variables). To account for this possibility, we have conducted sensitivity analyses that explicitly control for local divorce rates.

**Access to Services**

Our key independent variables, which capture geographic and legal access to reproductive health services, have been gathered from other sources and merged with the census data. Our primary variable for geographic access to abortion services is the number of abortion providers per 1,000 women aged 15–44 years in each county. The local data on number of providers come from surveys conducted in 1979 and 1988 by The Alan Guttmacher Institute (AGI). The AGI data have also been used to form a dummy variable indicating whether any abortion providers were present in the county and to form measures of the distance from the population-weighted geographic center of the county to the similarly defined centers of the nearest in-state and out-of-state counties with providers. These alternative measures are used in some sensitivity analyses.

Legal restrictions on abortion services are measured by the number of years out of the five preceding each census (either 1975–1979 or 1985–1989) that parental notification or consent requirements and Medicaid-funding restrictions were in effect in each state. Annual data on state legal restrictions come from surveys conducted in 1979 and 1988 by Matthews and colleagues.11 Five-year histories are used because injunctions by some state courts in the enforcement of these provisions introduce too much variability into simpler single-year measures.

Legal restrictions on abortion services due to the number of active obstetrician-gynecologists involved in patient care per 1,000 women aged 15–44 years in each county. Obstetrician-gynecologists provide a variety of medical services that reduce the incidence of fertility, such as prescribing contraceptives, referring patients for abortions or performing abortions themselves. However, these physicians also monitor pregnancies and perform deliveries. Thus, it is unclear whether they have a net positive or negative effect on fertility and headship rates.

To control for changes in the generosity of public assistance programs, we also use state-level data on welfare benefits in our analysis. Our measure of welfare generosity is the maximum monthly combined benefit (adjusted for inflation) for a family of four with no other income under the Aid to Families with Dependent Children, Food Stamp and Medicaid programs.12

Our empirical analysis also includes numerous other independent longitudinal county-level explanatory variables, assembled from the census files and other sources, that control for local marriage opportunities, gender-specific economic opportunities, and other population and institutional characteristics that previous research has shown to be associated with female headship. Specific variables include the sex ratio; men’s and women’s inflation-adjusted median full-time incomes; men’s and women’s education; men’s employment; the log of the population; and the percentages of the population in each county that are older than 65, black, Hispanic, rural, Catholic, divorced, adherents of the Church of Jesus Christ of Latter Day Saints or antiabortion Protestant. Because these variables are secondary to our present analysis and have already been explicitly considered in a previous published study, we do not discuss them further here.13

**Analytic Approach**

We fit regression models of county female-headship rates that include the measures of access to abortion and reproductive health services and other variables noted above as explanatory variables. Each of the regressions also includes either state, county, or county and state-by-year fixed effects to control for unobserved variables.

The use of fixed-effect controls is a significant feature of our study. Estimates for ordinary regression analyses are biased if key determinants of female headship, such as community values, state policies, urbanization or the provision of social services, are correlated with the availability of reproductive health services but omitted from the model.14 For example, if a progressive social policy climate is positively associated both with the availability of abortion providers and with female headship within counties, the exclusion of this variable from the regression would lead to upward bias in the estimated effect of abortion access on headship.

The state fixed-effects model is equivalent to a regression specified to include a dummy variable for each state in the sample. The county fixed-effects model is equivalent to including a dummy variable for each county, and the state-by-year fixed effects are equivalent to interacting the state dummy variables with a dummy for the year of observation.

Each of the fixed-effects specifications controls for a different type of omitted variable. The state fixed-effects model controls for state-specific factors that do not vary over time. The county fixed-effects specification is more general; it accounts for both state- and county-specific factors that are time-invariant (i.e., state fixed-effects would be redundant in this model). Finally, adding the state-by-year effects to these models absorbs all of the state-specific variation (e.g., the variation in measured and unmeasured state-level policy measures, such as changing Medicaid eligibility), but also makes it impossible to estimate independent effects of these variables in this model.

**Results**

Table 1 shows population-weighted descriptive statistics for the dependent and key independent variables. These statistics are calculated for all women and for black, Hispanic and non-Hispanic white

*The county fixed-effects models are estimated using the HLM/2L software package to account for clustering of observations within states.