rather than reporting that they stopped that month and then started again the next month. This time persistence suggests that we might be interested in what causes women to first *start* using the Pill.

3.2.2 Regression evidence on Pill uptake

For this purpose, we estimate a hazard model where the time-to-event is a woman’s age when she first uses the Pill. There are two main explanatory variables we might wish to consider in this model. We could follow Goldin and Katz (2002), Bailey (2006), and others and use the consent laws that were in place when the woman turned 18 in either her state of birth or her state of residence at age 18. They used this treatment variable because they did not observe where the woman lived throughout her life, but this variable also has the benefit of being exogenous to the woman’s choices as an adult. The treatment variable we use instead is the state of residence that is contemporaneous with the choice to start using the Pill (or the state of residence right before the choice to start using the Pill). At each moment in time in our model, a woman who has not yet used the Pill observes the laws in her current state and then chooses whether to start using the Pill. In practical terms, we observe this choice in discrete chunks of time (months or years).

We specify a proportional hazard model:

$$\ln \theta_{it} = \ln \theta_{i0} + \alpha \text{LowerAoM}_{it} + \sum_s \delta_s D_{s,it} + \sum_t \delta_t D_{t,it} + \eta_{it} \quad (2)$$

where θ_{i0} is the baseline hazard for person i . Using Cox’s partial likelihood estimation procedure (Cox 1972), we do not need to specify θ_{i0} in order to estimate α , the proportional increase in the hazard due to being in a state with a lower AoM.

We estimate this model on the set of person×month observations in the synthetic panel of women aged 18–20 (inclusive) living in Australia in the Australian Family Project data who have not used the Pill in the past. We also limit the sample to women born between 1944 and 1968 because this is the

largest birth year window within which every birth year has at least one woman who uses the Pill at some point. We look at Pill uptake only before 1986.

Table 4 presents estimates of the proportional marginal effect of a lower AoM on the hazard, showing little (if any) evidence of an effect. Although we still need to make some adjustments to the standard error estimates to account for error correlation between month observations for the same woman, these adjustments will likely increase the standard errors.

Table 4: MLE estimates of the effect of lowered age of majority on the probability of pill uptake in a Cox proportional hazard model

<i>Dependent variable:</i>				
Log hazard of starting first Pill use for women aged 18-20				
	(1)	(2)	(3)	(4)
Lower AoM	0.211 (0.133)	0.093 (0.163)	0.195 (0.134)	0.071 (0.165)
Time FEs	Birth Year	Birth Year	Current Year	Current Year
State FEs	No	Yes	No	Yes
Observations	34,470	34,470	34,470	34,470

Note: *p<0.1; **p<0.05; ***p<0.01

We now return to the question of the role of marriage in the choice to use the Pill. Here we think of marriage as a competing risk: women who were not married by age 18 look at their state’s age of majority during every month when they are age 18–20 and decide whether to use the Pill or get married. We suggest that much of the decision about one or the other outcome depends on unobserved individual heterogeneity. [Coming soon]

3.2.3 Extension of Goldin and Katz (2002) with the Australian Family Project data

For comparison, we produce estimates similar to ones by Goldin and Katz 2002 by using only within-cohort variation in Pill use across states (rather than the difference-in-difference variation like we exploit above). In their Table 3, they presented estimates of the effect of more liberal consent laws on Pill use at any time up to the date when the sample was taken. They estimated a 4.2 percentage point increase in Pill use from being in a state with a nonrestrictive consent law for minors. We do this by selecting a month from within the range when Australian states were changing their consent laws and calculating statistics from the information that would have been available from a survey performed at that time that asked questions similar to those in the National Survey of Young Women, 1971 (the data used by Goldin and Katz (2002)). We regress an indicator for whether an individual had used the Pill at any point up to and including that month on an indicator whether her current state of residence had lowered the age of majority from 21 to 18 by that month (along with controls for age in years and Catholic upbringing). We do this for a range of months from 1972 to 1977 and plot the coefficients on lowered age of majority in Figures 3 and 4. Figure 3 shows the effect for 18–20-year-olds, the age group that age-of-majority laws should most affect, and 4 shows estimates for 17–19-year-olds because that was an age group used by Goldin and Katz (2002). Our estimates indicate a much larger effect of age of majority laws on Pill use in Australia than they estimated for a similar time period in the US. The estimates are also slightly

lower than our estimates based on difference-in-difference variation in Table 2. We admit that this result surprised the authors. We would assume that if pre-AoM conditions were correlated with the timing of AoM that the states that lowered their AoM earliest would be the ones with high Pill use due to a culture of youth and liberality in those states. This would suggest that not controlling for the pre-AoM differences in Pill use would induce positive bias in the estimator of AoM's effect on Pill use. But here we see that not controlling for pre-AoM conditions (as in Figures 3 and 4) gives lower estimates than we get when controlling for pre-AoM conditions (as in Table 2). Perhaps (and this is just author speculation) the states that lowered their AoM earlier were doing so to respond to higher barriers to youth decision-making.

3.3 Abortion use

[Coming soon]

4 Methods for estimating effects of AoM on life outcomes

We now turn to estimating the effect of youth consent (YC) on other life outcomes. Following Bailey, Hershbein, and Miller (2012) with some modifications, we estimate

$$Y_{iacy} = \sum_g \beta_g YC_{acs} D_{g(a)} + \sum_g \lambda_g D_{ig(a)} + \sum_s \lambda_s D_{is} + \sum_c \lambda_c D_{ic} + \sum_y \lambda_y D_{iy} + \eta_{iacy} \quad (3)$$

where

- i Indexes individuals
- a Indexes 5-year age groups
- c Indexes year of birth (in 5-year groups)
- t Indexes Census sample year
- s Indexes state
- Y Wage or other outcome
- YC_{acs} 1 if people aged a born in year c living in state s were subject to an AoM of 18 or a mature minor doctrine at age 18
- $D_{g(a)}$ 1 if person i is in age group g (in 5-year groups)
- D_{is} 1 if person i lived in state s at the time of the sample (or 5 years earlier in some specifications)
- D_{ic} 1 if person i was born in year c
- D_{it} 1 if person i was measured in year t

Goldin and Katz (2002) estimated models restricting the age-specific coefficients to be equal across age groups, and we will similarly leave out age groups when estimating educational attainment. Unlike Bailey, Hershbein, and Miller (2012), we sometimes use sample year fixed effects instead of birth year fixed effects. Because we observe only the sample year and an age group for the individual in that year, we cannot be very precise about birth years, so it is simply easier to report results with sample year rather than assigning a birth year and making readers keep in mind that this actually implies a five-year interval.

5 Data for estimating effects of AoM on life outcomes

The data are repeated cross section samples of the Australian population from the 1986, 1991, 1996, 2001, and 2006 Australian Censuses of Population and Housing. These include person-level information

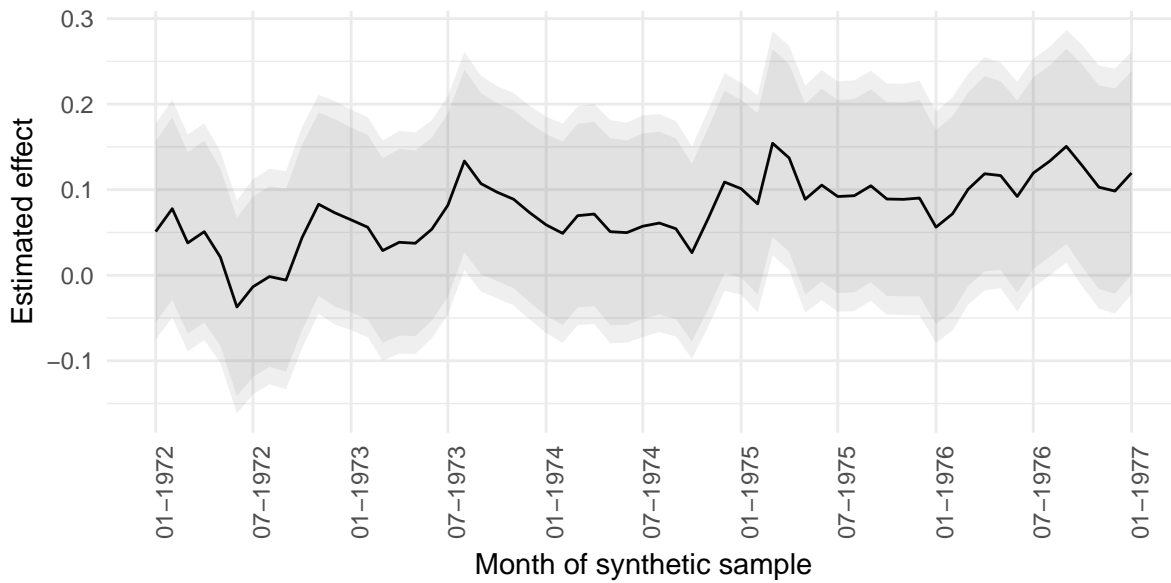


Figure 3: Replication of Goldin and Katz 2002 Table 3 with age 18–20. Estimates of the marginal effect of being in a state with a lower age of majority on the probability of having used the Pill for the sample of women aged 18–20 (inclusive) in the Australian Family Project in the indicated month. The lighter shaded region indicates 95% confidence intervals, and the darker shaded region indicates 90% confidence intervals. All regressions include controls for year of age and Catholic upbringing. As in Goldin and Katz 2002, the results are not substantively different with probit or logit estimates. Sample sizes are all over 200.

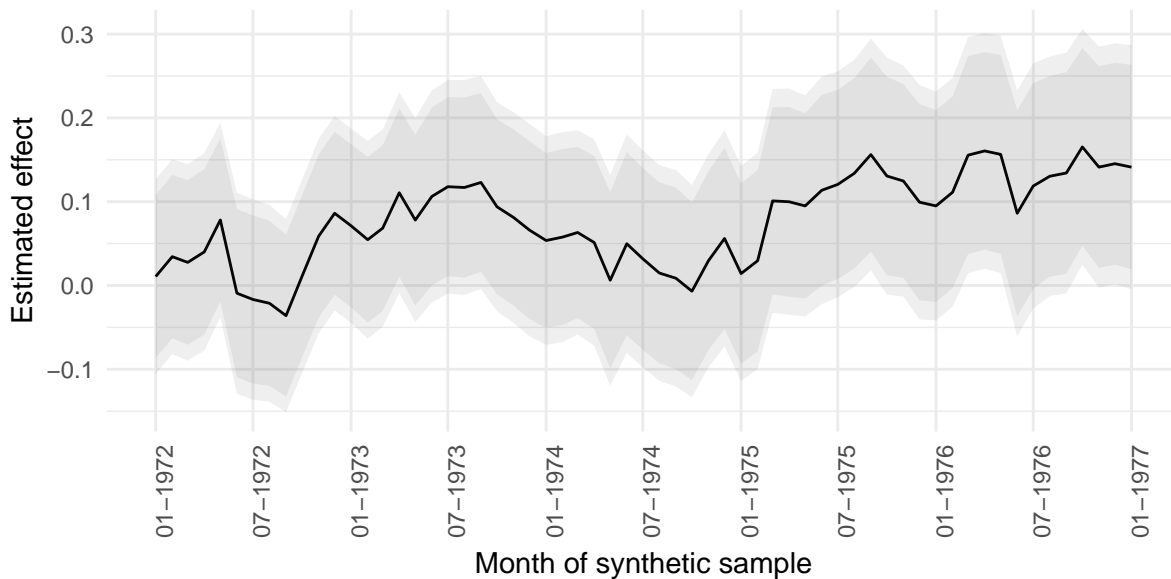


Figure 4: Replication of Goldin and Katz (2002) Table 3 with age 17–19. Estimates of the marginal effect of being in a state with a lower age of majority on the probability of having used the Pill for the sample of women aged 17–19 (inclusive) in the Australian Family Project in the indicated month. The lighter shaded region indicates 95% confidence intervals, and the darker shaded region indicates 90% confidence intervals. All regressions include controls for year of age and Catholic upbringing. As in Goldin and Katz 2002, the results are not substantively different with probit or logit estimates. Sample sizes are all over 200.

on state of residence (and state of residence five years earlier in the 1996, 2001, and 2006 samples), age (in five-year groups), usual personal income per week, and education level.

Because ages are in five-year bins, we calculate a probability of treatment with an age of majority of 18 instead of 21 (YC). If a person’s age group implies that she was no older than 18 at the time when her state’s laws changed to allow 18-year-olds to consent to medical treatment, she gets a 1 for the YC variable. If a person’s age group implies that she was no younger than 19 at the time when her state’s laws changed to allow 18-year-olds to consent to medical treatment, she gets a 0 for the YC variable. Women whose age group includes both people who would have had YC and people who would not have had YC receive a value for YC equal to the proportion of ages in the group that would have been treated. Table 5 shows the dates of the census nights and examples of how we encode the YC variable. For example, if a woman’s age is 30–34 on Census night in 1991 (August 13), then she turned 18 between late 1974 and early 1979. If she lived in Queensland, which changed its law on 1 March 1975, then she has 1627 days when she could have turned 18 after the legal change and 1826 total potential 18th birthdays.⁵ Thus we would assign a value of 1627/1826 (or about .9) for the YC variable. The exact coding depends on the exact date when the legal change commenced compared to the date of census night and is available from the authors.

Table 5: Dates of census nights and example YC treatment variable construction

Census night	18th birthday for someone age 30–34	YC treatment probability						
		NSW	SA	WA	Tas	ACT/NT	Qld	Vic
1986: Aug 12	Aug 13, 1969 – Aug 12, 1974	$\frac{1320}{1826}$	$\frac{1216}{1826}$	$\frac{650}{1826}$	$\frac{377}{1826}$	0	0	0
1991: Aug 13	Aug 14, 1974 – Aug 13, 1979	1	1	1	1	$\frac{1747}{1826}$	$\frac{1627}{1826}$	$\frac{559}{1826}$
1996: Aug 13	Aug 14, 1979 – Aug 13, 1984	1	1	1	1	1	1	1
2001: Aug 14	Aug 15, 1984 – Aug 14, 1989	1	1	1	1	1	1	1
2006: Aug 15	Aug 16, 1989 – Aug 15, 1994	1	1	1	1	1	1	1

The **income** data for all years are for the preceding week, but the 1986 and 1991 Censuses tabulated them to yearly equivalents before distribution (I. Castles 1986). For these two years, we divide the incomes by 52 to retrieve an analog for the measures from other years. The income data are in bins, and we replace these categories with the median value from each bin except the top bin or any bin that includes negative values. We assign an income of zero to any person whose income is in a bin with negative values. We assign 150% of the lower bound of the top bin to anyone in that group. We deflate wages by the all groups CPI with 1986 as the base year.

In 1996, 2001, 2006, we use the usual **state of residence** five years before census night to estimate treatment with early access. In 1986 and 1991, we use the state of current residence. The time when we observe residency is clearly a long way from the time when some people in the sample were 18-years-old (and when age of majority laws changed). We should expect that this will attenuate estimates of effects of early access.

For all years except 1991, we combine the Australian Capital Territory and the Northern Territory because the 1986 Census reports combined values for these territories. Conveniently for our analysis, their legal changes were coincident. Although we could identify residence in ACT and NT separately in

⁵For simplicity, we ignore the possibility of a February 29 birthday. We welcome any attempts to justify the notion that this is a problem, but every five-year span of possible 18th birthdays that gives partial treatment in our data has exactly 1826 days. If some state had changed its law in 1980, we would have to contend with an extra day for people whose treatment was ambiguous in that period.

2001 and 2006, we leave them combined both for continuity with previous years and because each age group cell in the NT sample would have fewer than 30 women. In 1991, the Census combined ACT with Tasmania, and NT was combined with remote areas of SA and WA, and those groups do not share timing of legal changes, so we omit NT, ACT, Tasmania, and those remote areas in 1991. These areas represent a small fraction of the sample.

6 Results: life-cycle incomes

Table 6 gives estimates of Equation 3 for women with positive income with hourly wage as the dependent variable. Early access to contraceptives seems to push down wages for women early in their lives and increase those wages later in their lives (relative to the wages they would have without access). This is consistent with the intuition that women with more certainty about their fertility outcomes invest more intensively and extensively in human capital that will support higher-earning careers, and those investments will require foregone wages early in life but pay off later.

The estimates are close to but lower than those from Bailey, Hershbein, and Miller 2012. We should expect some attenuation of the marginal effects because of measurement error in state of residence at age 18. Although we would like to know where each person lived when they were age 18-21, we only observe where the person lived years later and when they first lived in Australia. While it is possible that YC led to an environment that was desirable to high earners (inducing an upward bias in the estimates), it seems likely that migration between states would dissipate the observed effect of early legal access as people who were treated move into other states where they would not have been treated and people who were not treated move into states where they would have been treated had they been there at age 18. For a comparison with Figure 3B in Bailey, Hershbein, and Miller 2012, we plot the marginal effects of YC on incomes in Figure 5. However, the reader should be aware that our age groups start at 25–29 while their youngest age group was 20–24.

Table 6 reported results for all women with positive incomes. We also report estimates for women who are full-time workers (defined as working 35 to 55 hours per week) with positive incomes in Table 7. The trends are similar (but less smooth). Early legal access appears to increase incomes less among full-time workers, and this is what we would expect if YC increases labor force participation for women at the margin.

7 Results: educational attainment

Theory suggests that one of the ways pill access would induce higher wages is by decreasing the cost of schooling attainment. Table 8 reports linear probability model estimates for the probability that a woman received a bachelor degree (or higher) and also for the probability that the woman received any tertiary certification.⁶ We again include state and birth cohort fixed effects, but we do not estimate separate effects of YC for each age group because college education (at least at the bachelor level) should be completed for almost everyone in the age groups we observe.⁷

The effect of a lower AoM on tertiary education is large in each specification, with an overall 1.2 percentage point increase in the probability of getting a bachelor degree (from a base of 14%). This

⁶We use a linear probability model for ease of exposition and because the dependent and independent variables are all binary. Using probit estimates produces no substantial changes in the marginal effects.

⁷We could include younger cohorts, but the further away in time past the treatment cutoff the cohort turns 21 the worse of a counterfactual it provides to untreated cohorts.

Table 6: Estimates of age-specific proportional increase in income due to pill access (all workers)

	<i>Dependent variable:</i>		
	log of hourly wage		
	(1)	(2)	(3)
ELA for age 25–29	–0.101 (0.027) ^{***} [0.025] ^{***}	–0.085 (0.025) ^{***} [0.032] ^{***}	–0.080 (0.024) ^{***} [0.030] ^{***}
ELA for age 30–34	–0.008 (0.025) [0.022]	0.006 (0.023) [0.016]	0.005 (0.024) [0.020]
ELA for age 35–39	0.055 (0.029) [*] [0.026] ^{**}	0.042 (0.024) [*] [0.018] ^{**}	0.037 (0.026) [0.024]
ELA for age 40–44	0.058 (0.027) ^{**} [0.018] ^{***}	0.042 (0.021) ^{**} [0.018] ^{**}	0.036 (0.021) [*] [0.023]
ELA for age 45–49	0.051 (0.027) [*] [0.026] [*]	0.066 (0.018) ^{***} [0.017] ^{***}	0.055 (0.019) ^{***} [0.023] ^{**}
ELA for age 50–54	0.049 (0.031) [0.021] ^{**}	0.094 (0.020) ^{***} [0.017] ^{***}	0.087 (0.020) ^{***} [0.016] ^{***}
FEs	a,c,s	a,y,s	a,c,y,s
Employment population	All women with non-negative income		
Observations	48642	48642	48642

Notes:

*p<0.1; **p<0.05; ***p<0.01

(): SEs accounting for correlation at State × Age × Sample year level

[]: SEs accounting for correlation at State level

Indicators for fixed effects are as defined for Equation 3

Table 7: Estimates of age-specific proportional increase in income due to pill access (full time)

	<i>Dependent variable:</i>		
	log of hourly wage		
	(1)	(2)	(3)
ELA for age 25–29	–0.102 (0.035) ^{***} [0.028] ^{***}	–0.108 (0.041) ^{***} [0.055] ^{**}	–0.101 (0.039) ^{***} [0.048] ^{**}
ELA for age 30–34	0.013 (0.051) [0.056]	0.015 (0.050) [0.063]	0.022 (0.050) [0.058]
ELA for age 35–39	0.044 (0.036) [0.032]	0.035 (0.036) [0.040]	0.029 (0.036) [0.035]
ELA for age 40–44	0.048 (0.034) [0.021] ^{**}	0.040 (0.032) [0.022] [*]	0.035 (0.033) [0.023]
ELA for age 45–49	0.046 (0.032) [0.023] [*]	0.061 (0.028) ^{**} [0.012] ^{***}	0.047 (0.028) [*] [0.024] [*]
ELA for age 50–54	0.018 (0.037) [0.018]	0.073 (0.026) ^{***} [0.023] ^{***}	0.054 (0.027) ^{**} [0.017] ^{***}
FEs	a,c,s	a,y,s	a,c,y,s
Employment population	Full time	Full time	Full time
Observations	48642	48642	48642

Notes:

*p<0.1; **p<0.05; ***p<0.01

(): SEs accounting for correlation at State × Age × Sample year level

[]: SEs accounting for correlation at State level

Indicators for fixed effects are as defined for Equation 3

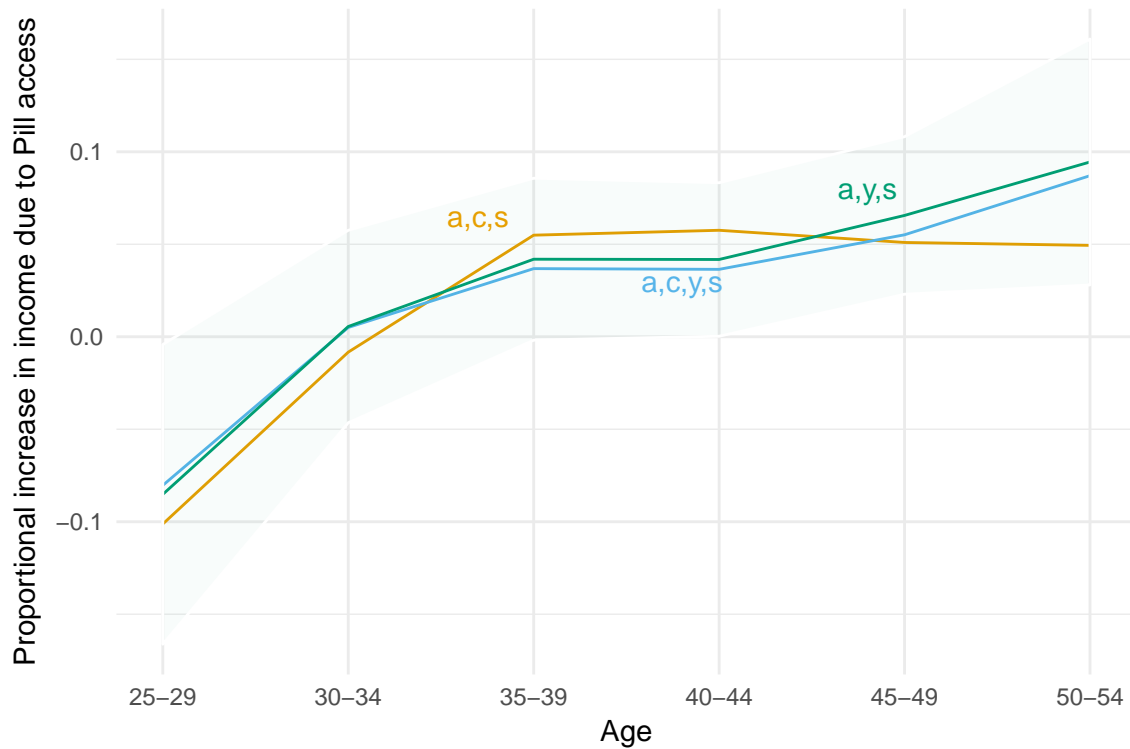


Figure 5: Estimates of age-specific proportional increase in income due to pill access (all workers). Labels indicate included fixed effects (as defined for Equation 3). The shaded region indicates 95% confidence intervals for the column 2 (a, y, s fixed effects) coefficients.

is substantially larger than estimates of .78 percentage points for the US by Hock (2007), but we did not include here controls for abortion laws because we are not able to separately identify abortion and contraceptive access. The effect for any certification is larger than the effect for bachelor degrees. This might give us some indication of the size of the fertility delays we should expect to see (because most certificates takes less time than a bachelor degree).

Table 8: Linear probability model estimates of the effect of pill access on educational attainment

	<i>Dependent variable:</i>	
	Bachelor or higher (1)	Any certification (2)
<i>All women</i>		
Proportion with the specified degree	0.138	0.339
Marginal effect of ELA	0.012	0.031
SEs clustered at state \times cohort	(0.006)**	(0.007)***
SEs clustered at state	(0.006)*	(0.006)***
Observations	80,001	80,001
<i>Full-time only</i>		
Proportion with the specified degree	0.203	0.426
Marginal effect of ELA	0.016	0.026
SEs clustered at state \times cohort	(0.008)*	(0.014)*
SEs clustered at state	(0.010)	(0.006)***
Observations	26,823	26,823

Notes:

*p<0.1; **p<0.05; ***p<0.01

Using probit estimates produces no substantial changes

All regressions include state and cohort fixed effects

A Appendix: history of medical consent for youths by state

A.1 Age of majority

Every state and major territory has its own age of majority law (hereafter AoM) lowering the age of majority from 21 to 18 years old. Table 1 gives the dates when each law came into force (“commenced”).

A.2 Medical-specific statutory ages of consent

Two states (New South Wales and South Australia) have separate statutory minimum ages for medical consent.

A.2.1 New South Wales (1971)

In addition to setting 18 as the AoM, the *Minors (Property and Contracts) Act 1970 (NSW)* allowed doctors to presume that children over 14 could give consent for medical treatments. Section 49 states

Where medical treatment... of a minor aged fourteen years or upwards is carried out with the prior consent of the minor, his or her consent has effect in relation to a claim by him or her for assault or battery in respect of anything done in the course of that treatment as if, at the time when the consent is given, he or she were aged twenty-one years or upwards.

Note that this provides protections to medical practitioners but in no way guarantees a right for children to make their own medical choices (New South Wales Law Reform Commission 2008 (unlike the later law in SA—next section—that made a refusal of consent by a minor over age 16 binding). Whether this law resulted in doctors extending that right to children is an empirical and historical question. If, however, doctors simply relied on the common law rules outlined below, then the proportion of minors who could choose to get contraceptives would likely be lower than if 14-year-olds were treated as adults under this law. Note also that this law was designed specifically to allow minors to give consent, so its exogeneity is suspect.

A.2.2 South Australia (1987)

In 1987, SA required doctors to presume that any minor age 16 or over could consent to treatment with the same force as an adult and **also set up a mature minor doctrine** that applied to every child under age 16 (although the law also had a “best interest” clause that limited the autonomy of minors under age 16). The *Consent to Medical and Dental Treatment Act 1985 (SA) 1985* (assented to 14 March 1985, commenced 1 May 1987: *Gaz.* 30 April 1987, p. 1115) specified that

6. 1. The consent or the refusal or absence of consent of a minor who is of or above the age of sixteen years in respect of a medical procedure or dental procedure to be carried out on the minor or any other person has the same effect for all purposes as if the minor were of full age.
2. The consent of a minor who is less than sixteen years of age in respect of a medical procedure or dental procedure to be carried out on the minor has the same effect for all purposes as if the minor were of full age where, in the opinion of a medical practitioner or a dentist supported by the written opinion of one other medical practitioner or dentist, as the case may be—
 - a. the minor is capable of understanding the nature and consequences of the procedure; and
 - b. the procedure is in the best interests of the health and well-being of the minor.

This law was repealed by the *Consent to Medical Treatment and Palliative Care Act 1995 (SA)* 1995, which replaced it with almost identical rules (the 1995 law is more clearly written, but otherwise I cannot find any substantive differences).

A.3 Mature minor doctrines

A.3.1 Nationwide (1986–1992)

Most states and territories have a mature minor doctrine that is based on an English case *Gillick v West Norfolk and Wisbech Area Health Authority* (1986) and the “Fraser Guidelines” developed in that case. The ruling from *Gillick* was approved in Australia on 6 May 1992 in *Secretary, Department of Health and Community Services v JWB and SMB (Marion’s Case)* (1992) 175 CLR 218, FC 92/010. The ruling states that “A minor is capable of giving informed consent when he/she achieves a sufficient understanding and intelligence to enable him/her to understand fully what is proposed”. Interestingly, *Gillick* was a question of whether children under 16 could give consent, whereas most Australian states at the time had no law explicitly granting consent privileges to children aged 16 to 18 (NSW and SA are exceptions).

Gillick competence also grants a right of confidentiality to the minor. However, it is not clear that parents would not find out about a child’s treatment because in most cases there was a record of treatment attached to the parent’s Medicare account that the parent may have been able to view before 2003. After 2003, it became easier for young people to get their own Medicare card, and bulk billing codes made it easier for children to obscure their treatment from parents. (Research and sources on this topic are still a gap in my work.)

Even before *Marion’s Case* in 1992, *Gillick* was effectively in force in Australia. A report from The Law Reform Commission of Western Australia in 1988 stated that “The common law has already given minors under 16 the right to consent to medical treatment if they are mature” and pointed out that the decision had been used in Australian courts as early as 1987 and that medical organizations in Australia used *Gillick* as the basis for their guidelines. The Family Planning Association of Western Australia is a particularly relevant organization whose 1986 guidelines for medical practitioners incorporated the *Gillick* rules.

The Law Reform Commission of Western Australia report also repeatedly makes the case that there was never a time in Australian history when youths were barred from making every medical decision for their selves. Instead, accepting the consent of 16-year-olds (and sometimes younger people) was the norm. It seems likely to me that acceptance of youth consent by physicians grew gradually over the 1960s to 1980s, but I do not yet have clear evidence on this. The Commission also suggested that some physicians feared that providing contraceptive services to girls under age 16 would make them guilty of inciting a violation of the criminal code (it was a crime to have sex with a girl under age 16).

A.3.2 South Australia (1987)

As explained above, SA enacted a statutory mature minor doctrine (with no lower age limit) along with its specification that minors over age 16 could consent to medical treatments with the same force as adults.

A.3.3 Tissue donation

The Australian Law Reform Commission recommended in 1977 that a child’s consent should be necessary (but not sufficient) for that child to be a tissue donor and did not give any lower bound age below which a child would be considered incapable of giving consent. The recommendations of the commission

were encoded in law in every state (The Law Reform Commission of Western Australia 1988). I have not looked up all these laws, but in Western Australian, it was the *Human Tissue and Transplant Act 1982*.

A.4 Abortion

A.4.1 Overview

Abortion laws in Australia follow four major regimes.

1. Early on, all states banned “unlawful” abortions, but these laws did not specify which abortions were unlawful. Presumably, interpretation of these laws would be based on English common law.
2. South Australia legalized abortion in many cases in 1969 through legislation.
3. Most other states clearly had common law allowances for “lawful” abortions to protect the pregnant woman that flowed from Australian court decisions starting in 1969.
4. Most (but not all) states liberalized their abortion laws within the last 20 years.

Early in the 20th century, Australian states had criminal laws based on the English *Offences Against The Person Act 1861 (England)*, which made “unlawful” abortions a crime. An English case, *King v Bourne* (1939), established that abortion was lawful to protect the life (broadly defined by Justice MacNaghten to include protecting her from becoming a “physical or mental wreck”) of the pregnant woman. British common law applied to Australia into the 1960s (A. C. Castles 1963), so this case should have been the legal framework for Australian courts. The test came in 1969 when police in Melbourne, NSW, raided abortion clinics (in response to doctors failing to pay bribes, (Gleeson 2009)), leading to the case of *R v Davidson*. The “Menhennitt ruling” in this case followed *Bourne* and specified that abortion could be lawful if it were “necessary to preserve the woman from a serious danger to her life or her physical or mental health (not being merely the normal dangers of pregnancy and childbirth)” (Victorian Law Reform Commission 2008) and became the basis for subsequent ruling in other states.

The ruling still implies great ambiguity, and we must look to medical history to know what impact it had on actual provision of abortion services. It is possible that physicians interpreted this as an indication that as long as they discussed the costs of pregnancy with patients that they were defended from prosecution. In NSW, whose courts adopted nearly identical rules in 1972 (*R v Wald*), a doctor was convicted of unlawful abortion in 2006 precisely because she did not discuss the possible costs of not terminating the pregnancy with the patient before the procedure. The implication was that if a physician made a decision about abortion after deliberation and discussion with the patient that the abortion would be lawful, and in this case the only reason a jury could claim that the termination was not justified was that there was evidence that the physician had not treated the case with sufficient concern. This implies de facto legal authority of physicians over whether to allow abortions.

A.4.2 South Australia

Since 1969, South Australia has allowed abortions if “continuing the pregnancy would involve *greater* risk of injury to the physical or mental health of the woman, or involve *greater* risk to the life of the woman than termination” (Criminal Law Consolidation Act 1935, emphasis added; this was a 1969 amendment based on English common law in *Bourne*, and I do not know the exact date of commencement for the amendment) or to end pregnancies where the child would likely “suffer from such physical or mental abnormality as to be seriously handicapped”.

Although the standard in SA is to compare the risk of continuing the pregnancy to not continuing the pregnancy, and the standard in other states is to compare the risk of continuing the pregnancy to the risk of a typical pregnancy, in practice the two standards are often treated similarly by medical practitioners (Victorian Law Reform Commission 2008). A patient must have lived in SA for at least two months before the abortion unless the abortion is needed to preserve the life of the patient or due to some serious expected abnormality of the child. Abortions are generally only allowed after 28 weeks to preserve the life of the mother.

Also unlike other states, South Australia has reporting requirements and has been publishing abortion statistics since 1971.

A.4.3 Victoria

In Victoria, the Crimes Act 1958 specified that it was a crime (a felony and later in 2006 an indictable offense) to “unlawfully” terminate a pregnancy, but it was left up to courts to decide what constituted an unlawful abortion (Victorian Law Reform Commission 2008, Victorian Law Reform Commission 2007).

The 1969 Menhennitt ruling in *R v Davidson* led to the framework used in most other states and specified that abortion could be lawful if it were “necessary to preserve the woman from a serious danger to her life or her physical or mental health (not being merely the normal dangers of pregnancy and childbirth)”.

That final caveat implies that Menhennitt was not upholding the same rules as in SA. However, the difference between abnormal “serious danger” and “greater risk” may have become blurred as doctors could argue that giving birth and having a child when the patient does not desire that outcome constitutes an unusual and serious danger precisely because the outcome is not desired. This possibility is reinforced by the fact that it proved difficult for courts to *show* that a particular abortion was unlawful because prosecutors had the burden of showing that the doctor could not reasonably have expected serious harm to the patient. In NSW, whose courts adopted nearly identical rules in 1972 (*R v Wald*), a doctor was convicted of unlawful abortion in 2006 precisely because she did not discuss the possible costs of not terminating the pregnancy with the patient before the procedure. The implication was that the only reason a jury could claim that the termination was not justified was that there was evidence that the physician had not treated the case with sufficient concern. This implies de facto legal authority of physicians over whether to allow abortions, but despite the nearly-uniform common law throughout Australia (A. C. Castles 1963), Queensland police raided abortion clinics in the 1980s (Victorian Law Reform Commission 2008), so perhaps the matter was not so settled.

The *Abortion Law Reform Act 2008* (Vic) removed almost all legal restrictions on abortion, allowing a medical practitioner to “perform an abortion on a woman who is not more than 24 weeks pregnant” or to perform an abortion after 24 weeks when at least two medical practitioners agree that the abortion is appropriate.

A.4.4 New South Wales

R v Wald (1972) (the Levine ruling) specified rules similar to the 1969 Menhennitt ruling. *Wald* was upheld in *CES v Superclinics (Australia) Pty Ltd* (1995). One of the appeals court judges stated that the standard of harm to the mother that would justify abortion should include harm that might occur after pregnancy due to not terminating the pregnancy.

A doctor was convicted of unlawful abortion in NSW in 1981 (I did not look up the title of the case) and another in 2006 (*R v Sood*) because they did not discuss the possible costs to the patients of not terminating their pregnancies and thus could not have knowledge about how the Menhennitt rules

applied to their patients. There was also a sense that high-risk abortions (especially if they led to harm to the patient) were not lawful because it was specifically the avoidance of danger that made abortions lawful. Even before *R v Wald* (1972), most prosecutions for abortion were in cases where the patient was seriously injured, but the doctors were almost always acquitted, anyway (Coleman 1991; Gleeson 2009).

A.4.5 Queensland

As in Victoria and New South Wales, Queensland allows abortions only to protect the life or wellbeing of the mother, but in 1986 a judge specified that only medical protections for the mother were a valid defense (*R v Bayliss & Cullen* 1986). In other words, it was no longer lawful to terminate a pregnancy on the grounds that having a child would be a financial strain on someone who did not want to have a child. This implies more strict limits on abortions in Queensland than in NSW or SA. It seems likely that doctors would have expected the Menhennitt ruling to hold in Queensland from 1969 to 1986 (or at least following *Wald* in 1972), as Queensland's law also only made "unlawful" abortion a crime, and Australia tends to have a nearly uniform common law (A. C. Castles 1963), but police raided abortion clinics and arrested physicians earlier in the 1980s and has not prosecuted any doctors for abortions since the 1986 ruling (Victorian Law Reform Commission 2008), so I have no easy answer for you.

A.4.6 Western Australia

Western Australia also had police raids on abortion doctors that led to no convictions and legal clarification. The WA Attorney General in 1974 specified that the Menhennitt and Levine rulings applied in WA and that doctors could perform abortions to prevent the patient from becoming a "physical and emotional wreck" (Gleeson 2009) (this wording based based on the MacNaghten ruling from *King v Bourne* (1939)).

In 1998, two physicians were charged with unlawfully procuring an abortion based presumably on their failure to properly consult with the patient (as in *R v Sood* (2006)). The case did not go to trial, and WA enacted new laws that made the previous case law statutory by allowing for abortion to prevent "serious personal, family or social consequences" or "serious danger to the physical or mental health of the woman" (*Acts Amendment (Abortion) Act 1998 (WA)*).

A.4.7 Tasmania

A 2001 amendment (*Criminal Code Amendment Act (No. 2) 2001 (No. 123 OF 2001) (Tas)*) to the *Criminal Code Act 1924 (Tas)* in Tasmania allows abortions in cases where not terminating the pregnancy is more dangerous than terminating it and allowed for consideration of "physical and mental health" and "any matter which [the medical practitioners] consider to be relevant. It is unclear whether doctors would have interpreted the previous wording as allowing such abortions. Because bans against "unlawful" abortions in other states have been interpreted more narrowly than this (the "serious danger" test from Menhennitt), it is likely that doctors in Tasmania before 2001 would have expected that Tasmania's ban on "unlawful" abortions prevented them from giving abortions in cases where there was no immediate threat to the mother.

A.4.8 Australian Capital Territory

Abortion was decriminalized in the ACT in 2002 with the *Crimes (Abolition of Offence of Abortion) Act 2002 (ACT)* 2002. The common law status of abortion before this time is unclear, but the Menhennitt and Levine rulings were probably in force.

A.4.9 Northern Territory

In the Northern Territory, the Medical Services Act allows for abortions

- before 14 weeks if “the continuance of the pregnancy would involve greater risk to her life or greater risk of harm to her physical or mental health than if the pregnancy were terminated” or
- before 23 weeks if “termination of the pregnancy is immediately necessary to prevent serious harm to [the mother’s] physical or mental health” or
- any time if the intent of the abortion is to preserve the life of the mother.

Only women over age 16 are allowed to consent under the law. Abortions for reasons other than preventing serious harm to the mother must be performed in hospitals.

I believe these conditions were added to the Act in 2006 and that before this the *Criminal Code Act* made abortion a crime except as specified in the common law (e.g. Menhennitt and Levine).

A.4.10 Australia overall

Member of the High Court of Australia spoke favorably of the *CES* (NSW) decision in *Harriton v Stephens* (2006) 80 ALJR 791. The High Court is a court of appeal for the states (unlike in the US where each state’s supreme court is the highest authority on the state laws), so the court may have implied in 2006 that abortion would be allowed throughout Australia if “necessary to preserve the woman from a serious danger to her life or her physical or mental health (not being merely the normal dangers of pregnancy and childbirth)” with the additional information that long-term harm to the pregnant woman (e.g. mental anguish or economic hardship from having an unwanted child) should be considered. Note that some states already had more liberal rules before this (e.g. SA since 1969).

What constitutes a “serious danger to... life or... physical or mental health”? The lack of abortion prosecutions in recent decades throughout Australia suggests that either patients do not seek unlawful abortions, that doctors turn them down, that prosecutors neglect abortion cases, or that “danger” to the patient is interpreted liberally by medical practitioners. This last interpretation seems likely. Even in states with seemingly narrow statutes there is de facto legalization because the law leaves evaluation of the patient’s care to the doctor. In actual applications, a doctor must speak with a patient about the dangers of not terminating a pregnancy and then may be able to specify any non-common medical danger as justification for the termination.

A.5 Age of majority changes as a result of the Vietnam War

The age of majority (hereafter AoM) changes started as a nationwide effort to lower the voting age. The Attorneys General of the various states and of the Commonwealth agreed that voting age laws would need to be uniform throughout the nation, and the issue was discussed at a conference of state Premiers and a conference of Attorneys General in 1968 and was subject to a great deal of discussion and cooperation between the national Attorney General and the governments of the individual states in the following years. The original recommendation for the lower voting age was from a committee in New South Wales in a report that was then considered by the Standing Committee of Commonwealth and State Attorneys-General, and it was agreed that all states would adopt the recommendations of the report if there was overall agreement to the terms of the report. The *Canberra Times* reported that the national Attorney General called the efforts “constructive federalism”. The point we are making here is that the age of majority changes were products of one national-level motivation, whereas the differential timing of the

laws might be due to bureaucratic issues. After New South Wales lowered its voting age to 18 in 1970 (effective in 1973), the Canberra Times reported that the Attorney General of Tasmania, Max Bingham, predicted that a voting age of 18 would be “Australia-wide policy within 18 months” (“NSW in favour of voting age cut” 1970). For further discussion of the details of voting age legislation history, see Section A.6.

The case for exogeneity of these legal changes is strengthened by the reasons for their adoption. As in the United States, Australia participated in the war in Vietnam starting in the 1960s. Like the US, Australia conscripted soldiers to fight in Vietnam, and like in the US this led to intense public opposition.⁸ As in the US, males over age 18 were eligible for conscription in Australia but were often ineligible to vote due to their age. The apparent injustice of this led to the extension of voting rights for members of the armed forces over age 18 serving in South Asia starting in 1966 (*Commonwealth Electoral Act 1966*).

There was likely a direct effect of perceptions of an unjust conflict between conscription at age 20 and voting at age 21. The authors conducted a search of Australian newspapers throughout the 1960s and 1970s for results related to synonyms for “conscription” and “voting age”. The articles came mostly from the Canberra Times and The Australian Women’s Weekly but included some smaller publications. Debates about lowering the voting age and the age of majority often mentioned military service but never mentioned a desire by young women to obtain contraception or consent to medical treatment (although the right to consent to marriage was discussed). This direct effect on attitudes toward a lower voting age is likely compounded by an indirect effect of youth military service and conscription due to some young armed forces members having the vote. [More to come]

A.6 Legal history of voting age by state

Below are dates and laws that changed the voting age from 21 to 18 in some states. I did not finish looking these up for other states.

NSW: voting age of 18 (*Parliamentary Electorates and Elections (Amendment) Act 1970 (NSW)*) assented to 6 November 1970 (“Acts of Parliament Assented to” 1970) and commenced 21 March 1973 (“Parliamentary Electorates and Elections (Amendment) Act, 1970.—proclamation.” 1973). The commencement was announced in the Gazette on the same date as the commencement, but it should not have been a surprise. Newspapers were saying that the voting age “has been lowered” as far back as January 1970.

National: *Commonwealth Electoral Act 1973* assented to 16 March 1973 (“Acts of Parliament Assented to” 1973) and commenced 21 March 1973 (“Proclamation” 1973).

NT: *Northern Territory (Administration) Act 1973 (NSW)* assented to 16 March 1973 (“Acts of Parliament Assented to” 1973) and commenced 21 March 1973 (“Proclamation” 1973).

⁸Prior to the Vietnam war, Australian conscription generally did not allow for drafted persons to be required to serve outside of Australian territory. For instance, the National Service Act 1951 states that, “A person is not liable to render service under this Act beyond the limits of Australia.” The only exception was a minor case from WWII where conscripts were required to serve in the South-West Pacific in Dutch territories [CITE], but this was still viewed as defense of Australian territory because Japanese forces there were close to Australian territory [CITE]. The National Service Act 1964 (assented to on November 24, 1964) amended the National Service Act 1951–1957 to place conscripts into the Regular Army Supplement rather than the Citizen Military Forces (CMF) and to remove the restriction preventing conscripts from being sent outside of Australian territory. The restriction limiting the CMF to Australian territories remained in the Defense Act 1964, but conscripts would no longer be placed in that branch of the Military Forces, so this gave young men an opportunity to avoid being sent to Vietnam if they joined the CMF before being conscripted. The age requirements were different from previous conscription requirements. The 1951 Act allowed for males aged 18–26 (and 17-year-olds who voluntarily registered for conscription) to be called up for compulsory military service, whereas the 1964 Act limited the ages to 20–26. 20 was still below the age of majority and below the voting age in any state or territory.

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