Why is the rate of unintended pregnancies increasing in the U.S.?

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Abstract

The number of unintended pregnancies in the U.S. has been rising since the legalization of abortion and despite the higher availability of contraceptives. In order to address these seemingly contradictory results, our paper analyzes the effects of contraception use and amount spent on abortions on the rate of unintended pregnancies in the year 2005-2006. Our hypothesis is that increased availability and expenditure on abortion and contraception has caused the upward trend in unplanned pregnancies.

Our model regresses the rate of unintended pregnancies on abortion expenditure and contraception use by state. We control for factors such as average income, a sex education requirement and coverage of family planning at the state level. Our results showed that average income had a statistically significant effect on the unintended pregnancy rates. Contrary to our hypothesis, states where contraception use was higher had a lower rate of unintended pregnancies. However states that provided coverage of family planning services also had a higher unintended pregnancy rate. Overall, our model did not identify a single factor that caused a dramatic impact on unintended pregnancy rates.

Introduction

Unintended pregnancy is one that is not desired at the time the pregnancy occurred, and is either mistimed or unwanted. According to a report by Finer and Kost (2011), 3.2 million of the 6.7 million pregnancies in the United States each year are unintended - a significantly high rate compared to other developed countries. The rate increased from 48% in 2001 to 49% in 2006 - the last year for which estimates are available. The report uses data from the National Survey of Family Growth and National Center for Health Statistics (a division of the Centers for Disease Control and Prevention) to estimate the number of unintended pregnancies annually.

One of the goals of the U.S. Department of Health and Human Services (HHS) is to reduce the nation's unintended pregnancy rate. On January 20, 2012, the HHS department mandated that nearly all private health insurance plans include coverage for all FDA-approved prescription contraceptive drugs and devices, surgical sterilizations and abortion-inducing drugs. However, birth control and abortion services have been widely available and funded by the government since the 1970s and evidently, have been ineffective at reducing unintended pregnancies. Thus, the question stands: what is the true cause of the increasing rate of unintended births and is the current HHS policy effective at slowing the trend? This paper studies the incidence of unintended pregnancies at the state level, controlling for differences in the access to, and use of contraceptives and abortion services.

The literature review proposes that, contrary to the expected outcome, the state's efforts to promote birth control and/or abortions to lower HIV and pregnancy rates have the unintended effect of boosting these phenomena. We apply these expert theories to our model: while contraceptive methods are generally promoted to reduce risky behavior, the principle of risk compensation suggests that the provision of a safety net (birth control and abortion) encourages high-risk behavior and could significantly impact the unintended pregnancy rate. Using a linear regression model, we test whether the state's expenditure and stance on

abortion and the use and state coverage of contraceptive were correlated with higher unintended births at the state level. We control for factors such the sex education requirement and average income level.

Literature Review

The rising rate of unintended pregnancies in the United States is a concern for public health officials. The research article by Finer and Zolna (2011) estimates the rates of unintended pregnancies in the US between 2001 and 2006, concluding that the rate, which is high compared to other developed countries, increased from 48% to 49%. In other words, there was an overall increase in the rate from 50 per 1000 pregnancies (15-44 years) in 2001 to 52 per 1000 in 2006. The factors believed to affect the rate of unplanned pregnancies include age, income, relationship status. Women who were 18–24 years old, poor or cohabiting had rates two to three times the national rate. However, the authors could not explain the reason that income affected the rate of unintended pregnancies. Several studies (including the one by Finer and Zolna) encourage increased access to contraceptive methods and abortions to lower the rate of unintended pregnancies, since 11% of the population "at risk" does not use birth control. Contrary to these studies, this paper argues that increased access to, and use of contraceptives, and the provision of abortion on demand actually contribute to the increase in unplanned pregnancies by influencing cultural and social phenomena. The following literature supports this hypothesis.

The paper by Richens, Imrie and Copas in the medical journal, the Lancet (2000) investigates behavior adaptation and the safety benefits of seat belts, and parallels it with the promotion of condoms in to reduce disease transmission. There is no strong evidence that enforcing seat belt laws has prevented deaths from car accidents. In fact, studies on the effectiveness of seat belt laws on the incidence of accidents and deaths show that in countries such as the UK, the number of deaths rose in the first two years of enforcing the law. The authors cite a study that compares the road-accident deaths for thirteen countries that enforce

seat-belt laws to that of four countries that do not, finding a significantly higher number of deaths in the former set of countries. The paper describes the hypothesis of risk compensation (coined by John Adams, University College London) which proposes that the introducing a safety net results in a perception of lessened risk and greater rewards for risk-takers, thereby generating a compensatory increase in risk-taking. A 1990 OECD reports confirms that this behavioral adaptation compromises the effectiveness of road safety programmes. Richens et al. apply this theory to the increase in condom use to combat the spread of HIV to explain why US studies show a trend of increased sexually transmitted diseases (STDs) for women using condoms. The risk compensation mechanism proposes that as condom use increases, individuals perceiving a lowered risk for HIV shift from partner selection or fewer partners (low-risk strategy) to higher partner turnover and condom dependence (high-risk strategy). The authors warn, therefore, that condom-promotion campaigns could have the unintended effect of endorsing greater sexual activity, thereby increasing unprotected sexual exposure.

Arcidiacono, Khwaja and Ouyang (2011) investigate the role of habit persistence in teenage sexual activity and pregnancies in the U.S. where there were 83.6 pregnancies per 1000 teenage women in 2000 - a significantly higher rate than Canada and Western Europe. Similar to the paper by Richens et al, the authors policy simulations show that increased access to contraception increases teen pregnancies in the long run, despite decreasing the rate of unprotected sex. This is because lowered costs of contraceptive serves to lower the risk of getting pregnant, which simultaneously increases sexual activity among individuals that would have previously abstained from the act. The shift from abstaining to protected sex will increase the teen pregnancy rate due to contraceptive failure (statistics show that contraceptive failure accounts for 50% of unintended pregnancies in the U.S.). The authors identify habit persistence as an important determinant of teen sexual behavior. First, their model identifies a large ‘fixed cost’ of having sex which manifests itself in the moral or psychological barrier that is crossed when people lose their virginity. Second, there is a

'transition cost' that makes it difficult to revert to the former nature of the relationship once it has progressed to sex. Habit persistence causes a difference in short run and long run effects of contraceptive on teen pregnancy. For instance, individuals who have established particular sexual behaviors at the time a policy increasing access to condoms is introduced are less likely to alter behavior. However, sexually inactive individuals - typically teenagers or adolescents - who are exposed to the policy over time will engage in more sexual activity, perceiving a lowered risk of getting pregnant. The result is lower short run pregnancy rates, but higher rates in the long run. Since the majority of unintended pregs occur in younger women, this theory has significant implications for our study.

Akerlof, Yellen and Michael (1996) note the effects of increased availability and legalization of contraception and abortion on women's growing participation in non marital sexual relations and rising rate of out-of-wedlock child births. Their hypothesis states that the "technology shock" of abortion and female contraception played a critical role in the rise of out-of-wedlock childbearing. The invention of the pill and propagation of female contraception, and the legalization of abortion (during the late 1960s and early 1970s) shifted the frontier of options for an unexpected pregnancy. This "technical change" was accompanied by a declining practice of "shotgun marriage" as a result of which women feel pressured to submit to the new norm which is uncommitted sexual activity in premarital relationships. Women who fail to forego the promise of marriage in sexual relations find themselves at a "comparative disadvantage" in finding a male partner. The authors predict that prohibiting access to abortion and contraceptive is unfeasible in the new equilibrium where sexual abstinence and the stigma of premarital motherhood is rare, predicting that it would give rise to impoverished single-parent families and increase the number of nonmarital births. Instead, policy should focus on methods to make fathers pay for their actions in order to partially offset the change in bargaining terms between men and women in the marriage market.

Data

The variables used in the analysis, followed by their sources, are the following:

Dependent variable (y): Rate of unintended pregnancies, 2006; source: scholarly article "Unintended Pregnancy rates at the State level", published May 2011. *Note: Unintended pregnancy rates are not calculated annually by any organization. The results found in this study came from analyzing birth/abortion rates, intended versus unintended pregnancies, and miscarriages/ fetal losses. Our model is NOT recreating what was previously done, simply using the results in our study and running our own regressions with different independent variables.

Independent variable (x_1): Use of contraception (frequency), as a percentage, 2006; source: Table 1: Prevalence of contraceptive use among women, by area: Centers for Disease Control and Prevention, Surveillance Summaries

Justification: We are looking at all kinds of contraception in the study. There should be a correlation between the use of contraception and the rate of unintended pregnancies. A negative correlation should occur if contraception is effective / used correctly, which is assumed to be true in our model.

Independent variable (x_2): Sex education requirement, dummy variable: required = 1, not = 0; source: General Requirements: Sex and HIV Education

Justification: It is suggested that people required by state law to complete a sex education class will be more informed about the consequences of unprotected sex, as well as how contraceptives can fail. This knowledge may deter reckless sexual behavior, which would decrease the rate of unintended pregnancies; thus a negative correlation with the dependent variable in the study.

Independent variable (x_3): Average income level, by state, (logarithm taken for model); source: Table H-8: Median Household Income by State: 1984 to 2011

Justification: Income can reflect general trends in the way average people in the state live. States with lower average incomes may be more susceptible to reckless behaviors sexually or to less access to contraceptives (or money to purchase the needed preventatives for having safe sex).

Independent variable (x_4): State stance on abortion, dummy variable: pro-life = 1, pro-choice = 0; source: State Governments: NARAL Pro-Choice America

Justification: This variable shows the preferences of the states about abortion. A pro-choice state may have people more likely to engage in risky sexual behavior because they believe in having the option to get an abortion if they so choose.

Independent variable (x_5): Public expenditure on abortion, measured in $1000s; source: Table: Total Reported Public Expenditures on Abortions

Justification: If there is more money put into abortion resources, people will be more likely to take advantage of these resources if they become pregnant unintentionally.

Independent variable (x_6): Marriage rate, per 1,000 population; source: Marriages and Divorces- Number and Rate by State: 2012 Statistical Abstract

Justification: This should have a negative correlation with unintended pregnancy rates because most married couples plan when they are going to have children, thus eliminating the "unintended" pregnancies.

Independent variable (x_7): Divorce rate, per 1,000 population; source: Marriages and Divorces- Number and Rate by State: 2012 Statistical Abstract

Justification: Higher divorce rates means more people are becoming single. After being in a relationship, they may engage in more reckless sexual activities after being in a relationship with only one person for what could have been a lengthy amount of time, which could increase the rate of unintended pregnancies.

Independent variable (x_8): Coverage of Family Planning Services Under Medicaid, dummy variable: yes = 1, no = 0; source: Medicaid Family Planning Expansion: The National Campaign to Prevent Teen and Unplanned Pregnancy

Justification: If coverage is provided for people under a family planning program, the rate of unintended pregnancies is likely to decrease because the people under the coverage will have many options of contraceptives available to them, decreasing unintended pregnancy rates.

Descriptive statistics on all variables in study:

```
. sum rate_unint_preg useofcontra sex_ed log_avg_inc state_law_abortion pub_expend rt_marriage rt_divorce coverage_dummy
```

Variable	Obs	Mean	Std. Dev.	Min	Max
rate_unint~g	51	51.70588	5.540015	38	65
useofcontra	51	83.88235	2.84012	75.2	88.2
sex_ed	46	.5	.505525	0	1
log_avg_inc	51	10.77393	.1585469	10.45545	11.12813
state_law_~n	51	.5392157	.4984289	0	1
pub_expend	45	1510.222	4948.105	0	28360
rt_marriage	51	7.566667	5.155412	4.7	40.9
rt_divorce	45	3.722222	.9209404	2.2	6.7
coverage_d~y	50	.56	.5014265	0	1

Gauss-Markov Assumptions: (Simple regression)

1. Linear in parameters: All coefficients of linear regression model are linear (no exponentials), thus assumption is held.

2. Random sampling used: Data collected from credible sources, all of which performed random sampling to attain the different datasets, thus assumption is held.

3. Variance in independent (x) variables: Every independent variable has a range of values that the variables hold, this assumption is held.

4. Zero conditional mean: In the simple regression model, there was a linear relationship between frequency of contraception use and rate of unintended pregnancies. Since the expected value of the error is zero and there is a linear relationship between contraception use and unintended pregnancy rates, the assumption is held.

5. Homoscedasticity: We performed a White's test of heteroscedasticity and found that the p-value was large and thus did not reject the null hypothesis. Thus our regression was homogeneous.

Gauss-Markov Assumptions: (Multiple regression)

1. Linear in parameters: All coefficients of linear regression model are linear (no exponentials), thus assumption is held.

2. Random sampling: Data collected from credible sources, all of which performed random sampling to attain the different datasets, thus assumption is held.

3. No perfect collinearity: No two variables in the models are perfectly correlated, thus assumption is held.

4. Zero conditional mean: There is a linear relationship between the variables and the dependent variable. No variables were omitted in our equation so there is no omitted variable bias. Thus the zero conditional mean was met and the assumption held.

5. Homoscedasticity: The expected error had the same variance for all the input and thus the regression was homogeneous. Therefore, the assumption held.

Results

1. $rate\_unint\_preg = \beta_0 + \beta_1 useofcontra + u$
2. $rate\_unint\_preg = \beta_0 + \beta_1 useofcontra + \delta_0 sex\_ed + u$
3. $rate\_unint\_preg = \beta_0 + \beta_1 useofcontra + \delta_1 state\_law\_abortion + u$
4. $rate\_unint\_preg = \beta_0 + \beta_1 useofcontra + \delta_2 coverage\_dummy + u$
5. $rate\_unint\_preg = \beta_0 + \beta_1 useofcontra + \delta_0 sex\_ed + \beta_2 pub\_expend + \delta_1 state\_law\_abortion + \beta_3 rt\_marriage + \beta_4 rt\_divorce + \beta_5 log\_avg\_income + \delta_2 coverage\_dummy + u$
6. $rate\_unint\_preg = \beta_0 + \beta_2 pub\_expend + \delta_1 state\_law\_abortion + \beta_3 rt\_marriage + \beta_4 rt\_divorce + \beta_5 log\_avg\_income + \delta_2 coverage\_dummy + u$
7. $rate\_unint\_preg = \beta_0 + \beta_1 useofcontra + \delta_0 sex\_ed + \beta_3 rt\_marriage + \beta_4 rt\_divorce + \delta_2 coverage\_dummy + u$

Dependent Variable: Number of Unintended Pregnancies							
Independent Variables	Model (1)	Model (2)	Model (3)	Model (4)	Model (5)	Model (6)	Model (7)
Contraception Use	-0.5287806 (-1.97)	-0.5227569 (-1.92)	-0.5248205 (-1.94)	-0.6255436 (-2.26)	-0.4426341 (-1.25)		-0.485353 (-1.39)
Sex Education Requirement (dummy)		1.047356 (0.65)			1.533395 (0.88)		1.94366 (1.10)
Log(Average Income level)					-16.57674 (-2.44)	-13.64932 (-2.09)	
State Stance on Abortion (dummy)			-0.7479826 (-.049)		-2.098962 (-.095)	-1.3694 (-0.63)	
Public Expenditure on Abortion					.0001075 (0.37)	.0001641 (0.55)	
Marriage Rate					.1827663 (0.88)	.1325717 (0.65)	.0426614 (0.20)
Divorce Rate					-1.552367 (-1.13)	-1.476241 (-1.18)	.0195197 (0.02)
Coverage of Family Planning Services Under Medicaid				2.309441 (1.46)	2.155459 (1.21)	1.1716119 (0.98)	3.123106 (1.65)
Intercept	96.06124 (4.27)***	95.5337 (4.19)***	96.13238 (4.24)***	102.9486 (4.48)	271.3109 (3.12)	202.9952 (2.82)	89.59765 (3.20)
Observations	51	46	51	50	35	38	39
R-squared	.0735	.0815	.0780	.1125	.3024	.1700	.1357
Adj. R-squared	.0546	.0388	.0396	.0748	.0878	.0094	.0047

*Significance at 10%, ** 5%, ***1%

Interpretation of data:

Our results showed multiple trends in the statistical significance of our variables. In all our models that did not include the log of average income level of the state, contraception use was statistically significant as well as coverage of family planning services under Medicaid. The use of contraception frequency was statistically significant at the five percent level, and coverage of planning services was statistically significant at the ten percent level. The statistical significance of use of contraception frequency dropped to ten percent in the seventh model. This was when we added in sex education requirements as well as marriage and divorce rates. There may have been some correlation amongst the variables which would have caused the significance of contraception use to decrease. Contraception use caused a decrease in the rate of unintended pregnancies. Coverage of family planning services under Medicaid increased the rate of unintended pregnancies. In the models that included the log of average income levels, none of the variables were statistically significant except for the log of average income levels. The log of average income levels caused a decrease in the rate of unintended pregnancies. Our R-squared vales were not particularly high which indicates that we may have used too many variables and should in further studies look into other variables that would have a better correlation.

Robustness Test

F-statistic (#1):

Unrestricted model: Model 5

rate_unint_preg = β_0+ $\beta_1$useofcontra + $\delta_0$sex_ed + $\beta_2$pub_expend + $\delta_1$state_law_abortion+ $\beta_3$rt_marriage + $\beta_4$rt_divorce+ $\beta_5$log_avg_income + $\delta_2$coverage_dummy + u
H_0: $\beta_1 = 0$; $\delta_0 = 0$

Restricted model: Model 6

rate_unint_preg = β_0 + $\beta_2$pub_expend + $\delta_1$state_law_abortion + $\beta_3$rt_marriage + $\beta_4$rt_divorce+ $\beta_5$log_avg_income + $\delta_2$coverage_dummy + u

$R_{UR}^2 = .3024$
$R_R^2 = .1700$
$q = 2$
$n-k-1 = df_{UR} = 26$
(* c-values are one-sided)
$c_{.05} = 3.37$

$$F = \frac{(R_{UR}^2 - R_R^2) / q}{(1 - R_{UR}^2) / n-k-1} = 2.47$$

*Note: Reject H_0 if F is greater than c.

Result: F is less than c at the 5% level, therefore we fail to reject the null hypothesis at the 5% significance level.

F-statistic (#2):

Unrestricted model: Model 5

rate_unint_preg = β_0+ $\beta_1$useofcontra + $\delta_0$sex_ed + $\beta_2$pub_expend + $\delta_1$state_law_abortion+ $\beta_3$rt_marriage + $\beta_4$rt_divorce+ $\beta_5$log_avg_income + $\delta_2$coverage_dummy + u
H_0: $\beta_2 = 0$; $\delta_1 = 0$; $\beta_5 = 0$

Restricted model: Model 7

rate_unint_preg = β_0+ $\beta_1$useofcontra + $\delta_0$sex_ed + $\beta_3$rt_marriage + $\beta_4$rt_divorce+ $\delta_2$coverage_dummy + u

$R_{UR}^2 = .3024$

$R_R^2 = .1357$
$q = 3$
$n-k-1 = df_{UR} = 26$
(* c-values are one-sided)
$c_{.05} = 3.37$

$$F = \frac{(R_{UR}^2 - R_R^2) / q}{(1 - R_{UR}^2) / n-k-1} = 1.67$$

Result: F is less than c at the 5% level, therefore we fail to reject the null hypothesis at the 5% significance level.

Conclusions

Given the current high rates of birth control use and the availability of abortion in the U.S., our research attempts to test the effectiveness of policies that increase access to contraception and abortion in order to reduce unintended pregnancy rates. Our model found that states in which contraceptive use and the average income were higher had a significantly lower rate of unintended pregnancies over the period 2005-2006. However, states that covered family planning services also had greater rates of unintended pregnancies. Since our results partly support and partly contradict the literature, we hope to further study this topic to obtain more conclusive results. Given the chance, we would refine our model by controlling for more variables, including the various types of contraception. Time-series data would also be more effective given that this is a long-run phenomenon and our model accounts for solely one year.

STATA results

~ Regression of rate of unintended pregnancies on contraception use:

```
. regress rate_unint_preg useofcontra
```

Source	SS	df	MS	Number of obs =	51
				F(1, 49) =	3.89
Model	112.770224	1	112.770224	Prob > F =	0.0543
Residual	1421.81801	49	29.0166941	R-squared =	0.0735
				Adj R-squared =	0.0546
Total	1534.58824	50	30.6917647	Root MSE =	5.3867

rate_unint~g	Coef.	Std. Err.	t	P>|t|	[95% Conf.	Interval]
useofcontra	-.5287806	.2682269	-1.97	0.054	-1.067803	.0102414
_cons	96.06124	22.51214	4.27	0.000	50.8214	141.3011

~ Regression of rate of unintended pregnancies on contraception use, sex education requirement:

```
. regress rate_unint_preg useofcontra sex_ed
```

Source	SS	df	MS	Number of obs =	46
				F(2, 43) =	1.91
Model	111.010072	2	55.5050361	Prob > F =	0.1607
Residual	1250.81601	43	29.0887445	R-squared =	0.0815
				Adj R-squared =	0.0388
Total	1361.82609	45	30.2628019	Root MSE =	5.3934

rate_unint~g	Coef.	Std. Err.	t	P>|t|	[95% Conf.	Interval]
useofcontra	-.5227569	.2728852	-1.92	0.062	-1.073082	.0275685
sex_ed	1.047356	1.606826	0.65	0.518	-2.193118	4.28783
_cons	95.5337	22.79824	4.19	0.000	49.55666	141.5107

~ Regression of rate of unintended pregnancies on contraception use, state stance on abortion:

```
. regress rate_unint_preg useofcontra state_law_abortion
```

Source	SS	df	MS		
Model	119.713494	2	59.8567468	Number of obs	= 51
Residual	1414.87474	48	29.4765571	F(2, 48)	= 2.03
				Prob > F	= 0.1424
				R-squared	= 0.0780
				Adj R-squared	= 0.0396
Total	1534.58824	50	30.6917647	Root MSE	= 5.4292

rate_unint_preg	Coef.	Std. Err.	t	P>|t|	[95% Conf.	Interval]
useofcontra	-.5248205	.2704671	-1.94	0.058	-1.068631	.01899
state_law_abortion	-.7479826	1.541161	-0.49	0.630	-3.846694	2.350728
_cons	96.13238	22.6903	4.24	0.000	50.51048	141.7543

~ Regression of rate of unintended pregnancies on contraception use, coverage of family planning services under Medicaid:

```
. regress rate_unint_preg useofcontra coverage_dummy
```

Source	SS	df	MS		
Model	171.103001	2	85.5515007	Number of obs	= 50
Residual	1349.477	47	28.7122766	F(2, 47)	= 2.98
				Prob > F	= 0.0605
				R-squared	= 0.1125
				Adj R-squared	= 0.0748
Total	1520.58	49	31.0322449	Root MSE	= 5.3584

rate_unint_p~g	Coef.	Std. Err.	t	P>|t|	[95% Conf.	Interval]
useofcontra	-.6255436	.2762709	-2.26	0.028	-1.181329	-.0697582
coverage_dummy	2.309441	1.579371	1.46	0.150	-.8678432	5.486725
_cons	102.9486	22.97147	4.48	0.000	56.73592	149.1612

~ Regression of rate of unintended pregnancies on contraception use, sex education requirement, log(average income level), state stance on abortion, public expenditure on abortion, marriage rate, divorce rate, coverage of family planning services under Medicaid (all variables in study):

```
. regress rate_unint_preg useofcontra sex_ed log_avg_inc state_law_abortion pub_expend rt_marriage rt_divorce coverage_d
> ummy
```

Source	SS	df	MS		
Model	253.034135	8	31.6292669	Number of obs	= 35
Residual	583.651579	26	22.4481377	F(8, 26)	= 1.41
				Prob > F	= 0.2393
				R-squared	= 0.3024
				Adj R-squared	= 0.0878
Total	836.685714	34	24.6084034	Root MSE	= 4.7379

rate_unint_preg	Coef.	Std. Err.	t	P>|t|	[95% Conf.	Interval]
useofcontra	-.4426341	.3538936	-1.25	0.222	-1.170073	.2848045
sex_ed	1.533395	1.738062	0.88	0.386	-2.039241	5.106032
log_avg_inc	-16.57674	6.780976	-2.44	0.022	-30.51524	-2.638248
state_law_abortion	-2.098962	2.200982	-0.95	0.349	-6.623145	2.42522
pub_expend	.0001075	.0002903	0.37	0.714	-.0004893	.0007043
rt_marriage	.1827663	.2071948	0.88	0.386	-.2431287	.6086613
rt_divorce	-1.552367	1.374338	-1.13	0.269	-4.377359	1.272626
coverage_dummy	2.155459	1.775887	1.21	0.236	-1.494929	5.805847
_cons	271.3109	86.9489	3.12	0.004	92.58488	450.0369

~ Regression of rate of unintended pregnancies on log(average income level), state stance on abortion, public expenditure on abortion, marriage rate, divorce rate, coverage of family planning services under Medicaid:

```
. regress rate_unint_preg log_avg_inc state_law_abortion pub_expend rt_marriage rt_divorce coverage_dummy
```

Source	SS	df	MS		
Model	163.257986	6	27.2096643	Number of obs	= 38
Residual	797.08412	31	25.712391	F(6, 31)	= 1.06
				Prob > F	= 0.4082
				R-squared	= 0.1700
				Adj R-squared	= 0.0094
Total	960.342105	37	25.955192	Root MSE	= 5.0707

rate_unint_preg	Coef.	Std. Err.	t	P>|t|	[95% Conf.	Interval]
log_avg_inc	-13.64932	6.540453	-2.09	0.045	-26.98867	-.3099819
state_law_abortion	-1.3694	2.173206	-0.63	0.533	-5.801684	3.062884
pub_expend	.0001641	.0002991	0.55	0.587	-.0004459	.0007741
rt_marriage	.1325717	.2040987	0.65	0.521	-.2836903	.5488336
rt_divorce	-1.476241	1.247263	-1.18	0.246	-4.02005	1.067568
coverage_dummy	1.716119	1.75695	0.98	0.336	-1.867203	5.299441
_cons	202.9952	71.88262	2.82	0.008	56.38966	349.6008

~ Regression of rate of unintended pregnancies on contraception use, sex education requirement, marriage rate, divorce rate, coverage of family planning services under Medicaid:

```
. regress rate_unint_preg useofcontra sex_ed rt_marriage rt_divorce coverage_dummy
```

Source	SS	df	MS		
Model	154.861985	5	30.972397	Number of obs	= 39
Residual	986.727759	33	29.9008412	F(5, 33)	= 1.04
				Prob > F	= 0.4131
				R-squared	= 0.1357
				Adj R-squared	= 0.0047
Total	1141.58974	38	30.0418354	Root MSE	= 5.4682

rate_unint_p~g	Coef.	Std. Err.	t	P>|t|	[95% Conf.	Interval]
useofcontra	-.4853535	.3481252	-1.39	0.173	-1.19362	.2229125
sex_ed	1.94366	1.772151	1.10	0.281	-1.661809	5.549129
rt_marriage	.0426614	.2131265	0.20	0.843	-.3909476	.4762705
rt_divorce	.0195197	1.289706	0.02	0.988	-2.604408	2.643447
coverage_dummy	3.123106	1.890288	1.65	0.108	-.7227135	6.968925
_cons	89.59765	28.0059	3.20	0.003	32.61922	146.5761

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