Impact of Abortion on Canadian Fertility Rates*

Vijaya Krishnan
Department of Sociology
Simon Fraser University

and

Karol J. Krotki
Department of Sociology
University of Alberta

Abstract

The purpose of the study was twofold: first, to present the macro impact of abortion over the last decade or two on Canadian fertility rates, and, second, to fill in the macro information with micro characteristics of respondents who admitted to abortion experiences, based on data from the 1984 Canadian Fertility Survey (CFS). Among the characteristics of aborting females, some of the relations usually hypothesized in literature were confirmed. First, as expected, married women aborted less than single women and divorced, widowed, or separated had more frequent abortions than single women. there was a slight tendency among those with more years of schooling to have an abortion than their counterparts with fewer years of schooling. Third, non-Catholics aborted by one and half times more than Catholics, but real differences appeared through religious attendance (almost fivefold). Finally, relations with number of children and age of the respondents were complex and not unidirectional. Reported abortions disclosed a Canadian geographic peculiarity; by and large, the farther West the more of it, if it is a 'bad' thing, and the less of it, if it is a 'good' thing.

Résumé

Fondée sur l'Enquête canadienne de fécondité (1984), la présente étude avait pour double objectif de présenter la macro-incidence de l'avortement sur les taux canadiens de fécondité au cours des dix ou vingt dernières années; et de constituer la macro-information à partir des micro-caractéristiques des répondantes qui ont admis connaître l'expérience de l'avortement. Certaines des hypothèses couramment formulées par les chercheurs se sont vérifiées. Premièrement, les femmes mariées ont moins souvent recours à l'avortement que les célibataires; et les femmes veuves, divorcées ou séparées, plus souvent que les célibataires. Deuxièmement, les femmes scolarisées ont plus tendance à se faire avorter que leurs homologues moins éduquées. Troisièmement, les non-catholiques ont une fois et demie plus d'avortements que les catholiques. mais les différences sont véritablement manifestes par rapport aux pratiquantes (près de cinq fois). Enfin, les relations en fonction du nombre d'enfants et de l'âge des répondantes étaient complexes et pluridirectionnelles. Le nombre d'avortements divulgués présentait une particularité géographique canadienne - en gros, le nombre augmente à mesure qu'on se rapproche de l'Ouest, si c'est une bonne chose; tandis qu'il diminue si c'est une mauvaise chose.

Key words: abortion, random response technique

Introduction

Ignoring problems in the reporting units, the number of reported abortions in Canadian hospitals hovered around 17 per cent of live births for more than a decade, beginning in the late 1970s to early 1990s (Statistics Canada, 1996). When in 1974 the number of legal abortions in Alberta was evaluated through the Randomized Response Technique (RRT), they were found to be under estimates, by several times, of the *actual* incidence of abortion. The 1984 Canadian Fertility Survey (CFS) data found abortions equal to no more than 3.5 per cent of births reported in the same survey, again an under estimation by several times in comparison with *legal* abortions, and by an order of magnitude with *actual* abortions.

In this article, two general areas of research pertaining to abortion are discussed focusing on earlier works in the area as well as on original data from the first and only all-country fertility survey, the CFS. First, the impacts of abortion on fertility rates were assessed within the context of some of the forces (e.g., marriage rate and marital fertility) that might affect fertility. In a second step, this analysis was expanded by examining the individual characteristics of respondents who had abortion experiences in order to offer a glimpse into the micro determinants of abortion.

Abortion in Official Reports

With the liberalization of the relevant legislation in 1969, the number of legal and reported abortions in hospitals, including those performed in clinics in Canada and those reported by the states in the United States. 11,152 in 1970 (Balakrishnan, 1987; Statistics Canada, 1996) to 69, 216 in 1985 (Statistics Canada, 1996). By 1991, the number of abortions crept up to 92,901, representing 23.6 per 100 live births. The number of abortions rose to 106,255 in 1994, representing 27.6 per 100 live births (Statistics Canada, 1996). However, the hospital-performed therapeutic abortion rate per 100 live births for 1991, remained more or less at the same level (17.5) as in the late 1970s. There is evidence that the hospital-performed therapeutic abortion rate is on the rise; the rate for 1994 represented an increase of 1.1 per cent over that recorded for 1991 (Statistics Canada, 1996). The puzzle is: what is the denominator in such closely defined ratios, is it based on births delivered in hospitals? Much of the evidence suggests that about half of the hospital abortions are abortions with no previous deliveries, i.e., potential 'first time mothers' (Larson, Goltz, & Hobart, 1994; Wadhera, 1994). Indeed, the CFS data indicated that about 38 per cent of women who aborted had no previous children.

The numbers reported above depend on reports from hospitals and clinics. They included data on patients in the United States hospitals with Canadian addresses. At one stage, activities in clinics were illegal in some provinces, but Quebec was known for its good coverage in clinics even in the earlier years. There has always been uncertainty about the units that were or were not reporting abortions. Apparently, a portion of a unit entitled to carry out abortions did not do any. With each quarter the statistical report announces with glee, like the hunter bagging an animal or bird difficult to spot, that another reporting unit joined the network or that another hole in the net has been plugged.¹

The legal position with regard to abortions was well covered up to 1988 (see Green, 1988). Since then the question of abortions has become politically such a hot potato, which resulted in parliamentary paralysis and a potentially lawless framework for the country at large. However, the free-for-all situation did not provoke an explosion in reported abortions. Apparently, the previous arrangements and numbers were meeting just about the needs of the society. There is no way to assess to what extent the numbers creeping up in the last two years were due to improved coverage of reporting units and how far due to increasing incidences of abortion in the country.

How is one to understand the numbers aborted annually in Canada? On the one hand, 92nds annually seems quite a high number, though this is not the same as 92nds lost births. An induced abortion always averts less than one

V. Krishnan and K. J. Krotki

birth. Bongaarts (1978) suggested that the number of averted births could be calculated with the use of Equation [1]:

$$b = 0.4 (1 + u)$$

where b = births averted through induced abortion u = proportion using contraception

Equation [1] indicates that the fraction of a birth averted by an induced abortion can vary from 0.4, when there is no contraception used, to 0.8 when universal contraception practice prevails. In Canadian circumstances, 92nds abortions in 1991 or 69ths in 1984, the year of the CFS (Wadhera, 1994; Statistics Canada, 1996) means probably something just short of 75ths averted births or 60ths from the 1984 CFS.

Moving away from absolute numbers, number of abortions were 17.5 per 100 live births in 1984, or even 23.6 in 1991, seem fewer formidable numbers. The averted births in accordance with the equation above would probably be 14 per 100 live births in 1984 and 18 in 1991. Interestingly to some, the 1984 ratio would not bring Canada to the 'magic' Total Fertility Rate (TFR) of 2.1 needed for replacement, though the 1991 rate would just about do so.

Still, another way of assessing the impact of abortion is to look at it comparatively within all the other forces affecting fertility. Coale (1969) provided one such framework given here in Equation [2] below. For each of the four variables, the Canadian values for 1956, the peak year of the baby boom and 1984, the year of the CFS are also presented (Balakrishnan, 1989).

7	$I_f = I_m + Ig \times (1 - I_m) \times I_h$		[2]
		1956	<u> 1984</u>
where	I_f = index of overall fertility	.318	.145
	I_m = index of proportions married	.691	.604
	Ig = index of marital fertility	.442	.200
	I _h = index of the fertility of unmarried women	.040	.062

In this model, the influence of abortion works itself out, through Ig, helping along the decline, and through I_h , impeding the increase.

Another model by Bongaarts (1978) is given below in Equation [3]. Its values calculated by Balakrishnan (1989) for Canadian health conditions are presented below against each variable, all five resulting in a 'maximum' total fecundity rate of 16.43 lifetime births in 1984 (same, of course, in 1961).

TFR =	Cm x	$Cc \ x$	Ca x	Ci x	TF		[3]
-------	------	----------	------	------	----	--	-----

		1961	1984	<u> 1984</u>	
٠		(in terms of indices)		(in terms of births)	
	where:		en e		
٠,	TFR = Total Fertility Rate, sum of age specific fertility rates, excluding illegitimate births	3.7 .		1.6	
	Cm = index of proportion married	0.61	0.46	1.9	
	Cc = index of non-contraception	0.38	0.23	11.54	
	Ca = index of abortion	1.00	0.95	0.62	
٠	Ci = index of lactational infecundity	0.93	0.95	0.82	
	Cm x Cc x Ca x Ci (combined indices)	0.219	0.096		
	TF = total fecundity rate	16.73		16.43	

When the above values are substituted into Equation [3], we obtain:

TFR = combined indices x TF

For 1961: $3.664 = 0.219 \times 16.73$

For 1984: $1.6 = 0.096 \times 16.43$

The model thus gives actual fertility (excluding births outside of marriage) of 1.6 births per woman in 1984 (and 3.7 in 1961). While Equation [2] provided a picture of fertility dynamics, the jury was out with regard to the role of abortion. In the case of Equation [3], the role of abortion can be viewed as a modest one (0.62 out of 1.6). The impact of abortion, whether modest or important, would increase if the numbers aborted were under-reported, as will be shown later.²

Abortion through RRT Estimates

An exercise in the random response technique (RRT) was an integral part of the 1974 Growth of Alberta Family Study (GAFS) and was extensively reported upon. The exercise had several innovative features, for example, seven sensitive questions in comparison with one attempted in RRT surveys hitherto. In the present paper we were concerned exclusively with the question on abortion in 'the previous 12 months'. Briefly, the sample of female respondents drawn from the GAFS was broken down into three subsamples an interviewer completed questionnaires, an anonymous questionnaire left behind with the respondent on completion of the main questionnaire, an RRT questionnaire - for the purposes of the seven sensitive questions (Krotki and Fox, 1975; Krotki and McDaniel, 1975; 1977).

The year of the RRT survey was the year when in respect of Alberta, 4,040 legal abortions were registered. The interview questionnaire identified 1,148 that is markedly less than the number of legal abortions. The anonymous questionnaire did not come up with the full legal number either and brought along only 3058 reported abortions. The social stigma attached to abortion worked apparently even in the case of the anonymous questionnaire. The RRT reported 12,322, that is three times the number of legal abortions and ten times the number admitted to in face-to-face questioning (McDaniel and Krotki, 1979).

Should the multiplier of three be taken seriously, then we have a somewhat different situation with regard to the impact of abortion. Instead of the index of 17.5 per cent of births in 1984 (and 23.6 in 1991), we would have to think in terms of 52.5 per cent of births in 1984 (and 70.8 in 1991). Instead of thinking of 0.6 births lost through induced abortion, we would have to think in terms of 1.8 lost births in 1984 (and 2.4 in 1991). To squeeze either of these numbers of birth out of the 'maximum' fertility of 16.47, the apparent efficacy of contraceptive practices would have to be lowered correspondingly.

The interesting question, to some, is: if Canadians were ever to arrest and reverse 'their dying out' (Krotki, 1989), would the process take place through lower abortion or lower contraception? Under lower contraception, we subsumed a host of related variables, such as earlier marriages, higher proportions marrying, and curtailed lactation. On earlier and still prevailing estimates, abortion did not matter much. On newer estimates, especially if RRT-based, abortion would matter (arithmetically) much more.

Attitudes toward Abortions

There is voluminous literature on this topic, including some Canadian, and some based on the 1984 CFS (e.g., Balakrishnan, Lapierre-Adamcyk, and Krotki, 1988; 1993; Krishnan, 1992). However, it is not easy to use it in the assessment of actual abortions. It must remind some of the analysts of the answers to the KAP questions on the knowledge of contraceptive practices or family size desired. The answers are indicative of much impatience with current experiences in both areas, but still with little (none in some 'developing' societies) impact on the eventual fertility performances.

Characteristics of Aborting Women

There was no RRT exercise during the 1984 CFS. Instead, among the numerous interests of the survey, the following question on abortion was included:

Q.413. Let's take a look at those pregnancies which did not end with live births. You told me that you have had ____(margin) such pregnancies. Did the first (second, third, etc.) one of these pregnancies end in a miscarriage, stillbirth or abortion? [(The margin) is an instruction to the interviewer to read the number off the margin of the previous question which recorded the pregnancy history.]

Out of the 5315 CFS respondents, 5242 replied to the question on abortion (Q.413 above). The 285 abortions reported by the 5242 respondents are 3.5 per 100 of the more than 8,000 live births reported by the same respondents.

Table 1 shows the number of reported abortions by marital status, years of schooling, and family income. Among the survey respondents, divorced/widowed/separated women had the highest incidence of abortions, higher than for single women, and married had the lowest abortions.

These findings are contrary to what have been reported in earlier studies. For example, Larson and his colleagues (1994), based on their analysis of abortion data from Statistics Canada Health Reports, noted that most of the abortions in 1990 were performed on unmarried women (65 per cent), compared with 23 per cent on married women and 11 per cent on separated or divorced women, or women living in common-law relationships (pp. 335-336). More research

on the relationship between women's marital status and abortion behaviour and attitude is needed. However, the higher incidence of abortion among previously married women is attributable in part to the fact that their fertility intentions were already completed and therefore they are more likely to use abortion as a common form of contraception or as a backup birth control method.

On the whole, years of schooling were positively related to numbers aborted (except for a minor hiccup between years 9-11 and 12-13), but, the usually parallel relationship between years of schooling and family income was less clear. One wonders why higher income receivers have recourse to abortion. After all, abortion is to some (or to most?), the "poor man's contraceptive." An entry on this question should be made into the protocol on future fertility research. Family income, which is typically correlated with years of schooling

Table 1
Number and Percentage of Abortions by Selected
Characteristics for Females, Canada, 1984

Number of	Number of	Percent of
Women	Men	Abortions
3629	174	4.79
467	46	9.85
1146	66	5.76
395	16	4.05
1184	58	4.90
1952	93	4.76
1711	118	6.90
1367	84	6.14
1769	92	5.14
1443	82	5.68
5242	285	5.44
	of Women 3629 467 1146 395 1184 1952 1711 1367 1769 1443	of Women of Men 3629 174 467 46 1146 66 395 16 1184 58 1952 93 1711 118 1367 84 1769 92 1443 82

Source: Canadian Fertility Survey, 1984

(in some analyses one being used as a proxy for the other) was found U-shaped, the poorest and the richest opting for abortions in contrast to the middle income, but the differences were small. The U-shaped distribution was not a complete surprise. Other examples of U-shaped distribution of income have been known in annals of sociological research.

The incidence of abortions by religion and by religious attendance is shown in Table 2.

Table 2
Number and Percentage of Abortions by Religion and
Church Attendance for Females, Canada, 1984

Characteristics	Number of Women	Number of Abortions	Percent of Abortions
Religion			4.
Catholic	2501	102	4.08
non-Catholic	2741	183	6.68
Church Attendance			
weekly/monthly	2005	40	2.00
few times per year	1363	71	5.21
rarely/never	1868	174	9.31
Canada	5342	285	5.44
			* - A

Source: Canadian Fertility Survey, 1984

Perhaps, it was for the first time that such a marked difference in the influence of the religions was found: non-Catholics (presumably and mostly Protestants) reporting 64 per cent more abortions on a per head basis than Catholics. Yet, as it is commonly known, the differences among groups attending church were even greater; those who attended church 'rarely/never' had four and half times more abortions than those who attended church 'weekly/monthly'.

Data in Table 3 are least satisfactory from the perspective of hypothesis creation or hypothesis testing. The age of respondents compounded two contrary effects on aborting.

On the one hand, the number of children increasing with age of respondents might suggest aborting at an older age as abortion can be a primary means of birth control for them. On the other hand, the more recent liberalisation of attitudes arising at young age might suggest early abortion. In the case of the number of children affecting abortion we had something even more complex, possibly four influences: parity zero conducive to abortion at the start of family life; higher parities being themselves the outcome of hostility to abortion and of inducement to abortion to curtail increases in numbers. With data of higher quality and with a larger sample, multivariate analysis might point to causative variables.

Table 3

Number and Percentage of Abortions by Age of Respondents and by the Number of Children Reported for Females, Canada, 1984

Characteristics	Number of Women	Number of Abortions	Percent of Abortions
Age of Respondents			
0-24 years	1389	65	4.68
25-29 years	988	75	7.59
30 - 34 years	900	54	6.00
35 - 39 years	799	50	6.26
40 + years	1166	41	3.52
Number of Children			
none	1810	108	5.97
1	837	59	7.05
2	1404	78	5.56
3 +	1191	41	3.44
Canada	5342	285	5.44

Source: Canadian Fertility Survey, 1984

The East-West Monotonic: A Canadian Peculiarity

It is a frequent finding in socioeconomic and demographic investigations in Canada that the phenomenon considered changes monotonically as one moves from the East of the country to the West, culminating often in quite an alarmistic, or at least disconcerting situations in British Columbia. An often made explanation is that cultural factors (e.g., norms and values) could affect nuptiality and fertility behaviors across regions in Canada (eg., Wu and Balakrishnan, 1994). In Beaujot and McQuillan's view (1982), English-French dualism has been the most distinctive cultural feature of the Canadian population for centuries. There is evidence that the Atlantic provinces are the most traditional, and that British Columbia and Quebec, the least (Larson et al., 1994). In 1991, Atlantic provinces had the lowest rates of divorce (10.4 per 1,000 marriages), of women who were cohabiting (5.2 per cent), and of divorced or never-married lone mothers (48.1 per cent). In contrast, Quebec had the highest percentage of women who were cohabiting (11 per cent) and of divorced or never-married lone mothers (56 per cent) in 1991. Both Quebec and British Columbia had the most divorced adults (6 per cent). Ontario was seen in the middle in terms its ranking on these indicators.

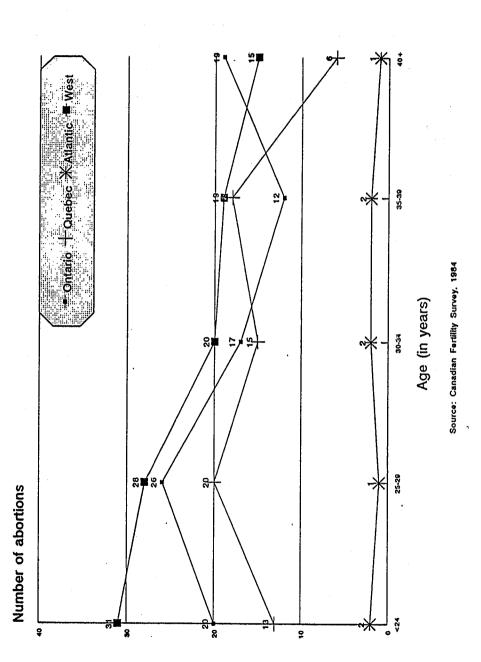
In the case of the incidence of abortion, we had in Atlantic provinces 1.52 per cent respondents reporting life time abortions, for Quebec 5.00, for Ontario, 5.06, and for the four Western provinces, 7.56. The same data broken up into age groups are shown on Figure 1.

There was some crossing of curves, but in general, the peculiar monotonic principle held. Literary minded analysts could spin off any number of hypotheses for this geographic phenomenon. The incidence of abortion would have a part in such speculations. The sample was too small to justify the separation of British Columbia from the prairie provinces, but national hospital data placed British Columbia in abortions ahead of all other provinces.

Conclusion

Abortion can have consequences for fertility of couples. This topic is addressed in this article both at the macro- and micro levels. RRT-based estimates suggested that abortion had impacts on fertility. Analyses of the 1984 Canadian Fertility Survey data indicated that compared to their counterparts who were single, widowed, separated, or divorced, married women were more likely to experience abortion. Further, Westerners, non-Catholic women, and those who were infrequent attenders of church services were more likely to experience abortion than their counterparts who were Easterners, Catholic, and more frequent attenders of church services. These findings need to be verified

Figure 1 Number of Induced Abortions by Age Group of Women for Regions, Canada: 1984



78

with multivariate techniques of large samples. It is hoped that the descriptive analyses presented here will provide impetus for further empirical research.

Acknowledgements:

* Presented at the XXIInd General Population Conference of the International Union for the Scientific Study of Population, Montreal, Quebec, Canada, 31 August 1993.

Endnotes:

- 1. The clinic-performed therapeutical abortions for 1978- 89, reported by Statistics Canada (1996), were for the province of Quebec only. For 1990, it related to the six provinces, namely, Newfoundland, Nova Scotia, Quebec, Ontario, Manitoba, and British Columbia. The data for 1991 to 1994 included the province of Alberta in addition to those provinces reported above. The clinic-performed abortions appeared for the first time in 1994 for New Brunswick.
- 2. Beaujot (1991) reduced the impact of abortion to a mere 10 per cent diminutions of fertility, presumably by taking live births plus averted births as 100+14=114. At the time of writing of his book in 1991 or earlier the news about 95ths abortions in 1991 was still to come. As did the 1991 abortions as 23.6 per cent of live births.
- 3. Some of the totals on tables used in this paper add up to less than 5,242, because of omissions in some of the cross-tabulated variables.
- 4. In official publications (e.g., MacKenzie, 1988, Statistics Canada, 1986; 1991; 1992; 1996), the 100 per cent goes the less interesting way: it shows the composition of the aborting females by their marital status. Showing the percentage aborting within each marital status, as has been done in Table 1, would be of greater interest for hypothesis building.

References:

- Balakrishnan, T. R. 1987. Therapeutic abortions in Canada and their impact on fertility. In P. Krishnan and F. Trovato (Eds.). Contributions to Demography: Methodological and Substantive: Essays in Honour of Dr. K.J. Krotki Vol. 1. Edmonton, Canada: Department of Sociology, University of Alberta, pp. 291-309.
- Balakrishnan, T. R. 1989. Changing nuptiality patterns and their fertility implications in Canada. In Jacques Legare, T.R. Balakrishnan, and R. Beaujot (Eds.). *The Family in Crisis: A Population Crisis?*Ottawa, Ontario: The Royal Society of Canada. pp. 229-250.
- Balakrishnan, T. R., E. Lapierre-Adamcyk and K. J. Krotki. 1988. "Attitudes toward abortion in Canada," *Canadian Studies in Population*, 15(2): 210-215.
- Balakrishnan, T. R., E. Lapierre-Adamcyk and K. J. Krotki. 1993. Family and Childbearing in Canada: A Demographic Analysis. Toronto: University of Toronto Press.
- Beaujot, R. P., 1991. Population Change in Canada: The Challenge of Policy and Adaptation. Toronto: McClelland and Stewart Inc.
- Beaujot, R. P. and K. McQuillan. 1982. *Growth and Dualism*. Toronto: Gage.
- Bongaarts, J. 1978. "A framework for the analysis of the proximate determinants of fertility," *Population and Development Review*, 4: 195-210.
- Coale, A. J. 1969. The decline of fertility in Europe from the French Revolution to World War II. In S. J. Behrman, L. Corsa Jr., and R. Freedman (Eds.). Fertility and Family Planning: A World View. Ann Arbor: The University of Michigan Press, pp. 3-24.
- Green, L. C. 1988. Abortion, the fetus, and the Supreme Court. *Transactions of the Royal Society of Canada* (Fifth Series), 3: 123-130.
- Krishnan, V. 1992. "Abortion in Canada: Religious and ideological dimensions of women's attitudes," *Social Biology*, 38: 3-4, 249-257.
- Krotki, K. J. 1989. "Why are Canadians dying out?" *Transactions of the Royal Society of Canada* (Fifth series), 4: 115-139.

- Krotki, K. J. and B. Fox. 1975. The randomized response technique, the interview, and the self-administered questionnaire: An empirical comparison of fertility reports. *Proceedings of the Social Statistics Section*. Washington, D.C.: American Statistical Association, pp. 367-371.
- Krotki, K. J and S. A. McDaniel. 1975. Three estimates of illegal abortion in Alberta, Canada: survey, mail back questionnaire, and randomized response technique. *Proceedings of the 40th Session*. Warsaw: International Statistical Institute, pp. 67-70.
- Krotki, K. J. and S. A. McDaniel. 1977. "La technique de reponse rendue aleatoire: quelques resultats d'une etude a Edmonton, Canada," *Population et famille*, 41(2): pp. 91-119.
- Larson, L. E., J. W. Goltz and C. W. Hobart. 1994. Families in Canada: Social Context, Continuities and Changes. Scarborough, Ontario: Prentice Hall Canada Inc.
- McDaniel, S. A. and K. J. Krotki. 1979. "Estimates of the rate of illegal abortion and the effects of eliminating therapeutic abortion, Alberta 1973-74," Canadian Journal of Public Health 70: 393-398.
- MacKenzie, B., 1988. "Therapeutic abortion in Canada," *Canadian Social Trends*, Spring, pp. 2-5.
- Statistics Canada., 1986. *Therapeutic abortions 1983 and 1984*. Catalogue 82-211. Ottawa: Statistics Canada.
- Statistics Canada., 1991. Therapeutic Abortions 1989. Health Reports 1991 (Supplement #9), 3, 1, Catalogue 82-003s9. Ottawa: Statistics Canada.
- Statistics Canada., 1992. *Therapeutic Abortions, Canada 1990*. Health Reports 1991, 3, 4, Catalogue 82-003. Ottawa: Statistics Canada.
- Statistics Canada., 1996. *Therapeutic Abortions, Canada 1994*. Catalogue 82-219-XPB. Ottawa: Statistics Canada.
- Wadhera, S., 1994. "A look at therapeutic abortions in Canada," *Health Reports*, 6, 2.
- Wu, Z. and T. R. Balakrishnan. 1994. "Cohabitation after marital disruption in Canada," *Journal of Marriage and the Family* 56: 723-734.
- Received November 1996: Revised October 1998

en de la companya de la co