

FERTILITY TRANSITION AND THE DIFFUSION OF FEMALE STERILIZATION IN NORTHEASTERN BRAZIL: THE ROLES OF MEDICINE AND POLITICS

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INTRODUCTION

The Brazilian Total Fertility Rate (TFR) fell from 6.3 in 1980 to 2.5 in 1996. In its poorest region, the Northeast, the TFR fell from 7.4 to 3.1 in the same period (BEMFAM/DHS 1997; Carvalho and Wong 1996). Data from the 1996 Demographic and Health Survey (DHS) indicate that 40 percent of married Brazilian women aged 15-49 years were sterilized. In the Northeast, this figure reached 44 percent. While in the other regions the bulk of sterilizations were paid for by the women, politicians and doctors arranged and paid for 70 percent of the tubal ligations in the Northeast.¹ I argue that this phenomenon is the result of the association of an increasing demand for contraception with the absence of effective public policies and thus poor birth control options, the influence of doctors amidst the diffusion of a hospital-based curative medicine, and the pervasiveness of a political behavior in which politicians provide goods and services to the poor in exchange for votes. In this light, I analyze the provision of sterilization among low-income women in the Northeast focusing on the determinants of its diffusion, its clientelistic character, and the role of doctors.

To accomplish these objectives, I first discuss the background of the Brazilian fertility transition in order to highlight the importance of the political and healthcare contexts in which the phenomenon took and takes place. I introduce these contexts in section 2. They are crucial to understand the differences between the Northeast as opposed to the other regions as well as the role of the different actors involved. In section 3, I employ DHS data to delineate and compare the northeastern sterilization profile to the rest of the country as it developed from 1980 on. Still in this section, I employ survival analysis to analyze the association between sterilization and politics. Next, in section 4, I use data gathered in Pernambuco in 1999 to investigate and document the attitudes of doctors, politicians and sterilized women as well as the manipulation of the public health care system to cover the costs of sterilization, which was not paid for by the government until 1997 and has a restricted coverage after that year. In section 5 I discuss the involvement of national and international institutions linked to the population movement in the implementation of family program efforts in Brazil to point that, in an adverse environment, the attempts made to associate with and influence the medical establishment were as important as the efforts to put services into operation and must be taken into account in the analysis of the diffusion of sterilization in Brazil.² I close with concluding remarks.

¹ Brazil is divided into five macro-regions, South, Southeast, Center-West, North and Northeast. The Southeast comprises four states, including the two major economies of the country, São Paulo and Rio de Janeiro, respectively. The northeast is constituted of nine states. The wealthiest and most populated are Pernambuco, Bahia and Ceará. Brazil had 146 million inhabitants in 1991, when 76 percent of the population lived in urban areas. Sixty-one percent of the 42 million inhabitants of the Northeast in 1991 lived in urban areas. The Southeast is the most urbanized region of Brazil. Eighty-eight percent of its 62 million inhabitants in 1991 were urban dwellers.

² I use the term “population movement” referring to the neo-Malthusians institutions in the sense defined by Hodgson and Watkins (1997), i.e., movements that considered population in excess to produce poverty

This paper connects local-level reproductive health issues of utmost relevance for the reproductive health of low-income women to the local socio-political reality in which they live, to the role of public actors, and to the participation of the national and international institutions in the diffusion of female sterilization in Brazil in general and in the Northeast in particular. The discussion has policy implications related to the 1997 law that legalized sterilization in Brazil and to the manipulation of the public health care system to provide a non-reimbursable surgery for free. The cases of Brazil and its Northeast region expose the potential consequences of a rapid fertility transition in the absence of family planning programs providing true and sound choices regarding birth control methods, narrowing the method mix and leaving vulnerable populations more prone to sterilization.

1) THE BACKGROUND OF FERTILITY TRANSITION IN BRAZIL

Most of the Latin American countries were characteristically agrarian societies after the Second World War. Beginning in the 1960s, however, they experienced major social changes reflected in the increase of industrialization and urbanization, and, consequently, increased rural-urban migration and female participation in the labor force. Governments expanded and improved the communication and transportation infrastructure and health services and education reached the low-income population in several countries. As a consequence, the incentives for large families started dismantling and fertility began declining (Guzmán 1996). As for contraceptive behavior, the highly educated middle class segment, which already had a lower level of fertility, turned as role models (Mundigo 1996). According to Moreno and Singh (1996), increasing fertility control was possible mainly through increasing contraceptive use, which was the key intermediate factor affecting the fertility transition.

In Brazil it was not different. The Brazilian fertility had been stable for a long period and started to decrease in the mid-1960s, when a military dictatorship took power. The decline started in the large cities of the most developed areas, but eventually reached all regions of the country and all social classes. In the absence of official family planning programs, the Brazilian total fertility rate (TFR) decreased from 6.2 in 1960 to 4.1 in 1980 (Merrick and Berquó 1983), a period that encompassed almost ten years of economic bonanza from the mid-1960s to the mid-1970s. The pace of the decline accelerated throughout the 1980s and first half of the 1990s, an economically disastrous period known as the “lost decade” that nevertheless brought political optimism as civilian rule and democracy were gradually reestablished. In 1996 the TFR reached 2.5 (BEMFAM/DHS 1997).

The onset of the fertility decline in Brazil is associated with the intensification of development through the project introduced by the military regime that ruled the country from 1964 to 1984. This project involved rapid economic growth and the preservation of the established power and political structures to provide institutional support and legitimize the regime. Besides the measures taken to directly induce industrial growth and increase agricultural productivity, the military restructured the healthcare and the social security systems extending their coverage, expanded consumer credit and formal education, and established a modern mass communication infrastructure.

Accordingly, employment in the formal sectors of the economy increased substantially, a large number of citizens entered market relationships for the first time, female labor force participation grew significantly, and fertility started its declining trend. The overall growth rate of the Brazilian economy was 7.1 percent per year from 1947 to 1980 and per capita income rose by

and whose actions were intended to curb population growth by lowering the number of children per woman in the developing world.

3.0 percent annually in the same period. The population size increased from 52.7 million in 1950 to 119.1 million in 1980 and the population living in cities with more than 20 thousand inhabitants grew from 20 percent in 1950 to 51 percent in 1980. The labor force grew from 17.4 million to 43.2 million in the same interval due in a great extent to the enlargement of the female participation (Paiva 1983; Paiva 1984). In the Northeast, in 1960, only 34 percent of the region's population lived in urban areas and life expectancy at birth was 41.4 years. In 1980 life expectancy at birth had increased to 51.1 years and in 1991 61 percent of the population lived in urban areas (Perpétuo 1996).

The industrialization process, however, presented serious drawbacks. It was regionally unequal, urbanization was extremely precarious, and income inequality increased considerably. Although the economy boomed from the mid-1960s until the first oil crisis in 1974, the minimum wage dropped, income distribution worsened, and the number of people living below the poverty line increased (Martine and Garcia 1987). Economic dynamism started fading in the late 1970s when a persistent history of budget deficits and chronic inflation became a drag on the economy. The economic deteriorated even more in the 1980s, affecting more intensely the low-income population (IPEA 1996), worsening urban unemployment (Martine 1995; Paiva 1984) and further concentrating income and intensifying poverty, notably in the Northeast.³

This state of affairs was somewhat mitigated after 1994, when high inflation was finally tamed (Neri and Considera 1996). This event however represented neither a structural economic change nor a renewed social contract. Either by national or international standards, the Northeast still presents poor infant mortality, life expectancy, and schooling indicators (Lavinias 1996). Rocha (1995) found that 30 percent of the Brazilian population – 43 million people – fell below the poverty line in 1990. Forty-five percent of the Brazilian poor lived in the Northeast, representing 37 percent of the country's urban and 65 percent of the rural poor (op. cit. 1995). In spite of the improvement in the income levels among the poor following the control of inflation in 1994, poverty followed unabated in the Northeast throughout the 1990s. In 1997, 52 percent of the population of the Northeast, around 23 million people, was poor and the region still accounted for 45 percent of all Brazilians poor (Rocha 2000).⁴

Although the country as a whole already presented a declining TFR in the mid-1960s, the Northeast lagged behind a decade in relation to the more developed regions. While the more developed areas of the country displayed a TFR below 6 children per woman in the reproductive age span in 1970, the northeastern TFR remained above 7. The bulk of the northeastern decrease occurred after 1980, when its TFR fell from 6.1 to 3.1 in 1996. This rate is still higher when compared to the more developed areas, which presented TFR around the replacement level (BEMFAM/DHS 1997; Carvalho 1998; Merrick and Berquó 1983). In this regard, the differences between regions and social classes still stick to the patterns of income and wealth distribution.

All things considered, Brazil experienced a demographic transition in which fertility decline is linked to declining infant mortality, industrialization, urbanization, and considerable expansion of education and female participation in the labor market. Nonetheless, a large layer of society did not collect the benefits of development and great part of the decline occurred amidst chronic economic crisis. Due to this reason, the interpretations of the fertility decline have brought together economic development and labor market changes (Carvalho, Paiva *et al.* 1981),

³ In 1980, 64 percent of the workforce in the Northeast earned up to 1 minimum wage, that is, around \$112.00 a month in 1997 dollars. This group represented 82 percent of the rural workforce and 51 percent of workers in the industrial sector. At the same time, inequality in the region worsened. The Gini index increased from 0.596 in 1970 to 0.638 in 1988 (Perpétuo 1996).

⁴ The value of the poverty line varies according to each region and to whether the area is urban or rural. In the Northeast, it was set at US\$23 in rural areas and US\$39 in urban areas, but this threshold is different for the capital cities of the states of Pernambuco (Recife), Bahia (Salvador), and Ceará (Fortaleza) (op. cit. 2000).

impoverishment as a side effect of an ill-conceived industrialization (Charles and Carvalho 1988), and responses to economic crisis (Carvalho and Wong 1996). An alternative approach saw in the association of industrialization and transformations in the labor market with unintended consequences of institutional changes such as the expansion of mass media and the “medicalization” the main factor redefining and reshaping values, preferences, and attitudes regarding family size, sexual and reproductive behavior (Faria 1989).

With respect to mass, media the proportion of households with television increased nationally from less than 10 percent of the urban households in 1960 to 78 percent in 1991 (Faria and Potter 1994). In the Northeast, in 1960, only 0.2 percent had a television set. In 1991, 80 percent of the urban northeastern women aged 15-49 lived in a household with a television set. Among the rural women, 23 percent lived in a household with a television set. The more popular programs in Brazilian television disseminate values, attitudes and images of a small, egalitarian, unstable and consumerist family characteristic of the urban middle class environment of the Southeast’s large cities (op. cit. 1994). According to these authors, exposure to media messages tends to blur group identities and to challenge traditional roles and authorities.

The conception of medicalization of the reproductive behavior stems from the restructuring effort of the national health system the military government undertook during the 1960s and 1970s. It meant the expansion of the curative over preventive medicine, the promotion of private medicine as the backbone of the health system, and the expansion of public health care coverage to all groups. The number of persons eligible for health services increased substantially and, consequently, the exposure of the population to the medical culture did so, increasing the sphere of social behavior regulated by medical influence, which substituted paternal, marital, and religious authorities regarding pregnancy and institutionalized the demand for fertility regulation. Although there was no explicit or implicit intention to intervene in the population dynamics, the medicalization of reproductive behavior was instrumental to legitimate the interference in biological processes, the belief in the efficacy of medical interventions, and the use of modern birth control methods, specially the pill and female sterilization (Faria 1989).

In sum, the debate about the contemporary fertility transition in Brazil comprised hypotheses varying from the classic demographic transition theory coupled with social inequality coupled and economic crises to the consequences of institutional transformations, such as the medicalization process. Nonetheless, the population movement and the national private sector were pointed as the main actors encouraging, implementing, and diffusing birth control practices, at least in the early phases of the decline (Merrick and Berquó 1983). As in the rest of Latin America, doctors concerned with the levels and differentials of abortion were behind the first endeavors to provide family planning in Brazil. In 1965-66, they founded a private organization, the Society of Family Welfare (BEMFAM) (Mundigo 1996; Rodrigues 1968). BEMFAM became affiliated to the IPPF in 1967 and started being funded by the Ford Foundation in the late 1960s (Ford 1968-1984). Nevertheless, the Brazilian government, along with some sectors of society, approached the population question as an internal matter of “national security” (Sobrinho 1993) and was considered either upright against the provision of family planning services or just absent or lenient towards it (Mundigo 1996).

As far as the government’s position were concerned, Mundigo (op. cit. 1996) states that “...as Latin American governments accepted the reality that emerged from fertility and abortion research, they recognized the rights of couples, and particularly of women, to effective contraception, either by allowing private-sector family planning programs to expand or by integrating these services into existing maternal and child care programs” (p. 203). The limitation posed by this perspective lies in the natural and linear flow of facts from the modernization until inevitable acceptance of family planning on the part of the governments (Watkins and Hodgson 1998). Industrialization, urbanization, expansion of education and health care spread small family size ideals throughout society, which had the well-educated middle class as example for

contraceptive practice. Birth control was opposed by some sectors of society, but eventually accepted and legitimized by the overwhelming dimension of the demand and by the spread of modern medicine.

Little is said about the contexts in which the middle-class choices were made, how doctors defined their preferences regarding methods prescription, and how large-scale availability of sterilization was attained in a country like Brazil and in impoverished areas like the Northeast. Moreover, little attention has been paid to the different socio-political contexts in which the supply of methods came to meet the demand. In the Northeast, the association of clientelistic politics, the structure of the public healthcare provision influenced the setting up and the spread of female sterilization as the contraceptive method of choice.

2) THE POLITICAL AND HEALTH CARE CONTEXTS

As part of the plan to move Brazil's modernization ahead, the military regime overhauled the education and health sectors. After concluding that domestic capital had few investment opportunities compared to public and foreign capital, the military created constitutional instruments in 1966 that allowed for national private investments in social services that had been previously under public responsibility and public funds were allocated to the private sector to invest in education and health. On the healthcare front, the private sector financed by federal funds generated by burgeoning payroll deductions accounted for much of the growth in coverage, intensifying the private hospital-based character of services centralized in the federal sphere (Souza 1997).

As a consequence, the annual proportion of hospital admissions in relation to the total population grew from 3.2 percent in 1971 to 8.8 percent in 1979 (World Bank 1994). Furthermore, in spite of the fact that the government invested in the construction of health establishments and personnel training, affiliated private hospitals remunerated by public funds became the backbone of the system. In 1980, public resources paid for 76 percent of all hospital services in the country while the private sector owned 80 percent of all medical establishments with beds (op. cit. 1994).⁵ The presence of the public sector was more intense in the Northeast, where 61 percent of all public facilities were located in 1980. By then, its share of private hospitals represented 20 percent of the nation's total. In 1989 the public participation in the number of hospitals in the Northeast declined, but the region still had 50 percent of the public hospitals in Brazil (Medici 1997). This reality remained the same during the 1990s (Ministério da Saúde - DATASUS 2000).

From 1974 on, as the oil crisis and rising interest rates in the international market undermined the economic dynamism of the country and Brazil entered a long period of fiscal crisis and economic stagnation, domestic political opposition grew and the fractures in the military regime became evident. Financially weak and losing the support of its traditional allies such as conservative politicians in Congress, businessmen, and segments of the middle class, the military started a democratization process to restore competitive politics at all levels (Ames 1999; Souza 1997). Democratization stimulated the rise of social movements and popular demands, leading to the *Integrated Program of Assistance of the Woman's Health* (PAISM) proposition in 1983 and implementation in 1986 (Avila 1993). Funded by the federal government, the PAISM

⁵ Due to this reason I divide hospitals into two categories, *public system* and *non-system* hospitals. By *public system hospital*, I refer to those that receive reimbursement from the Ministry of Health for medical care they provide. These can be federal, state, municipal, university, or privately owned hospitals affiliated with the public system. By *non-system hospital*, I refer to hospitals privately owned functioning independently of government funds.

was designed to offer integral assistance in the women's health domain, including the supply of the whole spectrum of contraceptive methods. Assessing the accomplishments of the program through the analysis of family planning services offered by state capital cities and state's Secretaries of Health, Costa (1992) found that it worked precariously in the majority of the cases and in half of them, it met only 10 percent of the demand.

While a civilian politician became the president in 1985, democracy and competitive politics were fully restored only with the first local elections that included all municipalities and the promulgation of a new Constitution in 1988.⁶ As part of the reaction against authoritarianism and centralization of power, the 1988 Constitution included measures to decentralize healthcare delivery and administration. It established a tripartite system called *Unified Health System* (SUS) that was gradually implemented throughout the 1990s. The project was to make states and municipalities share with the federal government the responsibility for healthcare financing and management.

The first presidential election since 1960 was held in 1989. From 1990 on, elections were held every two years, in October, alternating municipal with presidential, federal and state elections – . There were municipal elections to choose mayors and city councils in 1992 and 1996. In 1994 and 1998, elections renewed state chambers, governors, and congressional and presidential incumbents. The current president, Fernando Henrique Cardoso, was elected in 1994 after successfully controlling inflation as the previous government's Minister of Finance. He was reelected in 1998.

Despite Cardoso's discourse in favor of universalistic procedures as opposed to materially favoring those who vote for his bills in the Congress, he has consistently resorted to the power the president has in Brazil to nominate office occupants and distribute public funds in order to acquire support for his administrative initiatives.⁷ Indeed, many state representatives in the Congress act chiefly as mediators who link the federal decision-making sphere and local constituencies. A number of state representatives obtain the bulk of their votes in delimited areas of a given state, usually containing a few municipalities. These municipalities, especially the smallest ones, depend on access to federal resources to build hospitals, health posts and basic infrastructure. As a result, the political success of a number of state representatives is a function of their capacity to deliver to their voters in these municipalities. Therefore, higher-rank politicians depend on the support of local politicians. Amendments to the annual federal budget channeling funds to municipalities and non-profit institutions allow them to reciprocate the votes these gratifications earn (Mainwaring 1999).

Furthermore, the type of system through which candidates are chosen that was adopted in Brazil, the open list-proportional representation,⁸ and a body of loose electoral laws hinders party

⁶ The military restrictions on competitive elections included the nomination of mayors of state capitals and municipalities considered '*national security areas*' or sources of '*strategic mineral resources*' (Diniz 1990).

⁷ Regarding appointments, the Brazilian President has more power than his American counterpart. While in the US the President has around 3,000 offices to nominate, in Brazil the figure is 20,000. Moreover, 400 of the nominations a US president is entitled to, require congressional approval. In Brazil, Congress approval is required in only a few cases. Last but not least, the federal branch of the Brazilian President can have the final word on any transfer of federal funds to states and municipalities that is not regulated by the 1988 Constitution (Folha de São Paulo 1997, interview with David Fleischer). For a discussion on presidential power in Brazil, see Vincent Della Sala and Amie Kreppel, 1998, *The Pen is Mightier than the Congress: Presidential Decree Power in Brazil*, in John M. Carey and Matthew Soberg Shugart (ed.). 1998. *Executive Decree Authority*. Cambridge, New York: Cambridge University Press, 1998.

⁸ Seats are allocated according to the total number of votes each party receives through a method called *largest remainders*. The minimum threshold for attaining one seat is given by the *electoral quotient* (number of votes divided by the number of seats in a given legislature). Parties that do not reach this

control and increases the importance of individual campaigning. Politicians are not required to follow party lines and can switch parties without restrictions. Even though the number of votes that a given party receives determines the number of seats, whether or not a candidate is elected depends ultimately on his or her individual ability to obtain votes. Consequently, a significant parcel of representatives and of the society do not link mandates to parties, but rather politicians to the resources they bring to their constituencies (Ames 1999).

Overall, legislative positions in the Congress are important because they entitle deputies and senators to high salaries, generous perks and a relatively important position in the national policy-making that may serve to advance their political ambitions. But, as importantly, it puts a politician in a strategic position to obtain federal resources for his or her local-level bases either by enhancing his or her access to Ministries or by giving him or her the right to amend the annual federal budget. In this regard, each deputy is entitled to up to twenty individual budget amendments, but collective amendments are also allowed. Furthermore, the “*bancada*” of each state is entitled to ten amendments while each macro-region can place another five, regardless of party affiliation (Congresso Nacional - Comissão Mista de Planos Orçamentos Públicos e Fiscalização 1997). Municipalities and philanthropic institutions, not deputies, receive the funds specified in these amendments, which are generally destined to build hospitals, health posts, basic infrastructure, and charity (Caetano 2000).⁹

This state of affairs stimulates political individualism, inducing politicians to seek single-issue local-level niches. A substantial number of voters, especially the poor, tend to associate a good politician with his or her capacity to deliver funds, goods, services, and construction projects to their local constituencies (Mainwaring 1999). In this regard, both the military and the civilian governments that followed democratization consistently altered the political-electoral legislation to guarantee their interests. These changes, however, were rarely intended to discipline party politics and were seldom aimed at curbing the system of patronage and clientelism that has been at the core of the Brazilian politics. Clientelism involves an interchange of favors in an unbalanced relationship of reciprocation in which the more powerful element tends to achieve more than the weaker one. Several Brazilian parties thrive on clientelistic practices and the exchange of favors for votes is especially common in smaller municipalities in general and in rural and poorer areas. On this account, it is eminently applicable to the northeastern region, in which case healthcare provision plays an important role.

As mentioned above, the 1988 Constitution laid out the guidelines for a national public healthcare system based on the decentralization of both management and the provision of health services (SUS). The basic concept behind the SUS was that, alongside federal government, states and municipalities would be responsible for financing, managing and controlling the primary care and medical services both in the public and private ‘*conveniados*’ hospitals. Its implementation started in 1990, but only in 1996 it gained a definitive set of rules and regulations.

Concerning hospital care, the federal government pays for it through a mechanism called *Hospitalization Authorization (AIH)*, which is used to obtain reimbursement for medical services after they have been provided. Besides a form, it includes a list with medical procedures paid for by the system whose prices are determined by the federal health (Carvalho 1997). At the end of

quotient do not elect any candidate and thus are not eligible for the distribution of remainders. Seats are distributed first to parties according to the total number of votes their candidates get, and then within parties according to the number of individual votes. If the party acquires the right to fill in five seats, for example, the five top-voted candidates are entitled to these seats (Mainwaring 1991).

⁹ Although clientelism imprints a general voting pattern in Brazil, there are indications of regional differences. Analyzing the period between 1974 and 1986, Mettenheim (1995) suggests that voters in more developed and urbanized areas tend to respond to direct popular appeals of executive elections while clientelistic incentives prevail in rural and less-developed areas such as the Northeast. Ames (1995) also found different patterns between the Northeast and the most developed parts of the country.

every month, the hospital sends the information to the local healthcare authority, which runs the first round of checks and sends the sound AIHs to the Ministry of Health (Ministério da Saúde - Secretaria de Assistência à Saúde 1998). The federal healthcare administration consolidates the totals and carries out the payment directly to the hospital account (Carvalho 1997).

Despite all the cautions taken, the AIH system has been constantly defrauded. During the 1990s scams became widespread even in public hospitals then seeking reimbursement for medical procedures (Medici 1997; Weyland 1996).¹⁰ Monetary gains were not the only reason for the frauds. It reflected the high political value put on medical care delivered at the local level. In this regard, a state representative declared in February 1994 that the improper use of the SUS mainly through the manipulation of AIHs benefited between 50 and 60 representatives in the Congress, chiefly physicians, hospital owners, former states' Secretaries of Health, and their cronies (Folha de São Paulo 1994a).¹¹

The core of the problem was said to be in the apportionment of AIHs within states and municipalities, as well as among hospitals, which was denounced to conform to political criteria in that hospital owners linked to state Secretaries of Health would receive a larger quota as opposed to those without political connections (op. cit. 1994). Concerned with the mismanagement and waste of federal funds destined to finance the SUS, President Cardoso put pressure on the then Minister of Health, who speeded up the decentralization process aiming at passing off the administration of payments and provision of healthcare to 1,000 municipalities during 1996 (Folha de São Paulo 1996). Nevertheless, even though decentralization of primary care reached 88 percent of the municipalities in the country and 90 percent in the Northeast, only 8 percent in the former and 6 percent in the latter were in charge of the medical care management in 1999 (Ministério da Saúde 1999).

According to Mendes (1998), the decentralization process produced a two-tiered system in which the better-off segments left for private health-managed care while the low-income groups were left to depend upon poor quality services in which preventive medicine, including contraception, has been undervalued and minimized. As a consequence, the country lacked effective measures to advance and enforce reproductive rights and the few public programs targeting the increasing demand for birth control methods were ineffective (Martine 1995; Perpétuo 1996; Vieira 1994). The federal government remained the main funding actor in the public sphere and the mechanism of hospital reimbursement was kept basically unchanged, making the public system a strategic pool of resources to be manipulated with a view toward political gain and monetary profit.

Profiting from the public system has been usually equated with frauds. Since the system can be easily defrauded, it can be easily used to supply surgeries as a favor. Accordingly, the association of an electoral system that stimulates political individualism with low-income levels, a large demand for health care services, and clientelistic politics brought about a situation in which health-related services and goods are exchanged for votes or political support. As a result, public health care resources and physicians in general assumed a strategic position in the local-level political structures. As politics and healthcare provision became deeply entangled and the demand for contraception among low-income groups with few alternative options of birth control rose, sterilization assumed importance in the clientelistic exchange of medical care for votes. In the Northeast, clientelism is instrumental for political success, healthcare is important to

10 According to a congressional investigation carried out in 1994, the public system was being defrauded by US\$1.6 billion annually since the implementation of SUS in 1990. The investigation also found that 453 physicians working for the system had each received US\$5,000 for the month of May 1994 when the public healthcare system was paying around US\$2 per appointment and US\$100 for a vaginal delivery. The worst cases occurred in the states of Alagoas and Maranhão, in the Northeast. (Folha de São Paulo 1994b).

11 The number of state representatives in the Congress who were doctors increased from 6.6 percent in 1990 to 13 percent in 1998 (Brazil. Congresso Nacional 1999).

clientelism and, in this game, sterilization acquired a high value and a different profile as compared to the more developed areas of the country.

3) THE NORTHEASTERN STERILIZATION PROFILE

The picture of the contraceptive mix before 1980 is fuzzy due to the lack of data. Merrick and Berquó (1983), analyzing one of the few sources, the Contraception Prevalence Survey (CPS), detected an important presence of tubal ligations concentrated in the higher income brackets already during the 1970s.¹² In Pernambuco, 40 percent of the respondents in the highest income stratum – those in households with monthly income greater than 5 minimum wages – were sterilized as opposed to 9 percent in the lowest income stratum, i.e., those women in households with monthly income below 1 minimum wage. In Bahia, the figures were respectively 26 and 7 percent for the highest and lowest income groups (op. cit. 1983). Although São Paulo also had a significant percentage of sterilized women (16 percent), the role of the pill was more important there than it was in the northeastern states (28 percent).

Overall, sterilization was more likely among women whose last delivery had been through a C-section, the percentage of sterilized women increased with education, and was higher in urban as opposed to rural areas (Janowitz 1985). Since sterilization without strict medical indication was virtually illegal and non-reimbursable by the public system, doctors started coupling tubal ligations to cesarean deliveries to circumvent these impediments (Potter 1999).¹³

Analysts argue that the cesarean-sterilization coupling was initially encouraged by the price differential paid for by the government, favoring C-sections.¹⁴ According to Merrick and Berquó (1983), as the government paid more for C-sections than it did for vaginal deliveries, doctors were compelled to drive patients to deliver surgically and, as a result, the proportion of cesareans to total deliveries rose from 15 percent in 1971 to 29 percent in 1980. As the number of cesarean deliveries increased, doctors tended to indicate surgical sterilization to women that had undergone two or more C-sections, setting up a medical indication for sterilization. Moreover, the coupling procedure allowed doctors to maximize the number of deliveries they would be able to attend and provided the opportunity to charge on the side for tubal ligations while incorporating its costs into the delivery procedure paid for with public resources (Janowitz 1984).¹⁵

¹² The CPS interviewed married women aged 15-44 years in four northeastern states – Bahia, Pernambuco, Piauí, and Rio Grande do Norte – and one southeastern state, São Paulo. More than half of the women in the four northeastern states were not using contraceptive method as opposed to 36 percent in São Paulo.

¹³ The law that legalized sterilization was promulgated on August 20 1997. It establishes that sterilization is a right of any man and woman older than 25 years of age or, if younger, with at least two children. Those seeking sterilization through the public system are entitled to undergo the procedure after waiting 60 days following the request, a period during which they will be counseled about other contraceptive options and the possible side effects of sterilization. Besides, a ban is imposed on post-partum sterilization, which is only authorized on the basis of medical indications such as a history of multiple cesareans. In November 1997, the Ministry of Health framed the regulatory legislation to implement sterilization services in *public-system* hospitals, incorporating the surgical procedure in its list of reimbursable medical procedures and giving states and municipalities the responsibility of licensing public system facilities to provide legal tubal ligations and enforcing the law. The licensed hospitals are the only units allowed to receive payment for tubal ligations through AIHs (Ministério da Saúde 1997).

¹⁴ A tubal ligation can be performed during a C-section or after the delivery. The term *post-partum* designates the tubal ligation carried out within 48 hours of the delivery. When it occurs after 48 hours of the delivery, it is called *interval sterilization* (Hatcher, Trussell *et al.* 1998).

¹⁵ In 1989, doctors were charging between US\$50.00 and US\$100.00 to perform a tubal ligation (Corrêa and Ávila 1989).

In the late 1970s the government equalized the prices of both types of delivery in order to correct the mechanism that stimulated cesarean as opposed to vaginal delivery. Nonetheless, Merrick and Berquó (1983) claim, the damage was done. The authors believe that the government's policy increased the women's likelihood to sterilize because "...the doctors themselves have grown accustomed to cesarean deliveries and thus continue persuading pregnant women to accept them, with a continuing effect on sterilization levels" (p. 188).

In this regard, it is important to call the attention to the fact that although the government had set equal values for cesarean and vaginal deliveries, it did so for the physicians' share, but not for the procedure itself.¹⁶ Moreover, the government did not reimburse anesthesia for vaginal delivery.¹⁷ A doctor, to provide sterilization and have the public system paying for its anesthesia would either have to perform the procedure during a C-section or, in case of no pregnancy attached, to couple the tubal ligation with another surgery on the list of the publicly reimbursable ones. Therefore, doctors working in hospitals receiving government's funds and attending patients financed through the public health care system may use different criteria in deciding to perform a cesarean as opposed to those attending private patients.

During the 1980s the demand for contraception kept growing. Data from the 1986 and 1996 DHS indicate that female sterilization and the pill bore the brunt of the increasing demand for contraceptive methods. In 1986, 26 percent of married women aged 15-44 years in the Northeast had been sterilized as opposed to 29 percent in the rest of the country. In 1996, the percentage of sterilized women reached 43 percent in the Northeast, while it rose to 37 percent in the rest of the country. Table 1 displays the contraceptive mix as it was in 1996.

[TABLE 1 ABOUT HERE]

Table 1 indicates that while in the South region, São Paulo, Rio de Janeiro, and MG and ES states, in the Southeast, the ratio of sterilized women to those using the pill was around or below two, in the Center-West, North and Northeast regions, this ratio was above three.¹⁸ Although the Center-West and North regions present the highest ratios of sterilization to the use of pill, these regions represent a small fraction of the Brazilian population – respectively 6.7 and 7.2 percent of the total population in 1996 – while the Northeast had 28.5 percent (IBGE 2000). The role of the pill decreased geographically from the South region to the North region as the prevalence of tubal ligations increases.

As discussed before, the intensification of sterilization has been associated to the growth of the number of women giving birth through C-sections. In this sense, the cesarean-sterilization joint procedure has been pointed as a major contraceptive feature of Brazil (Hopkins 1998; Potter 1999). The 1986 DHS data confirms it. Sixty-five percent of the sterilizations performed in the

¹⁶ At least until 1999, hospitals affiliated with the public system received a higher payment for C-section procedures as opposed to vaginal deliveries. According to the prices on the list of procedures of the Ministry of Health in December 1999, the hospital received R\$95.03 for a standard vaginal delivery while a C-section paid R\$228.46 (Ministério da Saúde - DATASUS 1999).

¹⁷ In May 1998, the Ministry of Health introduced a measure to make anesthesia for vaginal deliveries reimbursable by the government in order to stimulate hospitals and women to use epidurals in combination with vaginal deliveries rather than C-sections. The federal health authority also took measures to bring about a decrease in the number of cesarean deliveries in Brazil by placing a ceiling – 30 percent of the deliveries in 2000 – on the number of C-sections that the Ministry of Health would reimburse (Ministério da Saúde 1998).

¹⁸ The regional division follows the DHS scheme in which the states of São Paulo and Rio de Janeiro are considered individual regions and the states of Minas Gerais (MG) and Espírito Santo (ES) are put together, splitting the Southeast into three areas. Thus, the DHS employs 7 regions as opposed to 5 that the Brazilian Census Bureau (IBGE) uses.

country between 1977 and 1986 were done this way. Nonetheless, the national percentage of sterilizations during a C-section decreased to 57 percent between 1987 and 1996. This decrease was associated with the specific behavior of the Northeast regarding the coupling procedure when compared to the rest of the country.

Although the Northeast had a smaller percentage of tubal ligations performed during a C-section already in the period between 1977 and 1986 (54 percent as opposed to 69 percent in the rest of Brazil), it widened significantly in the following ten years. Between 1987 and 1996 this difference was at 39 percent in the Northeast against 66 percent in the rest of Brazil. Indeed, the ratio of the Northeast to the rest of the country went from 0.8 in the former period to 0.6 in the latter. Hence, much of the overall decline that occurred in the joint procedure was due to a trend toward non-cesarean sterilizations taking place in the Northeast after 1986. Table 2 displays the distribution of sterilization performed between 1987 and 1996, by type of procedure, and indicates that C-sections were not used as a means to perform a tubal ligation in the Northeast as much as it was in the other areas of the country.

[TABLE 2 ABOUT HERE]

The question that emerges is why the Northeast departs from the national pattern regarding the coupling of tubal ligations with C-sections, presenting a much larger proportion of post-partum and interval sterilizations as compared to the rest of the country. A crucial difference is that the number of deliveries taking place at *non-system* hospitals is smaller in the Northeast as opposed to the rest of the country. In fact, to each delivery that took place in a *non-system* hospital there were 11.5 being performed in *public-system* hospitals in the Northeast during the period 1991-96 as compared to a ratio of 4.6 in the rest of the country.¹⁹ A larger private sector would correspond to more cesarean deliveries, which would allow for tubal ligations during this procedure.

Nevertheless, the difference in the regional sterilization procedure has also to do with the payment of the operation. Perpétuo and Wajman (1998) compared the DHS 1986 and 1996 data and found that while tubal ligations bear a strong positive relation to income in 1986, this association is not present in 1996. The authors argue that either the services became cheaper or other “non-financial forms” (p. 10) of provision should be in motion to make the surgery more accessible to poor women.

Indeed, the provision of sterilization for free has had an important role in the satisfaction of the demand of low-income women in the Northeast, when compared to the rest of the country. Between 1977-1986, 26 percent of the sterilized women in the rest of Brazil had their tubal ligations for free, percentage that passed to 36 percent during the 1987-1996 period. In the Northeast 58 percent of the operations were done for free in the former period, rising to 77 percent during the 1987-96 period. In terms of ratios, there were 1.6 free sterilizations to each sterilization paid for by the patient in the Northeast during the 1977-86, as compared to 0.4 for the rest of the country. During the period 1987-96, these ratios rose to 4.1 in the Northeast and to 0.6 in the rest of the country.

The point then is who is behind the provision of free sterilization. Table 3, below, presents this information for the period 1987-96 according to the DHS regions and indicates that patients paid for only 19 percent of the tubal ligations performed in the Northeast during this period, as compared to no less than 48 percent in the other regions. Politicians took care of 19 percent of the operations, while doctors provided for most of the northeastern gratuitous sterilizations (58 percent). Together, politicians and doctors arranged for 77 percent of the

¹⁹ The 5-year range of the period analyzed is due to the fact that the DHS questionnaire inquires about deliveries only in the five years preceding the survey.

northeastern sterilizations during this period, as opposed to 26 percent in São Paulo. Therefore, the Northeast stands alone with respect to the supply of free sterilization and the participation of politicians and physicians in its provision. Even though politicians play a significant role, the physicians are by far the most important players in the Northeast.

[TABLE 3 ABOUT HERE]

In sum, the Northeast profile is characterized by a larger fraction of *non-cesarean* sterilizations performed in hospitals affiliated with the public healthcare system and gratuitously provided by politicians and doctors.²⁰ In the rest of the country, the sterilizations are more likely to be performed during a cesarean delivery and paid for by the patient. This profile conceals, however, two issues that the DHS data does not elucidate and the literature has left largely unexplored. On the one hand, it is not possible to determine whether doctors are involved in politics and to disclose the motives why they arrange for such a large share of free sterilizations. On the other hand, the DHS data do not allow for fully comprehending the association of type of sterilization and its likely political use.

Regarding the latter limitation, free interval sterilization does not depend on a pregnancy to be performed and may be offered in greater quantities in electoral years. In this respect, post-partum sterilization may also occur more frequently in election years since it does not necessarily depend on previous arrangements made between the doctor and the woman. In any event, the coverage of both procedures with public funds is subject to the same conditions in the sense that the delivery would have to be coupled with a surgical procedure other than a C-section. If these assumptions hold, then the number of interval and post-partum sterilizations would tend to increase in electoral years. Illustration 1 presents the number of post-partum and interval sterilizations performed in Brazil between 1987 and 1995.²¹ Years when there were elections are marked. The vertical bars indicate that post-partum and interval sterilizations increased during electoral years, especially during the 1990s, which was not the case of sterilizations carried out during cesarean deliveries (illustration not shown).

[FIGURE 1 ABOUT HERE]

In order to examine whether election years significantly influenced the number of tubal ligations, I carried out survival analysis fitting Cox regression models for the timing of operation using data from the 1996 DHS. Unobserved heterogeneity was assumed to be independent among observations. I run the model for women with at least one live birth assuming it as the starting point of the period of exposure to the risk of sterilization and using the robust sandwich estimate for the covariance matrix. Among the 8,400 women in this situation, 41 percent were sterilized. Among the sterilized women, 16 percent had never used method before the operation, indicating that there is an important component of targeting parity in Brazil. This group was the same size as the group that had never used contraception and was not using any at the time of the survey, comprising each 5.5 percent of the total.

I deem the period from the first live birth until the event of censoring as the most appropriate to evaluate the role of the chosen variables upon the hazards of being sterilized

²⁰ In fact, the Northeast is not homogeneous. When compared to Bahia, Ceará, and the rest of Northeast, Pernambuco has the largest number of paid sterilizations. Doctors have a substantial role in the provision of sterilization in Ceará and Bahia, but in Pernambuco and in the rest of Northeast they account for more than half of the tubal ligations.

²¹ The year of 1996 is not included because the DHS survey was carried from March to June and, therefore, does not provide information for the entire year.

because most women that favor sterilization start considering and planning the surgery after the first birth. In many cases, women get pregnant of the second child to achieve sterilization (Caetano 2000). According to the DHS 1996, 19.5 percent of the sterilized women were operated on during or right after the second birth and 27.7 percent, during or right after the third birth. I used dummy variables to mark sterilizations in years of municipal and state/national elections as opposed to non-electoral years and non-sterilized women. The results are presented in Table 4 (in the Appendix) and indicate that electoral years significantly increases the hazards of tubal ligations. Municipal and state/national election years significantly increase the hazards of sterilization by 38 percent and 59 percent, respectively, net of region of residence, socioeconomic and demographic factors.

Nevertheless, the fact that interval sterilization may be associated with elections does not rule out the possibilities that post-partum and interval sterilizations are devoid of electoral content or that tubal ligations associated with C-sections may also be politically motivated. Clientelism has a continuous component in the sense that incumbents may have to keep providing favors to their local constituency if they aspire to maintain their public offices and advance their political careers (Mainwaring 1999). In this regard, doctors are in a privileged position to manipulate the mechanisms of public medical care and forge political support around the provision of gratuitous health care even when they are not in a public office. They may play roles as professionals of medicine, as politicians, and simultaneously as politicians and doctors. Doctors may also help politicians with whom they have links or work for them in electoral periods. Finally, they might do favors void of explicit political content. Here stands the second limitation of the DHS data since it does not allow for an analysis of the doctors' – and the women's – roles and attitudes as well as the interaction between them.

4) DOCTORS, POLITICIANS AND THE WOMEN: THE LOCAL LEVEL

To overcome the restrictions implicit in the DHS data and investigate the phenomenon of provision of free sterilization to low-income women in the Northeast, I carried out fieldwork during the fall of 1999. I collected data in four municipalities in the state of Pernambuco.²² With respect to socioeconomic indicators, Pernambuco represented an average of the Northeast. On the provision side, I interviewed four municipal secretaries of health, eight politicians without medical background, nineteen physicians, and nine nurses working chiefly in health posts or public hospitals. Among the doctors, ten were surgeons who specialized in obstetric surgeries and eight were obstetrician-gynecologists. One doctor had a background in public health and preventive medicine. Regarding political participation, eight doctors had direct participation in politics (the informant was holding, had previously held or had been a candidate for a public office), seven had indirect participation (the informant was or had previously been committed to a political bloc, following orders of a politician or a hospital owner, helped a colleague, or was hired by politician) and four had no political affiliation.

On the women's side, I used a questionnaire to interview sterilized women aged 20-49 years old in each municipality in a total of 281, and did in-depth interviews with 44 of them. Overall, the sample of women was 72 percent urban and had a mean household income per capita of US\$32.4, monthly. Their tubal ligations occurred in a period that ranged from 1973 to 1999 and 69 percent took place during the 1990s. Regarding the type of hospital where the

²² Each municipality belonged to a different meso-region of Pernambuco and represented a different population size and urbanization level. City 1 had over 200,000 inhabitants and was 100 percent urban; City 2 had 100,000-200,000 inhabitants and was 80 percent urban; City 3 had between 50,000 and 100,000 and was 75 percent urban; finally, City 4 had below 50,000 inhabitants and was 42 percent urban.

sterilizations took place, 71 percent occurred in private *public-system* hospitals, i.e., those that take SUS patients, and 22 percent took place in *public-system* hospitals administered by either municipal or state authorities. Seven percent of the respondents did not remember or did not want to answer the question. Table 5 presents the type of sterilization according to who arranged or paid for.

[TABLE 5 ABOUT HERE]

The results in Table 5 indicate that the role of non-medical politicians in the provision of free sterilization is relatively small as compared to the involvement of doctors. Nevertheless, politics is an important path to sterilization. Thirty-two percent of the women in the sample obtained their sterilizations from a doctor involved in politics. Adding this category to politicians with no medical background, the percentage of women that had their tubal ligations through a clientelistic relationship rises to 41 percent. While paid sterilizations privileges cesarean procedures, politics tends to prefer post-partum or interval procedures.

Unaffiliated doctors, on the other hand, provided 37 percent of the sterilizations and presented no preference regarding the type of procedure. The status of the sterilization refers to the time when the surgery was performed. In City 2, a doctor provided a number of sterilizations before he decided to run for mayor, when he used the political capital established through these favors and was elected. Therefore, it must not be taken for granted that no political affiliation at the time of the provision means no clientelism relationship and exchange of favors.

Whether politically active or not, the results of the sample indicate that doctors were the main arrangers of sterilization and that they played a wide range of roles, from monetary profit to political participation and apparently no interest whatsoever. A surgeon in City 2, owner of a private *public-system* hospital, twice candidate for a public mandate and twice unsuccessful, synthesized the involvement of doctors with politics when he answered a question about the possible role of doctors in the provision of sterilization.

“In the region there are a lot of doctors involved in politics. The mayor is a physician, the ex-mayor too, the ex-state deputy elected by the region is a hospital owner and physician. Do you understand? Therefore, either they perform the operation themselves or they ask a friend a favor. (...) All these mayors are friends of doctors. (...) There are all types of things. There are physicians that do it independent of politics. There are a lot of doctors who are good professionals and have a large clientele. They are good, therefore they are in great demand and many times they are not politicians and don't do it for the votes. I told you that I am a politician, but I provide, I have operated on many women following my personal criteria – because I disagree with the indication of a cesarean just to perform a tubal ligation. (...)”

His account displays two aspects of the doctors' involvement with politicians or with politics that are important to highlight. Firstly, he brings up an issue that will be present in most of the doctors' interviews, i.e., personal criteria to decide whether or not to perform a tubal ligation, which, in his case, does not include doing a C-section just to perform a tubal ligation. Secondly, he spells out that there are politically active doctors that either operate on the women themselves or count on the favor of a colleague, but there are all sorts of arrangements. In this sense, doctors may also be hired to work temporarily or part-time in smaller municipalities. This was the case of a physician who had operated on several sterilized women we interviewed in City 4. He is a surgeon working in a private *public-system* hospital who has never been a candidate for a public office. He was straightforward in his answer when I asked him about politicians providing sterilizations at election times. He explained that it was not unusual for him to be approached by politicians wanting to hire him before elections and added that this type of job configures a common and dependable source of income during the months preceding an election.

Regarding criteria to decide to arrange for or provide sterilization, doctors usually make reference to three main factors, the woman's age, parity and socioeconomic status, i.e., how poor they are or seem to be. An obstetrician-gynecologist who has a private office and works in a public hospital in City 2, not directly involved with politics but close to a doctor-politician that had been mayor, explained that interval sterilization has fewer complications when compared to a sterilization performed during a cesarean. I asked her why then the procedure coupling of tubal ligations with C-sections was often employed. She explained that no health plan pays for sterilizations and that ultimately it was illegal.²³ Speaking about her experience in the public service, she said that besides medical indication, she saw a lot of "social indication" for sterilization. I then asked her what was that and she replied, "a lot of children, low income, bad marriage."

Low income is an issue that pervaded every interview with doctors and politicians. A surgeon in City 3 described, during his interview, the distinction that doctors draw between social indication and medical indication due to multiple cesarean deliveries. He owned the only private *non-system* hospital in City 3, but also worked in the city's public hospital. He had been candidate for legislative positions twice and had run for mayor once. He labeled the indication for sterilization due to multiple cesarean as "iterative cesarean births" and delineated the distinction between this condition and the *social indication* stemming from the association between high parity and low-income levels.

"You see, for the women who have three children, the medical indication for the tubal ligation is multiple cesarean deliveries. A woman who had two C-sections, when she goes to the third delivery, she will have a third cesarean. I don't even consider this an indication for tubal ligation because we naturally do it, because if it's the third cesarean, you know (...). That's true. Now, the question involving the tubal ligation as an indication for a cesarean delivery, that's another story, (...) a woman that gave birth to five or six children vaginally and comes to you to have a tubal ligation, this is a different case. (...) It's a difficult situation. This poor woman who arrives from far away, who we can see that lives in destitution, she arrives in the public hospital in the worst conditions, she says 'I have eight children, six, five, four children' and she wants to have a tubal ligation and she asks and begs and then the doctor makes an emotional decision and performs the surgery. I do it, at the public hospital. In the public hospital, I do."

The women appear to be aware of the doctors' attitude regarding poverty and number of children. tell each other where to go and who to look for as well as what to say to the doctor to secure sterilization. Mirroring in her experience, a respondent explained what a woman has to say in order to convince a doctor and told that this information, as well as where to go and who to look for, is passed on by relatives, friends and neighbors.²⁴ On the whole, 71 percent of the respondents said that they took the initiative to ask for the surgery while 22 percent of the cases received a medical suggestion or indication. Seven percent of the interviewees reported that another individual – mainly mothers and husband/partners – was behind the decision to sterilize.

Among the 200 women that took the initiative to ask for the sterilization, 37 percent mentioned their economic situation as the main reason for deciding to stop childbearing, 28 percent reported the number of children as the primary reason, and 11 percent mentioned conjugal problems. Among the 61 respondents whose sterilization was due to the suggestion or indication of a doctor, health problems during the last pregnancy (31 percent) or the patient's general health

²³ There are only five hospitals licensed to provide legal sterilization in Pernambuco, the five in the state's capital.

²⁴ In her case, she told the doctor: "(...) I cannot afford to have another children since I already have three, not counting this one, and I don't have anything, just the day and the night."

condition (29 percent) were the main reasons reported. Six respondents reported an indication due to multiple cesareans.

With regard to coupling the sterilization to another surgery, 27.1 percent were performed during the first cesarean, 17.5 percent after multiple cesareans, 24.3 percent were coupled with a colpoperineorrhaphy posterior – popularly known as “perineum repair” or just “perineum” –, and 31 percent did not report other associated procedure. It is possible that there exists an optimum mix of C-sections and other surgeries. Given the prices that the Ministry of Health was paying for C-sections, vaginal deliveries and “perineum repair” in November 1999, it would be advantageous for hospitals and doctors to have more vaginal deliveries (R\$95.3 for hospitals and R\$111.4 for doctors) coupled with “perineum repair” (R\$180.7 for hospitals and R\$126.1 for doctors) and fewer cesarean deliveries (R\$228.5 for hospitals and R\$111.4 for doctors) (Ministério da Saúde - DATASUS 1999). Nevertheless, for the hospital and the doctors to receive payment for two medical procedures, vaginal delivery and “perineum repair” cannot be performed together. Otherwise, hospitals and doctors either receive reimbursement for the most expensive surgery or the total value of the primary procedure plus 75 percent of the value of the secondary procedure, depending on whether the surgeries are considered to be *simultaneous* or *multiple* procedures, respectively (Ministério da Saúde - Secretaria de Assistência à Saúde 1998).

A doctor in City 2 exposed the rationale behind the coupling of surgical procedures with sterilization. She is an obstetrician-gynecologist and worked in a health post and in the public hospital. She was never a candidate for any public position, but was close friend with a doctor-politician. She was talking about the shortage of the municipal supply of birth control methods – the only two methods available, on an irregular basis, in the health post were the pill and the IUD – when I asked her about the demand for sterilization and she explained how to manage to obtain reimbursement from the public health system.

“(…) ...usually, these women who want a tubal ligation have perineum rupture due to difficult deliveries performed by midwives or *curiosas*.²⁵ What kind of procedure does the Ministry allow for? A perineum repair. So, I prepare this mom to have a perineum surgery, and I do the tubal ligation before doing the perineum. So, I use the anesthesia and the medical chart that the SUS approved for the perineum to do the tubal ligation (...). Or if the woman has an ovarian cyst, or a hernia, or hemorrhoids, she will have the surgery whose diagnosis was authorized by the SUS and before using the material, for instance, for the hemorrhoid surgery, the physician does a tubal ligation as a courtesy. (...)”

This account confirms that there is a concern about covering the costs and that other surgery paid for by the SUS finance the sterilization procedure. Besides, it suggests that for a doctor in a public hospital, it might make little difference whether sterilization is coupled with a C-section or with a “perineum repair”, as far as the costs are covered. It also confirms that the way the government reimburses medical care configures a system of incentives and constraints for the provision of free sterilization, whether it involves monetary profit or not, in that providers can finance the costs of the sterilizations coupling it with other surgeries.

Therefore, hospitals and doctors have to play with the limitation of reimbursement for C-sections, due justification for “perineum repair” and other surgeries, the regulations of the Ministry of Health and a set of prices in order to maximize earnings and benefits. In this regard, in municipalities where the doctor is a politician and owns a hospital, he or she can provide tubal ligations on a regular basis making use of cesareans and intensify the supply in pre-election periods. In municipalities where a doctor is hired for pre-election packages they tend to resort to interval sterilizations, linked or not to another surgical procedure, as it was the case of City 4. In

²⁵ Midwife without any formal training.

any case, doctors are indeed in a privileged position since they can manipulate the bureaucracy that pays for the public medical care, which turns them into favored political actors and strategic individuals for politicians without medical background or with no links with the local healthcare activities.

In this regard, a councilwoman in City 2 clarified both the importance of healthcare provision in politics and the role of sterilization in it. At the time of the fieldwork, she was in her second term. She explained that women, including pregnant ones, look for her at her office in the City Council when they need something, especially if it is health-related since this is her major area of “work.” For this reason, she keeps a list of surgeries she provides annually. I asked her whether the number of sterilizations increased in election years. She answered positively and bragged that she was friend to many doctors through whom she arranged operations for her constituents. In the year of her last election, 1996, she had provided 225 surgeries, 130 of which were tubal ligations. In March 1999, when she was interviewed, she had already arranged 30 sterilizations. Since this Councilwoman was especially knowledgeable about the provision of free sterilization, I asked her about the extent of the truth behind the allegation that some women become pregnant to secure sterilization and she confirmed it. As the interview was coming to an end, someone knocked on the door. The Councilwoman opened it and two young pregnant women asked to talk to her. She grinned at us and said, “Do you understand what I mean?” It is important to highlight that there was no election in 1999.

The question that remained unanswered until this point, however, was whether the provision of sterilization alone was sufficient to elect a candidate. Although the in-depth interviews established the importance of delivering medical care and the substantial role of sterilization for political success, the electoral decisiveness of sterilization had to be determined. I asked a surgeon who was a former mayor and managed the health business of a political group in City 3 whether sterilization alone could elect a candidate. His answer:

“I don’t know if it elects a candidate, but it makes a big difference. For instance, a candidate for the city council here is elected with 1,000 votes. Approximately 1,000 votes. If you are a doctor and you perform 300 tubal ligations, don’t you have a chance of being elected? Because she votes, her husband votes, the children vote. Then you have her family, her friends. You can get elected.”

Asked whether was easy to provide 300 tubal ligations, this doctor stated that maybe it could be difficult in one year, but in three or six it was not. Nevertheless, it was up to each woman to actually return the favor with votes or not. Among the 281 sterilized women I interviewed, 159 had personally asked a politician a favor, 135 said that they obtained it – including 73 sterilizations – and 100 reported that they returned the favor. Seventy-eight respondents out of these 100 women voted and tried to obtain votes for their benefactors. This figure represents 36.8 percent of the total number of women in the sample that were operated on for free.

In sum, the accounts of the sterilized women interviewed in-depth indicated that sterilization was highly valued by the respondents. They were informed about whom to seek and ask for sterilization, but had little knowledge about the rights that the sterilization legislation entitles them to. Furthermore, neither federal nor state and municipal governments have been able to meet the demand of the low-income population for contraceptive methods. Politicians and doctors extract political and monetary benefits from this demand through the clientelistic provision of sterilization and justify their actions on the basis of the destituteness of the low-income population. They usually assume poverty and poor-quality medical care as a given reality in which poor women would not have a chance to fulfill their desire regarding birth control without their help. There is a mutual content of exploitation on the part of the patron and the client, but the enduring economic harshness in which these women live and the social gap that

divides the worlds of the providers and of the poor turn clientelism into an ordinary event of everyday life.

5) FEMALE STERILIZATION AND FAMILY PLANNING INITIATIVES IN BRAZIL

How the diffusion of sterilization progressed and was fueled by the medicalization process, lack of acceptance and access of other methods, poverty, and a clientelistic political system is relatively well documented. The question that remains is why female sterilization became the method of choice in Brazil and concerns the first phases of the evolution of its contraceptive mix. It may be argued that the Northeast Brazil is an example of what may take place when demand is greater than supply, i.e., supply will meet demand even at higher costs or lower safety or both than it would whether the supply were timely and appropriately taken care of. This might be true for the last two decades, but it is likely that initiatives to influence the doctors' preferences in the very earlier stages of the decline were necessary in a country with a general adverse disposition toward family planning.

As discussed above, female sterilization appears to have been class-specific in Brazil until the late 1970s: the higher the socioeconomic status the more likely the contraceptive female sterilization prevalence. In the case of the Northeast, only when free tubal ligation became available in large-scale in public hospitals or hospitals affiliated with the public healthcare system was that birth control reached the entire region and every socioeconomic segment. The participation of the pill in the contraceptive mix has declined over the years due to price, quality, and lack of good-quality medical follow-up (Corrêa and Ávila 1983; Diniz, Souza *et al.* 1998; Scheper-Hughes 1993). These are probably the reasons why the use of IUD has not taken a significant scope in Brazil either.

Accordingly, sterilization tends to be more efficient and cost-effective in terms of implementation and dissemination where there exists a wide net of public hospitals and the doctors working in these facilities are willing to indicate and perform the surgery since they tend to have a decisive influence over the acceptance of modern contraceptive methods in highly medicalized societies (Potter, Gribble *et al.* 1989, cited by Freedman and Freedman 1992). In this scenario, it is not necessary to set up a large number of family planning services that would need to be constantly staffed and supplied, task that, for large-scale contraceptive use, would require massive investments and a vast logistic operation. Indeed, according to Perkin and Saunders (1979), in the presence of postpartum programs countries with a high proportion of deliveries in public health facilities could have a higher prevalence of IUD use rather than the observed one during the 1970s.

Although favoring non-definitive methods such as the IUD, the population movement appears to have considered sterilization as a suitable method for a number of developing countries. The meeting of the Association for Voluntary Sterilization – both male and female – in Santo Domingo, Dominican Republic, in 1983 focused part of its debates on the value of information, education, and communication (IEC) about voluntary sterilization to enhance consciousness about the benefits of family planning and the accessibility of birth control services to check excessive population growth. According to Ahmad and Saunders (1983), the results of the Contraceptive Prevalence and the World Fertility surveys confirm that IEC efforts have brought about noteworthy changes towards voluntary sterilization. Moreover, they prescribed joint initiatives with reputable organizations in order to legitimate the content and expand the access to sterilization information.

In Brazil the government did not approach the population growth as a problem, equating family planning initiatives with population control and alien interference. Besides, there were legal and social restrictions regarding fertility regulation. Article 21 of the penal code stated that

advertisement of abortion and contraceptive methods were prohibited and according to the medical code doctors could not indicate methods or inform about how to behave in this regard (Rodrigues 1968). This author maintained that the general unfavorable attitude toward family planning “prevented the inclusion of contraceptive studies in the curriculum of medical schools” (p. 803). Ten years later, the Brazilian government was still considered either *pronatalist* (Mundigo 1978), or, at most, was thought to have a *laissez-faire* attitude (Moreira, da Silva *et al.* 1978). It was in this scenario that birth control methods had to be supplied in Brazil in the 1960s and 1970s.

Since the trip that American experts made to look into the demographic situation of Asian countries in 1948, three elements were defined as essential for funding operations in the population field overseas, i.e., “demographic research within a social science context, the preparation of Third World experts in the population field, and biomedical research aimed at easier birth control” (Caldwell and Caldwell 1986, p. 19). This combination was usually reflected in the missions of the population movement to Third World countries to evaluate the conditions and feasibility to implement family planning programs such was the case of the mission to Kenya in 1965, which included a demographer, an obstetrician-gynecologist and a representative of a funding source, in this case, the Ford Foundation (Watkins and Hodgson 1998). In fact, this agency, along with the Rockefeller Foundation, was a major private source of funds (*op. cit.* 1998).

The Ford Foundation started its operations in Brazil in 1962 and, as in the mission to Kenya, its first lineups of program officers included an administrator, a demographer, and a physician. One of its main goals in the early periods was to encourage and assist the efforts of implementation of family planning, therefore their early alignment with BEMFAM (Ford 1968-1984). BEMFAM operated clinics working through cooperative agreements with municipalities to which it provided supplies and personnel training. While operating clinics, BEMFAM was also highly oriented toward changing the “unfavorable” mindset about family planning in Brazil through a series of actions that included conferences and seminars to present the idea of family planning to leaderships in the various segments of the Brazilian society.²⁶ In 1979, BEMFAM was one of the main collaborators in a conference funded, among others, by the Association For Voluntary Sterilization, carry out by the Center For Human Reproduction of the State University of São Paulo focusing exclusively on sterilization (Salvatore, Castro *et al.* 1979).

The action of domestic family planning agencies backed by international organizations has long been pointed as one of the main reasons of the fertility diffusion. They were seen not only as the disseminators and inculcators of a contraceptive rationale in which sterilization was desirable, valued and safe, but also as the facilitators that provided the means without providing either the due educative process or alternative options. Merrick and Berquó (1983) affirm that the private sector and family planning organizations have had a significant role in increasing the access to contraceptives in Brazil, “...both through commercial channels and through private agencies, the most important being the Brazilian affiliate of the IPPF, the BEMFAM” (p. 84). The authors argue that simultaneously to the increasing influence of BEMFAM’s and other agencies, the administration of the public healthcare system became progressively less restrictive about physicians prescribing the pill and performing sterilization. This, in turn, reinforced the non-governmental character of family planning in Brazil.

Merrick and Berquó highlight the indications of an easier access to the pill and other methods in the northeastern states where BEMFAM had established contraceptive programs in the second half of the 1970s – Pernambuco, Rio Grande do Norte, and Piauí, as opposed to Bahia, where BEMFAM was not in action at that time. According to them, the presence of an operative

²⁶ Up to 1980, 28.1 percent of its participants had been doctors and professors of medicine and 23.6 percent had been senators and congressmen (Rodrigues 1980)

family planning program could be compensating for the difficulties that low-income women faced in paying for birth control methods. In this sense, the Northeast has traditionally been the region where the organization concentrated its actions. According to Serruya (1996), the agency had the Northeast as its preferred target because this region subsumes the reality that must be changed according to the '*controlista*' rationale, i.e., the association of poverty with high parity.

'*Controlista*', more than a term used to designate BEMFAM and others agencies making contraceptive methods available to low-income segments, is a concept that defines an ideology of population control to combat poverty and other social disturbances. According to Serruya (op. cit.), the '*controlista*' agencies in Brazil got together in 1981 and founded their '*controlista*' union, the *Brazilian Association of Family Planning Organizations* (ABEPF), which comprised 120 institutions. The ABEPF furnishes medical equipment, publications, funds, and political and juridical consulting to affiliated clinics. The ABEPF had also a technical branch in Rio de Janeiro – *Center of Research and Assistance to the Woman's and Child's Health* (CPAIMC) – responsible for training health technicians and doctors and providing technical assistance on contraceptive matters.

In this perspective, the '*controlista*' effort has been the initial force behind the expansion of sterilization in Brazil. The '*controlistas*' are said to have directed their actions toward the financing of "sterilization clinics" and training their personnel. This strategy would have allowed low-income women to have a wider access to tubal ligation and have disseminated this surgery as a desirable, safe, and efficient contraceptive method. The association of tubal ligations with C-sections provided the opportunity to diffuse the practice of sterilization throughout the public health care system. On the private side, that the majority of the health care facilities offering free tubal ligation was supposed to have links with the ABEPF (SOF 1994).

The fact is that the '*controlista*' debate has left aside an important part of the third component of the population movement funding priorities, "biomedical research aiming at easier birth control methods." In Brazil it meant the departments of obstetrics and gynecology in the major universities and their teaching maternities. During the most part of the 1970s and the first years of the 1980s, the Ford Foundation funded research, training and exchange activities in the field of population studies and reproductive sciences in the main universities of the three main northeastern states as well as in influential schools in Rio de Janeiro, São Paulo, and Campinas (Ford 1968-1984; Moreira, da Silva *et al.* 1982). These medical schools were the main centers producing and irradiating contraceptive and reproductive knowledge and had important teaching maternities. At the same time, the Ford Foundation was working "with Brazilian professors of obstetrics establishing family planning programs for high-risk mothers in accordance with a check list that included socio-economic as well as medical factors and so helped to establish a basis for governments acceptance of such work" (Caldwell and Caldwell 1986, p. 126). The high-risk pregnancy approach was part of a broader concept of family planning that incorporated maternal-child health, but whose ultimate objective was to provide contraceptive methods (Perkin and Saunders 1979).

In fact, the Ministry of Health started implementing a Child-Maternal Health Program (PSMI) in 1975. This initiative was part of the gradual change of its position regarding family planning during the 1970s. In the World Population Conference in Bucharest, Brazil recognized family planning as a basic human right and the state's responsibility to aid the low-income population to achieve it. In 1976, the government allowed purchasing oral contraceptives over the counter and in 1979 revoked the law that prohibited advertisement of processes, substances or devices used for contraception (Rodrigues 1980). Nevertheless, no attempt was actually made to implement family planning services until 1977 when the Program for Prevention of High-Risk Maternity (PPGAR) was incorporated as part of the PSMI (Moreira, da Silva *et al.* 1978; Sobrinho 1993). In face of the early opposition to family planning in Brazil, the PPGAR and the overt incorporation of a program by the federal government made the future seem bright for the

advocates of the universal propagation of contraception. Since the government had made a first move, the expansion of services were thought to be highly likely to follow, taking birth control option to other segments of the population (op. cit. 1978). Nevertheless, PPGAR raised a great deal of criticism and was never put in practice. Various doctors who participated in its elaboration felt betrayed and disrespected, vowing not to collaborate with the Ministry of Health again (op. cit. 1993).

During the 1980s, the increasing use of sterilization and the increasing number of low-income women deciding for, seeking, and obtaining this surgery fed the interest and fueled the questioning of researchers and social activists about the causes and mechanisms of the phenomenon. By the early 1990s there was a growing concern about the dimension of the ‘*controlista*’ actions in Brazil. Some believed that “...family planning clinics funded by foreign entities perform gratuitous or quasi-gratuitous sterilizations under medical or social indications” (SOF 1994, p. 35). Berquó (1993) argues that the fact that about 150 hospitals and clinics around Brazil were ABEPF affiliates helped to explain the apparent enigma represented by the increasing number of free sterilizations among disadvantaged women. The concern was highest among Afro-Brazilian activists who denounced the policies of birth control carried out through family planning agencies funded by international organisms (Geledés 1991). In Rio de Janeiro, the Afro-Brazilian movement and the *Center for Disenfranchised Populations* (CEAP) created, in 1990, a permanent forum of debate to denounce the racist and eugenic strategy behind the ‘*mass sterilization*’ of poor women (Rio de Janeiro - Assembléia Legislativa 1991).

Given the possibility of ‘*mass sterilization*’, a number of states constituted *Legislative Committees of Investigation* (CPI) to examine the real dimension of the event and to identify responsibilities. In 1992, the National Congress too launched an investigation. The examination of racist motivations behind the provision of sterilization, the participation of international interests, the actual availability of alternative birth control methods to the low-income population along with the stage of implementation of PAISM, and the electoral use of tubal ligations were among the nine items on the list of issues that the committee was to focus on. Its final report was published in 1993. With respect to the supply of contraceptive methods, the congressional CPI echoed the states’ investigations in that the nonexistence of reproductive health services and poverty contributed to the women’s dependence upon sterilization (Congresso Nacional 1993).

The national CPI also concluded that, as a result of the absence of public policies on reproductive matters and of the lack of public oversight of the practices of family planning clinics, alien interests were free to operate at will. Consequently, the population policy that existed in the country had been implemented by private agencies financed by international funds stemming from organizations interested in curbing population growth in the Third World. On clientelism, its final report barely mentions politics.²⁷ To ameliorate the situation, the CPI recommended, among other measures, the effective implementation of the PAISM and the auditing of SUS’s hospitals in order to control the practice of sterilization. The committee also drafted a law regulating family planning and sterilization in Brazil that came to be the backbone of the law approved in 1997.

Eventually, the analyses of the determinants of sterilization diffusion in Brazil and in the Northeast interwove a complex set of factors, including the inadequacies of the Brazilian health care system, inappropriate behavior of medical providers, misinformation and limited access to other methods, poverty, and the development of a ‘*sterilization culture*’ (Berquó 1995; Berquó and Arilha 1993; Corrêa 1993; Diniz, Souza *et al.* 1998; Perpétuo 1998), but toning down the

²⁷ This is not to say that the political factor did not call the attention of analysts. Acknowledging its significance in the sterilization provision, the team involved in the elaboration of the questionnaire for the 1996 DHS round added the question on who paid for or arranged the sterilization, including the option “politician” as an answer.

'*controlista*'s actions. Yet, the importance of politics in the "market" for tubal ligation and its connections with the public health system had been left aside for the most part. Although more research is needed in this direction in order to examine the evolution of the clientelistic provision of tubal ligations and inform public policies, it is the role of the population movement in the early stages of the history of the spread of female sterilization in Brazil that still is largely unexplored.

CONCLUSION

The Brazilian fertility transition occurred due to and amidst substantial social change. As the industrialization process intensified after 1960, female labor increased and education and health services reached the low-income segments. Besides, Brazil was fully integrated through a national net of roads and communication systems. Nevertheless, development was uneven, causing further income and wealth concentration and excluding many from reaping its benefits. Accordingly, poverty remains a major problem even though it does not have the same nature of forty years ago when its economy was based on agriculture and the majority of the population lived in rural areas. Several basic needs and rights of a large segment of the Brazilian population remain unfulfilled, especially in the least-developed regions such as the Northeast. Among the demands that continue unmet are adequate contraceptive services.

As a result of this unmet demand, sterilization acquired a special salience, becoming politically important and transforming doctors into key actors in local politics. In this sense, the way that the government pays for medical care delivered in hospitals affiliated with the public health system has permitted that doctors and politicians supply women with free tubal ligations, constituting a typically clientelistic relationship. This relationship is fueled by the Brazilian political-electoral system, which places a high value on the individual performance of politicians and their capacity to deliver resources and funds to their local constituencies. I argued that the clientelistic provision of sterilization is in fact the result of the combination of the political-electoral system, poverty, and the lack of birth control alternatives, which is further facilitated by the manipulation of the mechanisms through which the federal government finances medical care.

In this perspective, the northeastern sterilization practice came to represent a different reality when compared to the rest of the country. While in the latter the majority of the sterilizations were paid and performed during a C-section, in the Northeast most tubal ligations were interval and, to a lesser extent, post-partum, provided for free by politicians and, mainly, by doctors. Politicians were assumed to be providing tubal ligations in exchange for votes, but the DHS data did not allow for establishing to what extent doctors were engaged in clientelistic relationships.

The data gathered in the fieldwork in 1999 furnished evidence that doctors are deeply involved in politics in the four municipalities visited and that the local political reality is soaked with clientelism, fed by poverty and stimulated by a generalized belief that the main duty of a politician is to help the poor. In an environment in which the low-income population lacks basic needs and the organization of civil society is weak or nonexistent, favors from politicians are common and expected. Medical care is highly demanded among the poor, and sterilization is one of the most requested items. As a result, the political premium attached to the provision of free sterilization has been important enough to elect candidates.

Doctors were surprisingly ready to speak openly about the political and electoral use of sterilization. It is true that most of them were talking about a general scenario from which they excused themselves. Nevertheless, their readiness was a clear indication of how widespread and entrenched clientelistic politics and the manipulation of public resources are. With few exceptions, local politicians, whether doctors or not, see themselves as the ones who can provide for the low-income population, conceiving politics as a means of helping the poor rather than

representing their interests and transforming their reality. Likewise, this is what the poor expect from them.

Regarding birth control methods and reproductive health, the situation encountered in the four municipalities visited reveal how far the local realities are from what policy- and lawmakers had envisaged and intended to promote. Although the legislation passed in 1997 aimed at guaranteeing informed decisions about sterilization on the part of women and good-quality services on the part of providers, this research indicates that a significant number of women as well as providers and local policymakers are misinformed about the law and the supplementary regulations.

As it is the case in other domains of life in Brazil, individual actors take over the task of providing social services where and when the state is absent. In this regard, sterilization was part and parcel of the general trend favoring hospitalization and high-technology treatments in detriment of primary care and public health and was readily incorporated by the political system as its increasing demand added to its value. The complicity between women, physicians, and politicians in a scenario of scarce contraceptive options and impoverishment has engendered a '*culture of sterilization*' in which this method became a natural ending point of the women's reproductive lives, being considered as natural as the menarche and the menopause (Citeli, Souza *et al.* 1995). One might say that this is the current and ultimate outcome of the interaction of local and national factors evolving over the last forty years (Bongaarts and Watkins 1996). Yet, the analyses may remain incomplete if the international dimension and its influence upon the Brazilian fertility transition is not incorporated.

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APPENDIX

Table 1: Percentage Distribution of Married Women Aged 15-49 Years by Contraceptive Method – DHS regions, 1996

Region	Female Sterilization	Pill	Other Method	No Method	Total
South	29.0	34.1	17.2	19.7	100 (n=1403)
São Paulo	33.6	21.4	23.8	21.2	100 (n=1662)
Rio de Janeiro	46.3	22.5	14.2	17.0	100 (n=711)
MG and ES	38.8	21.8	17.2	22.2	100 (n=878)
Center-West	59.5	16.1	8.9	15.5	100 (n=600)
North	51.3	11.1	10.0	27.7	100 (n=336)
Northeast	43.9	12.7	11.6	31.8	100 (n=1994)
Total	40.1	20.7	15.9	23.3	100 (n=7584)

Source: DHS 1996.

Table 2: Percentage Distribution of Sterilized Women Aged 15-49 Years according to the Relationship of Sterilization with Last Delivery – DHS Regions, 1987-1996

Region	During a cesarean	Interval	Post-partum	Total
South	68.4	18.9	12.8	100 (n=257)
São Paulo	74.4	17.8	7.8	100 (n=356)
Rio de Janeiro	74.2	16.4	9.4	100 (n=193)
MG and ES	56.7	28.5	14.8	100 (n=259)
North	47.0	24.4	28.6	100 (n=120)
Center-West	64.6	19.4	16.0	100 (n=235)
Northeast	39.2	43.2	17.7	100 (n=661)
Total	57.6	27.7	14.7	100 (n=2081)

Source: DHS 1996.

Table 3: Percentage Distribution of Sterilized Women Aged 15-49 Years according to Who Paid for the Sterilization – Northeast and Rest of Brazil, 1987-1996

Region	Respondent	Politician	Doctor	Other	Total
South	72.3	5.4	18.4	3.8	100 (n=257)
São Paulo	65.6	4.4	26.1	3.9	100 (n=356)
Rio de Janeiro	68.8	6.3	22.7	2.3	100 (n=193)
MG and ES	47.9	5.9	41.7	4.6	100 (n=259)
Center-West	50.7	12.4	35.9	1.0	100 (n=235)
North	49.7	11.5	29.2	9.7	100 (n=120)
Northeast	18.8	19.4	57.6	4.2	100 (n=661)
Total	47.1	11.0	38.1	3.9	100 (n=2081)

Source: DHS 1996.

Illustration 1: Number of Post-Partum and Interval Sterilizations by Year, according to the Occurrence of Elections – Brazil, 1987-95

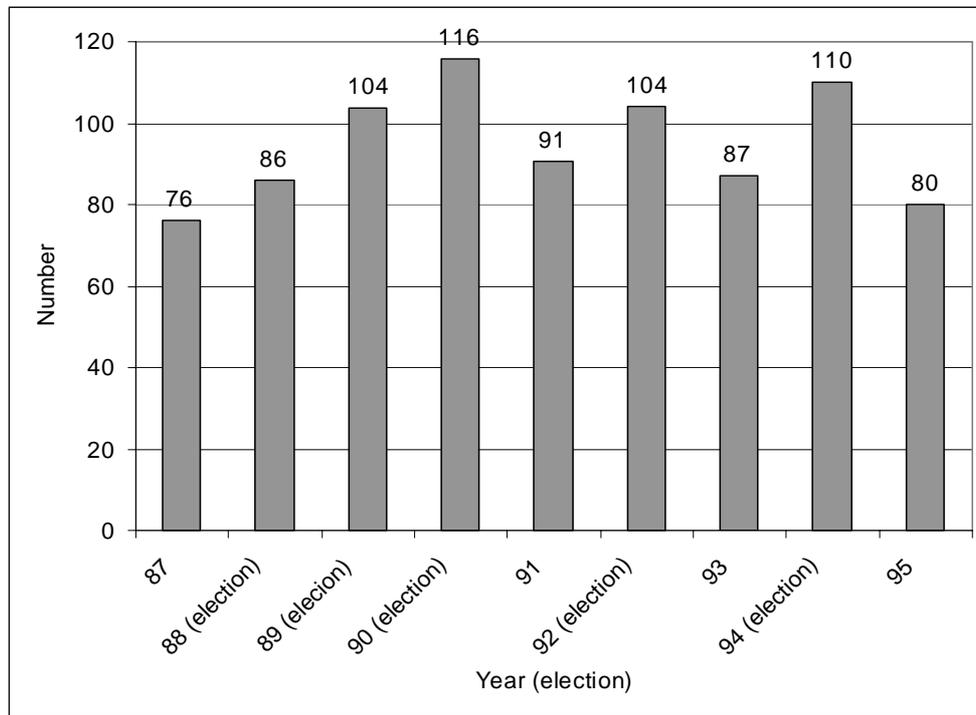


Table 4: Hazard Ratios from Cox Regression Models for Timing of Female Sterilization of Women aged 15-49 years with at least one Live Birth, Brazil, 1996 (DHS)

Variables	Duration: since the 1 st live birth	
	Hazard Ratio	Pr > ChiSq
Rural residence (reference)	1.00	-
Urban area smaller than 50,000	1.26**	<.0001
Urban area between 50,000 – 1 million	1.45**	<.0001
Urban area over 1 million	1.38**	<.0001
South region/São Paulo/Rio – ref.	1.00	-
Center-East region (MG and ES)	1.39**	<.0001
Center-West and North regions	1.52**	<.0001
Northeast region	1.33**	<.0001
Age	0.82**	<.0001
Never married – ref.	1.00	-
Ever married	3.21**	<.0001
Parity	1.01	0.3855
No contraceptive use before interview/steriliz. – ref.	1.00	-
Previous contraceptive use	1.14**	0.0057
8 or more years of education – ref.	1.00	-
Between 4 and 7 years of education	1.01	0.7903
Less than 4 years of education	0.84**	0.0050
Working – ref.	1.00	-
Housewife or domestic chores	0.76**	<.0001
No work in the last 12 months before interview	0.96	0.3354
Household with no electricity – ref.	1.00	-
Household with electricity	1.01	0.8182
Household with no TV set – ref.	1.00	-
TV set in the household	1.21**	<.0001
No car – ref.	1.00	-
Car	1.00	0.8542
Not sterilized/Sterilized in a non-election year – ref.	1.00	-
Sterilization in year of municipal election	1.38**	<.0001
Sterilization in year of state/national election	1.59**	<.0001

** Significant at < 0.01; * Significant at < 0.05. Likelihood Ratio = 3167.82, 19 DF, Pr<.0001.

Table 5: Percentage Distribution of Sterilized Women according to the Type of Procedure, by Arranger/Provider in the Sample Survey

Provider	Relation to Last Delivery		Total
	At Cesarean	Post-Partum/Interval	
Paid	16.0	6.4	22.4
Politician	1.4	7.5	8.9
Affiliated doctor	8.2	23.5	31.7
Unaffiliated doctor	18.9	18.1	37.0
Total	44.5	56.5	100 (n=281)