Socioeconomic Consequences of Romania’s Abortion Ban under Ceaușescu’s Regime

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Abstract: This paper examines the impact of an abortion ban during Nicolae Ceaușescu’s communist regime on socioeconomic outcomes in Romania, with a special emphasis on the educational outcomes of citizens from rural areas. An econometric model is used to analyze data from the 2002 Romanian census. In the first part of this paper, the reader will find a bibliographical review of scholarly articles regarding the enactment of pronatalist policies in Ceaușescu’s Romania and their socioeconomic impacts. In the second part, data from Romanian citizens born in rural areas in 1967 are used to evaluate the impact of the abortion ban on the educational outcomes of the cohorts born before and after its enactment. In the last part, the analysis of the model’s results shows that the cohort born after Decree 770 came into force had lower educational outcomes that those of the cohort born prior to the ban.

1. Introduction

In 1945, Romania, under the leadership of the Communist Party, became an ally of the Soviet Union. This alliance brought many social and economic upheavals, of which the criminalization of abortion under Nicolae Ceaușescu’s regime stands as one of the most impactful. To achieve the demographic goals of the state, Ceaușescu criminalized abortion in 1966, demanding that each family have at least four children. In the 23 years that ensued (1966-1989), the policies enforced were among the most brutal in the world, resulting in serious socioeconomic consequences for the Romanian people.

Decree 770, which came into being on October 1st 1966, instituted severe measures and punishments with the goal of eradicating abortion, effectively subordinating the people to the power of the state, with the first
becoming the property of the latter. While Gheorghiu-Dej nationalized the means of production, Ceaușescu nationalized the means of reproduction (Kligman, 1998). The new law created mechanisms of absolute control over people’s reproductive lives: gynecological exams became mandatory for women in their fertile years, and childless couples over the age of 25 were charged a celibacy tax (Scarlat, 2005; Kligman, 1998). Romania’s laws, which had previously been among the world’s most liberal, had now become so oppressive that the country saw its fertility rate jump from 1.9 to 3.7 children per woman (Pop-Eleches, 2005). The resulting cohort experienced a period of overpopulation of schools, hospitals and public services, along with a lack of investment in the infrastructure that was needed to take in the sudden population growth.

Although modern policies that ban abortion tend to have low efficacy, as they not so much decrease demand as shift it from legal to illegal markets, in Romania the abortion ban was very effective in the short run, resulting in a strong spike in population growth. Given its effectiveness, what were the socioeconomic implications of Decree 770? The answer to this question informs the present research; specifically, the goal of this paper is to analyze the consequences of implicitly banning abortion. In order to accomplish this goal, I scrutinize the socioeconomic consequences of the decree, putting a special emphasis on its effect on the educational outcomes of the Romanian cohort born in rural areas in 1967.

Family planning, in Romania and elsewhere, has often been an issue where individual, family and state interests conflict. Romania’s was even graver given that the country was under the leadership of a totalitarian regime, which controlled every aspect of an individual’s life: the state had absolute control over education, access to health care, job opportunities, and, as is noted in this paper, reproductive rights. At the same time that civil liberties were diminished, the cult of the state and the paternalistic structures built around it created an environment where
dissidents were fearful of criticizing the government of which they were dependent on.

On a microeconomic level, the decision to have children is based, at least partially, on economic reasons. Using a cost-benefit analysis, individuals arrive at what are supposed to be rational decisions regarding reproductive matters and family size. However, under Ceaușescu’s regime this decision was no longer made by individuals, but rather by the government who decided what the optimal family size was. This was in the state’s interest because socialist economies are very dependent on their labor force. Therefore expanding the available labor pool was essential to the growth of the socialist state. It becomes evident that what was in the best interest of the state was not necessarily in the best interest of the families. While the former made the decisions, the latter bore the burdens.

It is worth noting that in spite of the fact that the usual ideals of dedication and self-sacrifice that are used to justify banning abortion are contrary to capitalist ideals – after all, these are religious ideals that are opposed to the concept of acting in one’s self-interest – pro-natalist policies are not restricted to non-capitalist and ditactorial regimes. A prime example of this is the insistence of the Republican Party to restrict access to abortion and perhaps ultimately ban it in all circumstances in the United States (Allen, 2012) – a position far more intrusive and socially conservative than that adopted by the Communist Party. Given that attempts to regulate human reproduction are found across the political spectrum, Romania’s experience with banning abortion is relevant to other countries, for the consequences it suffered are historically consistent, having been observed in other societies and across other periods of time throughout history – regardless of political, economic and religious ideologies.

Considering how relevant Romania’s experience is, it is important to note that more research based on empirical
evidence is needed to assess the consequences that repressive abortion policies have on society. The present study is able to add new elements to the abortion debate as it expands on existing research and presents new results, which is something all should be able to appreciate when constructing public policies.

This paper is organized into four chapters contingent upon this introduction. In the second chapter, the reader will find a literary review of the main papers and research on the pro-natalist policies in Romania and the consequences of banning abortion. The third chapter explains the methodology employed, the econometric model built, the data used in the sample and the statistic tests that were done. The fourth chapter consists of the analysis of the results found. The fifth chapter concludes the research corpus.

2. Literary Review

The following chapter is destined to review the main studies done on the consequences of banning abortion. It is divided into three main sections: the first sets the historical context which led to the creation of Decree 770 and the implementation of pro-natalist policies in Romania, the second focuses on demographic policy and conflicts of interests and the third analyses the scope of the measures adopted.

2.1 Implementation of Pro-Natalist Policies in Romania

In the first two decades of the communist regime (1945-1965), the government assumed a paternalistic role in dealing with mothers and children, stimulating high fertility rates, while at the same time keeping living wages down by subsidizing daily necessities. Communist ideology stated that a large population would lead to a robust economy, and the government turned to pro-natalist policies in the aftermath of World War II, with the goal of stopping the declining fertility rates. This led to the
addition of Article 482 to the Romanian Penal Code, which criminalized abortion from 1948 until 1957 (Kligman, 1998).

In the following decade, when abortion was legalized again, the deteriorating economy led to the lowering of living standards, especially those of women, which reduced fertility rates again. Aside from the lowering of standards of living, the industrial development and agricultural modernization propelled by the Communist Party resulted in large migration movements from agricultural areas to urban ones, as can be seen in Table 1, resulting in an increase in the female workforce and in changes in the nuclear family structure (Lataianu, 2001; Einhorn, 1993).

Table 1. Rural population in Romania and in the Soviet Union, 1926-1966

<table>
<thead>
<tr>
<th></th>
<th>1926/1930</th>
<th>1939/1948</th>
<th>1965/1966</th>
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<td>USSR</td>
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Sources: Created by the author based on Lataianu (2001) and Manevich (1968).

Although at a slower pace, emigration from rural areas in Romania followed the same trend seen in Soviet countries – between 1926 and 1966, the rural population fell by 22%, while the average reduction for Soviet countries was 43% (The World Bank, 2012a). This trend continued to occur after 1966, with the rural population surpassing the urban one in 1986 (The World Bank, 2012b). Aside from overburdening the existing infrastructure in urban areas, migration affected rural areas negatively as those were increasingly left with a workforce made up of women, children and the elderly (Kligman, 1998). In order to solve the resulting infrastructure problems, the government went on to build housing for the newly migrated labor force around industrial centers. However, the housing demand was considerably higher than the supply offered by the State,
which led the ladder to reduce the quality of the settlements that were being built. This often resulted in the building of apartments without running water and heating apparatuses (Johnson, Edwards, & Puwak, 1993).

The policies implemented by the government led to an increase in maternity costs. The surge in demand for workers along with the communist ideal of gender equality led the government to encourage women to participate in the labor market. At the same time, migration from rural to urban centers led to behavioral changes and paradigm shifts. If women’s main roles had previously been that of housewives, urbanization now integrated them into the market, although at lower rates than men. However, as the traditional patriarchal structure still reigned supreme, especially among the poor and uneducated, women now worked as much as men outside of the home yet carried all the burden of household chores by themselves, leading to what were effectively double shifts (Lataianu, 2001; Kligman, 1998). Although this situation was commonplace in most countries, it is especially relevant when considering the events unfolding in Romania between 1945 and 1989: the changes in the female workforce and the stasis of family structures increased the costs of child rearing, creating an incentive that went against the very goals of outlawing abortion.

However, women were not the only ones affected by state intervention. Families as a whole were affected as the government extended the minimum years of mandatory education while increasing the prerequisites for higher education. This resulted in individuals’ remaining dependent on their parents for longer than in previous generations (Lataianu, 2001). While in the past children had traditionally been seen as sources of extra income, the political changes made by Ceaușescu meant that children now reduced their parents’ income instead of supplementing it. As maternity costs soared, fertility rates fell, reaching their lowest level in 1966 (Council of Europe, 1997).
In order to stop the fall of fertility rates and meet the demand for human resources, the government implemented positive and negative pro-natalist policies. The goal of these policies was to increase the population from 19 million, at the time, to 30 million by 2000 (Berelson, 1979). The positive policies implemented focused on incentives to increase fertility, involving the use of financial rewards linked to family sizes. Meanwhile, the negative policies focused on legal measures to curtail family planning. Based on the latter, Decree 770 was implemented in October 1966. It effectively banned abortion, except when: a) the mother's life was at risk; b) one of the parents had a hereditary disease; c) the woman was physically or mentally handicapped; d) the woman was at least 45 years old; e) the woman already had four children; or f) the pregnancy occurred as a result of rape or incest (Scarlat, 2005).

In order to effectively achieve its demographic goals, the government started to stringently regulate gynecologists and nurses in hospitals and maternity homes. It also implemented mandatory gynecological exams, without which women could not access public health care services. These policies led to a sharp decrease in the availability of back-alley abortions. At the same time, although not officially prohibited, contraceptives were not available in the Romanian marketplace (Kligman, 1998). Schools did not teach sexual education and the government used its propagandizing to advertise only the positive sides of maternity. Even movies that showed how to avoid a pregnancy were censored (Kligman, 1998). Lastly, the government imposed a tax on childless couples: all childless individuals over the age of 25 were taxed 30% of their income (Johnson, Edwards, & Puwak, 1993).

During its first two years, the decree was extremely effective: the cohorts born in 1967 and 1968 were the largest in Romanian history (Lataianu, 2001). Due to the government coercion involved, these cohorts would later be known as Decretei, “children of the decree,” and
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Lower income families, especially those in rural areas, were affected the most by the new laws, as their lack of financial resources restricted their access to illegal methods of family planning. Better off families were able to adapt to the new regulations more easily, leading to the creation of a black market for contraceptives and abortions (Lataianu, 2001; Pop-Eleches, 2005). While this resulted in a decline in fertility rates in the ensuing years, it is clear that in Romania, as in other countries where abortion has been banned, the burden fell on the poor, as individuals with higher economic means resorted to illegal markets and fraudulent medical diagnoses that allowed for legal abortions (Kligman, 1998).

2.2 Demographic Politics: Conflict of Interests

Having children or not is, at least in theory, a rational choice based on economic potentialities that maximize an individual’s well being. Liberty is an essential prerogative for rational choices to occur. When the state implements coercive measures, it creates rifts in the child rearing market. In Romania, the rational choices of the government were in direct contradistinction with the rational choices of the people.

These conflicts increased as the economy worsened, leading to a growing number of women who refused to follow the government’s commands on family planning. As a result, the government resorted to means that went beyond legislative action: it politicized traditional concepts of family and motherhood, a strategy commonly utilized in totalitarian regimes. Through its propaganda and manipulation of cultural traditions the government inserted itself into the most private parts of people’s lives. This was made easier by the decree in which people depended on the government: as happens in communist countries, the government was responsible for
employment conditions, which allowed it to coerce individuals using economic threats.

Government intervention went far beyond economic conditions, as the state effectively changed dependency relations within the family: the patriarchal model in which the woman and children depended on the man (the head of household) had become antiquated. The new reality was that all family members depended on the state as the ultimate patriarch. Along with an environment of politicized traditions and sexuality, the government took advantage of what Kligman (1998) calls the “village voice”: the state incentivized individuals to speculate on each others lives, creating a self-serving environment where citizens pressured each other to follow socialist rules. As family reputation had a direct effect on career and educational opportunities, this was a strategy adopted by the government to enforce individual and collective submission while upholding observance of communist ideals.

However, the state’s effort to increase fertility rates was not matched by an improvement in quality of life, which was needed to support the upkeep of bigger families. Food was so scarce that the government promoted the sale of breast milk to feed children who did not have access to bovine milk (Kligman, 1998). The economic situation was even harsher in rural areas, as the supply of food was dependent on citizens’ meeting the production quotas established by the government. Women were hit hardest by the establishment of quotas, for, as can be seen in Graph 1, more females were employed in agriculture than males.
As mentioned before, the upper classes in Romania were the ones that were most able to access family planning methods, with the burden of the abortion ban falling on the poor and rural populations whose choices were severely curtailed. Given that the people whose choices were restricted the most were the people whose economic conditions were the worst, it is interesting to note that the state’s pro-natalist policies resulted in a perpetuation of poverty cycles, as poor families were forced to have more children, carrying on the state’s demographic plans. Hence, Berelson (as cited in Kligman, 1998, p. 279) estimated that the state was able to elevate the birth rate by 39% in comparison to that which would have naturally occurred between 1967 and 1989.
2.2.1 Trade Off Between Family Size and Quality of Life

Hanushek (1992) presented a model that indicated a trade-off between family size and quality of life, which is applied in this section to the Romanian case. Given a budget constraint and assuming that all children in the same family unit had the same quality of life, an increase in the number of children (be it planned or not) decreased the quality of life of the existing children. In Romania this resulted in a relative impoverishment of families, which consequently affected the investments made by families in their children’s educations. The deteriorating infrastructure and the overcrowding of public schools worsened this latter point.

Increased family sizes required new allocations of private time, which is the time parents spend teaching their children. According to Hanushek’s (1992), three such allocations were possible:

a) **Nondiscriminatory time allocation**: private time was divided equally between all children. Increases in family size resulted in decreases in private time spent per child, which, generally, meant that child achievement would decline as family size increased;
b) **Compensatory time allocation**: two opposing forces were at work. The average maximization principle dictated that parents should invest more time in their high-achieving children, so as to increase average achievement, while the variance minimization principle dictated that they should focus on their low-achieving children, so as to reduce achievement variance. While specific allocations varied among families, overall, they were more likely to strive to reduce achievement variance, focusing on their least intellectually ablebodied children;
c) **Achievement maximization**: time allocation was not divided equally. As parents focused on maximizing achievements, high-achieving children received more attention than their siblings,
increasing the gap between high and low-achieving children.

Regardless of which strategy was adopted, increased family sizes resulted in decreased amounts of time invested per child. Michael Lundholm and Henry Ohlsson (2002) found similar results as their research indicated that an increase in the number of children reduced the quality of the time invested by parents in each child. It follows that Decree 770 induced families to lean towards quantity instead of quality.

2.2.2 Relative Impoverishment of Families and Child Abandonment

Aside from the absolute impoverishment of families, which resulted from the nationalization of the means of production and the scarcity of basic consumer goods, the spike in birth rates led to a relative impoverishment of families. This impoverishment has been evidenced in varied countries, regardless of their political systems: studies show that as family size goes up, so do poverty levels. Research done by the Joseph Rowntree Foundation indicates that the likelihood of living in poverty doubles when a child is born to a large family (Bradshaw, Finch, Mayhew, Ritakallio, & Skinner, 2006). This is a salient factor as reducing family size is key to eradicating child poverty (Meyer as cited in Cancian et al., 2009) – and it goes in direct opposition to what the Romanian government was striving for. For studies on the link between abortion bans, poverty and criminal activity, which is not covered in this paper, see Levitt and Dubner (2005).

In Romania, a country that espoused strong “pro-family” values, the relative impoverishment of families led to high numbers of child abandonment. The difference between public discourse and action was striking: poverty and exhaustion led to such exorbitant child abandonment rates that state institutions could not take in any more members, and their infrastructure was so poor that children were kept in cages, often malnourished, falling
victim to sexual abuse and dying as a result of neglect (Kligman, 1998; McGeown, 2005). This situation increased infant mortality and infanticide rates to such a point that the government would not register a newborn until two weeks after their delivery (Kligman, 1998).

Given the government’s focus on “productive” citizens, disabled children suffered intense neglect in state institutions. Often their handicaps developed as a result of the poor care provided by the state (Kligman, 1998). Once targeted as non-productive, they were sent to special orphanages, where they were effectively given a death sentence. It is telling that the Health Ministry was responsible for healthy children but not for handicapped ones, with the latter being under the supervision of the Labor Ministry (Morrison, 2004). Not only were handicapped children viewed unfavourably by the government, they were also discriminated against in actual policy: the government did not extend welfare that was available to families with “healthy” children to families with handicapped children (Kligman, 1998). This, in turn, increased their likelihood of abandonment.

2.3 Efficacy and Consequences of the Decree 770

Although it served the government’s short-term goals, in the long run the abortion ban exerted negative consequences in Romania. As can be seen in Graph 2, at first the decree was highly effective – the birth rate went from 14.3 per 1,000 inhabitants in 1966 to 27.4 in 1967. However, the birth rate began declining again after that initial period, which shows that the population found ways of controlling their fertility despite formidable government intervention.

This conflict between government intervention and individual will led Romania to have the highest maternal mortality rate in Europe – by 1989, Romania’s maternal mortality rate was 169.4 per 1,000 women, in comparison to 49 in Russia, the communist country with the second highest rates (Lataianu, 2001). This naturally led to a high number of orphans: Trebici (as cited in Lataianu, 2001)
found that for every maternal death between 1982 and 1988, two children became orphans.

Graph 2. Births per 1,000 inhabitants and number of children per woman, 1960-2010

Although the government was successful, at least at first, at increasing fertility rates, it did not increase its spending in infrastructure, health and education sufficiently. In the case of the latter, the overcrowding of schools led to the reduction of class time, instead of the building of an apt number of new schools (Kligman, 1998; Lataianu, 2001; Pop-Eleches, 2005).

With the fall of communism in 1989, Romania adopted a market economy, which resulted in massive lay-offs in the public sector and the closing of inefficient companies. In the public sectors, the lay-offs were done according to seniority, meaning that young people were the ones most likely to be terminated (Lataianu, 2001). The cohort that was born in the initial years of the abortion ban were the most affected by
the political and economic changes brought about by the downfall of communism – aside from suffering from the lay-offs in the public sector, they were not qualified enough for jobs in the private sector. This led to a high unemployment rate among young people.

Although there were other important consequences, the ones mentioned in this chapter are the most relevant for the present research, for they either affect or are affected by educational outcomes. The following chapters are dedicated to analyzing census data from 2002 and establishing the statistical significance of the tactics employed by the government on the educational outcomes of the rural cohorts born before and after abortion was banned.

3. Methodology

This chapter focuses on the methodology adopted throughout this paper. The reader will find three sections: the first one explains the econometric model developed to assess the impact of Decree 770 on the educational outcomes of the rural cohort born in 1967, the second focuses on the data used and the third describes the statistical tests done.

3.1 Model, Variables and Hypothesis

The impact of Decree 770 on the educational outcomes of the rural cohort born in 1967 is assessed by the following model, which was built based on the formula originally developed by Pop-Eleches (2002):

\[ \text{OUTCOME}_i = \beta_0 + \beta_1 \times \text{illegal abortion}_i + X_\beta + \epsilon_i \quad (1) \]

Where:

a) \( \text{OUTCOME}_i \) measures the educational impact of the abortion ban on the individual “i” who was born in rural areas in 1967;
b) \textit{illegal abortion}_i\textsubscript{t} is a dummy with a value of 1 if the individual “\(i\)” was born in a period when his mother could not have aborted him (between June and December) and 0 if she could have aborted at some point throughout the pregnancy (between January and May). The methodology adopted here is the same that was used by Pop-Eleches (2002), which is based on the idea that since abortion was banned in October of 1966, for individuals born between January and May their mothers could have still aborted them (even if only in the first months of pregnancy) but chose not to, while for individuals born later than that their mothers had no choice in carrying on their pregnancies. The results expected for this dummy are explained along with the hypothesis that guides the presente research;

c) \(\beta_0\) represents the mean effect of all other variables that are not measured in the aforementioned model;

d) \(\beta_t\) represents the effect of the abortion ban on the educational outcomes of the chosen cohort;

e) \(\beta\) is a column vector containing the estimated parameters for the control variables;

f) \(X\) is a matrix composed of the following control variables\(^1\):

- Gender: dummy indicating an individual’s gender, being 0 for female and 1 for male;
- One inhabitant per dwelling: dummy added by the author to identify if the individual lives alone or not, with a value of 0 if he does not and 1 if he does;
- Married: dummy indicating an individual’s marital status, with a value of 0 if he is single and 1 if he is married. Added by the author to assess if marriage impacts educational outcomes;
- Christian: dummy signaling if an individual is a Christian or not. It takes a value of 0 for the latter

\(^1\) Unless otherwise stated, the control variables are similar to those used by Pop-Eleches (2002). However, this does not mean that every variable used by that author has also been used in this paper.
and 1 for the first. Added by the author, focusing only on Christianity for it was the major religion in Romania:

- Dummies related to the physical structure of the dwelling:
  - Plumbing: dummy with a value of 0 if the dwelling does not have plumbing and 1 if it does;
  - Air conditioning: dummy with a value of 0 if the dwelling does not have an air conditioning system and 1 if it does;
  - Electricity: dummy with a value of 0 if the dwelling does not have electricity and 1 if it does. Added by the author to further analyze the economic situation of the individuals in the sample.
- Couples per dwelling: added by the author to identify number of couples residing in the same household;
- Children per dwelling: number of children living in the same dwelling;
- Age of the oldest child: added by the author, indicates age in years of the oldest child;
- Size of the dwelling: size of the dwelling in squared meters. Added by the author to replace a similar variable used by Pop-Eleches (2002). While Pop-Eleches (2002) used a variable indicating the size in squared meters per inhabitant, the present research considers the size of the house as a whole.

The variables related to the physical characteristics of dwellings have been included so as to better evaluate the socioeconomic status of individuals in the sample, for, although migration flows impacted urban areas, rural areas exhibited lack of access to services such as plumbing. Therefore these variables are useful in assessing poverty levels.

The hypothesis tested is:

\[ H_0 : \beta_1 = 0 \]

\[ H_1 : \beta_1 < 0 \Rightarrow \text{This hypothesis is based on evidence found by Pop-Eleches (2002).} \]
According to the hypothesis presented in section 2.5 and repeated above, that the abortion ban exerted a negative impact on educational outcomes, it is expected that the variable \( \text{illegal abortion} \) will have a negative impact on \( \text{Outcome}_i \), given that it has a value of 0 for individuals whose mothers could have still aborted them and of 1 for those whose mothers had no choice over carrying their pregnancies to term.

### 3.2 Data Sources

This research was conducted using a sample of 10% of the population interviewed for the 2002 Romanian census. The information was obtained through the Minnesota Population Center (IPUMS) from the University of Minnesota. Within this sample, the individuals studied were required to meet two criteria: be born in 1967 and reside in rural areas. This led to a sample of 16,914 individuals, of which 16,909 were kept for the final model. The selected sample provided important information: aside from containing socioeconomic and educational data, it also had the month of birth of all individuals, which was used to divide the individuals into two separate groups.

The emphasis put on the rural population is due to the fact that it was affected the hardest by Decree 770. In urban areas, the population had greater access to illegal methods of contraception and abortion, while in rural areas not only did people not have access to illegal markets, they also received less government aid – up to 41% less (Kligman, 1998). On top of economic gaps, family size in rural areas was considerably bigger than in urban areas; while the first had, on average, one child, the latter had six.

### 3.3 Statistical Tests

Before the hypothesis was tested, tests were done to verify if there was multicollinearity present in predictor variables of the regression model. This step is important, for the lack of multicollinearity is part of the basis of the classic linear regression model – while the existence of...
multicollinearity does not necessarily affect the model as a whole, depending on its degree it does make the results of individual variables unreliable and creates infinite standard errors (Gujarati, 2006). For the present research, only variables with multicollinearity levels lower than 0.60 were accepted.

The next step taken was to check for the existence of heteroscedasticity using White’s variance-covariance estimator. This step is germane for it verifies if all modeling errors $u_t$ have the same variance. The following equation was used to verify the lack or not of heteroscedasticity:

$$u_t^2 = \alpha_0 + \alpha_1 \text{illegal abortion} + \alpha_2 \text{one inhabitant per dwelling} + \alpha_3 \text{plumbing} + \alpha_4 \text{married} + \alpha_5 \text{electricity} + \alpha_6 \text{gender} + \alpha_7 \text{couples per dwelling} + \alpha_8 \text{children per dwelling} + \alpha_9 \text{age of the oldest child} + \alpha_{10} \text{size of the dwelling} + \alpha_{11} \text{illegal abortion}^2 + \alpha_{12} \text{couples per dwelling}^2 + \alpha_{13} \text{children per dwelling}^2 + \alpha_{14} \text{age of the oldest child}^2 + \alpha_{15} \text{size of the dwelling}^2$$

Lastly, the Durbin-Watson statistic was used to detect the presence of autocorrelation in the residuals from the regression. This is relevant for autocorrelation would mean that one individual’s educational outcomes could affect another individual’s outcomes. When autocorrelation is found the ordinary least squares (OLS) estimators are no longer efficient, although not biased (Gujarati, 2006).

The aforementioned tests and their results are found in the analysis chapter. The regressions were done based on the first equation presented, which composes the initial model. After it was estimated, the least significant variable (based on its p-value) was removed and the regression was
estimated again. The process was repeated until all variables had p-values equal or lower than 0.10, reaching the final model.

4. Analysis

This chapter focuses on the analysis of the results of the variables that are found to be significant. Table 2 shows these results along with the variables found in the initial and the final models. Appendix A shows educational levels and their corresponding values.

Before estimating the regression, a test was run to identify the presence of multicollinearity. No variables were above the maximum correlation threshold accepted (0.60). Afterwards White’s test was run to detect heteroskedasticity. These results are also found in Table 2.

The validity of the data was confirmed by both White’s and Durbin-Watson’s tests. For the first, the F value was 90.52 and the F probability 0.00. While this does indicate the occurrence of heteroskedasticity, it is not a problem for the present study’s goal is not to make predictions or run hypothesis tests but rather to determine the betas. This is based on the fact that when heteroskedasticity is present the OLS estimators are unbiased but not efficient, meaning that their variance is not the minimum one (Pindyck & Rubinfeld, 2004). For the latter test, the result found (d equal to 1.96) indicates that the model does not present any autocorrelation issues, for the result found is above the upper limit, $d_U$, and below 2.
Table 2. Coefficients

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<td>0.00</td>
</tr>
<tr>
<td>Couples per dwelling</td>
<td>-2.61</td>
<td>0.00</td>
<td>-2.61</td>
<td>0.00</td>
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<tr>
<td>Children per dwelling</td>
<td>-8.12</td>
<td>0.00</td>
<td>-8.12</td>
<td>0.00</td>
</tr>
<tr>
<td>Age of the oldest child</td>
<td>-0.15</td>
<td>0.00</td>
<td>-0.15</td>
<td>0.00</td>
</tr>
<tr>
<td>Size of the dwelling</td>
<td>0.24</td>
<td>0.00</td>
<td>0.24</td>
<td>0.00</td>
</tr>
<tr>
<td>C</td>
<td>282.54</td>
<td>0.00</td>
<td>284.94</td>
<td>0.00</td>
</tr>
</tbody>
</table>

Adjusted R-squared: 0.11
Dependent variable average: 315.07
F-statistic: 213.72
Durbin-Watson Statistics: 1.96
Probability (F-statistic): 0.00

Source: Created by the author.

A value of 284.94 was found for the constant, signaling an educational level between primary (200) and lower secondary education (310). The results found in the regression estimation indicate that Decree 770 had a negative effect on educational outcomes, for illegal abortion presented a coefficient of -1.07. It is worth noting that the values found in the aforementioned regression were based on the division of cohorts by month of birth; however, as both cohorts were born in the same year, and therefore
according to the Romanian school calendar in the same school year, they were all subject to the same overcrowding effects. This being the case, the coefficient found for illegal abortion signals an unwantedness effect on educational outcomes.

Other authors have evidenced the negative impact of abortion bans in various countries. Gruber, Levine and Staiger (1999) found that Americans born in states that had legalized abortion prior to Roe vs. Wade had higher educational outcomes than those in the remaining states, while Whitaker (2008) found that the legalization of abortion had an expansive effect on the educational outcomes of African Americans. In Finland, Myhrman, Olsen, Rantakallio and Laara (1995) found that individuals born from “wanted” pregnancies finished high school at higher rates than those born via unwanted pregnancies.

In the same way that the present research indicates effects that are similar to those evidenced by other authors, they are comparable to those found by Pop-Eleches (2002). In his first paper on the topic, on whose econometric model this research was based, he found that the Decree 770 had negatively affected the educational outcomes of Romanians born in 1967 (Pop-Eleches, 2005). In his second study, in which he analyzed educational outcomes for the cohort born in and after 1989, he found that the legalization of abortion exerted a positive impact on educational attainment (Pop-Eleches, 2009).

In regard to each individual’s economic power, three dummies and a variable were used to make up for the fact that the census did not provide data related to income. Three of these were statistically significant: plumbing (coefficient of 3.48), electricity (24.54) and size of the dwelling (0.24). As was to be expected, these variables all had positive effects on educational outcomes, for their existence in a dwelling signals that the individual living in it has a higher economic power, and it is exactly economic power that gives individuals better educational
opportunities. This is especially true given that under Ceaușescu’s regime only the upper classes had enough resources to hire private (informal) tutoring services, which were very much needed in order to guarantee one’s access to prestigious high schools and post-secondary education (Kligman, 1998). This becomes evident as those individuals that lived in dwellings with electricity had average educational outcomes of 309.48, in comparison with the overall average of 284.94. This analysis is especially important as to not incorrectly attribute the effects of income on education to the abortion ban, although banning abortion had negative implications on education, which consequently led to lower incomes.

Family structures were also analyzed: living alone or being married at the time of the 2002 census indicated higher educational outcomes (coefficients of 9.56 and 14.54 respectively), while the number of children per household, the age of the oldest child and cohabitation with other couples all had negative impacts on education (coefficients of -8.12, -0.15 and -2.61). These results were expected, for they are in accordance with the existing literature on these topics.

The positive impacts of living alone are connected to the fact that this family structure is typical of individuals with higher incomes, which, as seen before, has positive effects on education. This variable works as an indicator of social class, used to assess how much of an individual’s educational outcomes was due to his or her access to education. The positive effects of marriage result from the fact that this structure tends to better people’s economic situations (Fry & Cohn, 2010).

On the other hand, cohabitating with other couples indicates that an individual has lower economic power, for often times cohabitation occurs because of financial strain (Taylor et al. 2010). As was the case with the other family structures analyzed, this variable was used to assess an individual’s socioeconomic status.
The negative impact of the number of children on education is connected to the higher familial responsibilities and the resulting financial strains that come with growing family sizes. The age of the oldest child is of special importance for it indicates how old an individual was when he or she became a parent. This is extremely relevant because teenage pregnancy is known to reduce the educational outcomes of both parents, albeit especially of the mother (Chang’ach, 2012; Hoffman, 2006; Ministério da Saúde, 2009). These results, too, are in accordance with current studies.

Aside from the aforementioned variables, an individual’s gender was also taken into consideration. Inspite of Ceauşescu’s talk of equality, this variable proved to be quite influential, with a coefficient of 4.41. The Communist Party had among its values gender equality, focusing specially on increasing women’s participation in the labor force and in academia, and although full equality was not achieved, in some ways it was successful: in 1938 41.2% of high school students were female, by 1989 that number had gone up to 49.8%. In higher education the increase was even steeper – while in 1939 25.9% of students were women, by 1989 they represented 48.3% of university students (Kligman, 1998).

5. Conclusion

The present research has analyzed the consequences of Decree 770 on the Romanian population, with a special focus on the educational outcomes of rural cohorts born in 1967. As can be seen in the literary review, the abortion ban was extremely efficacious during its first two years, resulting in substantial populational increases in 1967 and 1968. This was quite an important feat for the state, given socialist economies’ dependence on human capital. Although the population gradually adapted to their decreased reproductive autonomy, studies show that the decree made natality rates 39% higher between 1967 and
1989 than they would otherwise have been without state interference (Berelson as cited in Kligman, 1998, p. 279).

However, this sharp increase in births brought with it negative socioeconomic consequences for the nation. The development of a black market for pregnancy terminations was not the only one of them – Romania experienced a relative impoverishment of families, falling standards of living, failing educational institutions and an increase in both maternal mortality rates and the number of children abandoned. Poor and rural families were hit hardest by this new reality, for their lack of economic resources meant that they did not have access to illegal family planning methods. This resulted in increased rates of child abandonment. These children were confined to state institutions and subjected to forced labor and physical and sexual abuse, which often resulted in deaths. Child mortality and infanticide rates rose to such a high that government agencies instituted a two week waiting period for issuing birth certificates to newborns.

The evidence found in the literature led to the development of an econometric model to assess the quantitative effects of Decree 770 on educational outcomes of rural cohorts. This model was based on that created by Pop-Eleches (2002), and it consists of two distinct cohorts. The first cohort was composed by individuals that were born in a time frame that would have allowed their mothers to terminate their pregnancies at least in their first trimester, while the second cohort consists of individuals whose mothers had no access whatsoever to legal abortion throughout their pregnancies. The educational outputs found for the second cohort were lower than for the first, indicating that the abortion ban had a negative impact on educational outcomes. These results are in line with those found by Pop-Eleches (2002). They are also similar to research done focusing on countries other than Romania where a similar connection between abortion bans and educational outcomes was observed.
References


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Socioeconomic Consequences of Romania’s Abortion Ban Under Ceaușescu’s Regime


APPENDIX A

Table A.1. Educational Levels

<table>
<thead>
<tr>
<th>Value</th>
<th>Educational Level</th>
</tr>
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<tbody>
<tr>
<td>100</td>
<td>None</td>
</tr>
<tr>
<td>110</td>
<td>Literacy courses</td>
</tr>
<tr>
<td>200</td>
<td>Primary</td>
</tr>
<tr>
<td>210</td>
<td>Special education</td>
</tr>
<tr>
<td>300</td>
<td>Secondary</td>
</tr>
<tr>
<td>310</td>
<td>Lower secondary</td>
</tr>
<tr>
<td>311</td>
<td>Special education</td>
</tr>
<tr>
<td>320</td>
<td>Upper secondary</td>
</tr>
<tr>
<td>321</td>
<td>Academic secondary education</td>
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<tr>
<td>322</td>
<td>Vocational secondary education</td>
</tr>
<tr>
<td>330</td>
<td>Technical apprenticeship secondary</td>
</tr>
<tr>
<td>400</td>
<td>Post-secondary</td>
</tr>
<tr>
<td>410</td>
<td>Technical</td>
</tr>
<tr>
<td>420</td>
<td>Short term education</td>
</tr>
<tr>
<td>430</td>
<td>University/college</td>
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