

ECONOMIC DECLINE, CONTRACEPTIVE USE, AND WILLINGNESS TO ABORT

Sara Peracca
Population Council
Policy Research Division
The Population Council
1 Dag Hammarskjold Plaza
NY, NY 10017

**Paper presented at the IUSSP conference Regional conference on
Southeast Asia's Population in a Changing Asian Context held at the Siam City
Hotel, Bangkok, Thailand, June 10-13 2002.**

Introduction

Change in the economic situation of a family could lead that family to decide to temporarily delay the birth of a child until their economic situation improved. By negatively affecting the income and savings of families, an economic downturn may lead to a short-term decrease in fertility. This decrease is likely a result of families considering the additional financial costs associated with having a child. Particularly with the wide availability of modern contraceptive methods enabling a postponement of fertility in the short-term, this proposed link between economic conditions and fertility could be considerable.

Couples may, however abandon the idea of contraception because of the increased cost of contraceptives or the decreased availability of contraceptives as the result of an economic downturn. Consequently, fertility may rise. Fertility may also increase if the opportunity cost of having children declines as women become unemployed. I examine the possible short-term variation in fertility by examining contraceptive use and willingness to abort in Thailand after the economic downturn began in 1997.

Economic Decline and Fertility

Evidence and Theory

Much of the previous research on past economic declines focused on the situation in pre-industrial Europe. These studies found that short-term decreases in fertility typically follow or occur at the same time as an economic downturn. In pre-industrial periods, an increase in the price of food and other commodities in conjunction with the contraction of economic opportunities led to decreases in fertility followed by an increase after a year or two (Lee 1990). Richards (1984) found that particularly in the presence of a contracepting population such as in preindustrial France, 1740-1909, a quick restriction of fertility took place in anticipation of a harvest failure, which would lead to lower availability of food and higher prices.

In the post-industrial era, with the role of agriculture in national economies decreased, the relationship between short-term fluctuations in standard of living and fertility may have become more disassociated. This is evidenced by the lack of a clear relationship between the two in Swedish data from 1859-1914 (Ohlsson and Bengtsson 1984). Conversely, with the diffusion of voluntary fertility control, fertility may respond more closely to cycles of economic contraction and expansion than it did in the past in noncontracepting populations. In addition, since the governmental role in family planning has increased in the post industrial era, a contraction in the economy may lead governments to restrict the quantity of contraceptives available for distribution further changing the crisis-fertility relationship.

The desire to delay childbearing due to financial uncertainties may occur regardless of wealth, since parents receive utility not only from having more children but also from the increased quality of children (Becker, 1960). With a sudden shock to household finances, wealthy parents who may desire to increase expenditures per child to increase the quality of their child, rather than increase the number of children, may

delay having a child if they do not have the desired earnings to increase expenditures per child.

The opportunity costs of having a child in addition to the financial costs of having a child should also be considered in the context of fertility decisions. Butz and Ward (1979) argued that with an economic downturn and the likely resultant decrease in male and female wages, the financial costs of having a child may increase but the opportunity costs of the mother's time decrease, assuming the mother is primarily responsible for childcare. Therefore, if a woman had been delaying childbirth during an economic boom due to the need to be engaged in the labour force, once laid off as a result of an economic downturn, she may have the children that she had previously delayed. To support this theory, Butz and Ward (1979) found an increase in fertility associated with an economic downturn, although the results have been questioned (see Lee 1990).

These theories refer to intentional and conscious acts of behaviour modification with regard to an individual's response to an economic downturn. Fertility may change due to involuntary physiological effects associated with severe situations of economic duress. These effects include the loss of libido and thus reduced coital frequency, and temporary infecundity due to severe nutritional deprivations that can result from periods of economic crisis, especially from famines (Menken and Bongaarts 1978:265-8; Watkins and van de Walle 1983:213). The economic downturn in Thailand is unlikely to have been severe enough to result in significant effects on the nutrition or libido of Thai women and men.

Thus far, evidence from the postindustrial period indicates a similar pattern to the preindustrial period of decreasing fertility with an economic downturn. In China, the economic crisis and famine in 1958-61 led to a precipitous decrease in the fertility rate, which was then followed by an increase (Ashton et al. 1984). Hill (1991) in examining the effects of the great depression in 34 developing countries found the birth cohorts from that period to be smaller than the preceding or following decades. Similarly, in the United States, individuals responded to the Great Depression with lower fertility (Easterlin, 1965).

Similar relationships have also been found more recently in the former Soviet Republics and the East European countries (Ranjan 1999), Africa, and Latin America. In several sub-Saharan African countries, researchers examining the demographic effects of economic reversals from 1960-1990 found that short-term delays in first and second births were related to national economic downturns (Working Group on Demographic Effects of Economic and Social Reversals, 1993).¹ The effect since 1950 may actually be even stronger than hypothesized due to the increasing use of contraceptives. Palloni, Hill and Aguirre (1993) found nominal support that a decrease in GDP per capita was associated with a decrease in births and marriages more so after 1955 than before in several Latin American countries examined.²

¹ They used Demographic and Health Survey data to examine first marriages, first and second births, and deaths of children under age five.

² The authors examined these relationships in 11 Latin American countries and although the coefficients were all in the same direction, they were significant in only two countries, Uruguay and Venezuela. In a pooled sample, however, the coefficient of the interaction between GDP per capita and the variable denoting before and after 1955 was significant.

Situation in Thailand

In support of a possible increase in fertility, a study of Bangkok women found women's work status and type of employment to strongly affect the likelihood of having a second birth (Richter et al., 1994). Women in this study considered their ability to provide childcare when determining whether or not to have another child (Richter, et al. 1994). Podhisita et al. (1990) in a study in the north and central regions of the country, found that many rural Thais believed that mothers who are still breastfeeding cannot do wage work. Therefore, if the mother is already unemployed and/or not needed to help in the rural environment because of excess available labour, then it is an opportune time to have a child. Admittedly, the relationship between reproduction and women's labour force participation is complex and this possible influence is one among many.

Fertility may also increase if in a largely contracepting population as in Thailand,³ availability to contraception becomes limited. Chayovan, Peracca and Ruffolo (2000) found some contraceptives, specifically the pill and depo-provera, were less available in public facilities as a result of the crisis and that the cost of some contraceptives had increased in many outlets. This lack of availability may have led women to discontinue use. For example, in the United States, Mathews (1997) found elevated birth rates where the costs of contraceptives were higher.

Although the downturn affected the availability and cost of contraceptives, this unlikely reduced the use of contraceptives among Thais, given that contraceptive use is widely accepted. Furthermore, while limiting the availability of certain methods, the downturn did not eliminate the availability of all methods. Thais are more likely to switch to a cheaper contraceptive method rather than stop using contraception altogether.⁴

This switching, however, may ultimately lead to a discontinuance in the use of contraceptives. Data from the Thailand Demographic and Health Survey, show 27 per cent of previous or current users discontinued a particular method for health reasons (Institute of Population Studies 1988). If women must use an undesirable method, they may choose to discontinue use altogether. Therefore, unintended and unwanted pregnancy may result, leading to higher fertility or a greater incidence of abortion.⁵

Since most Thais desire only two children (Knodel, Chayovan and Frisen 1988) and this desire is arguably resistant to change stemming largely from the desire to have one child of each sex (Knodel et al. 1996), a transient economic shock will not affect these pervasive preferences. The majority of Thais will not have more children even with an increase in cost and a decrease in availability of contraceptives. They may, however, desire to delay the timing of their next child due to the downturn and,

³ Seventy-four per cent of married women aged 15-44 in Thailand in 1993 were using contraception (UNDP 1999).

⁴ Method switching is fairly common in Thailand. Using the Contraceptive Prevalence Survey, 70 per cent of currently married women aged 15-44 currently using contraception in 1987 switched methods at least once (Leoprapai & Thongthai, 1989).

⁵ UNFPA (1999) states that preliminary evidence suggests that an increase in unsafe abortions to terminate unwanted pregnancy has taken place in Southeast Asia. They infer this increase may be associated with increasing poverty levels.

therefore, may continue to use contraception or be willing to have an abortion at this time.

Abortion in Thailand

The use of abortion to indicate desire to delay childbearing may be problematic as abortion has been illegal since 1908. In 1956, the government revised the law to allow abortion by a medical practitioner if the woman's health was endangered or if the pregnancy was the result of rape or an exploitative sexual relationship. Although there were attempts to make additional changes to the law in the 70s, no changes were ever made (Cook & Leoprapai, 1974). A woman may be sentenced to three years in prison and a fine of Bt 6,000 (U.S.\$162.00); the practitioners are given heavier fines and up to five year prison terms, and if the woman is injured or dies in the process, the penalties are more severe (Institute of Population Studies 1982:2-3). The meaning of women's health and an exploitative sexual relationship, however, are not defined in the law, and therefore have been interpreted widely to include cases of incest, a high likelihood of deformity, mental illness (Varakamin et al. 1977:288) and more recently for women with HIV/AIDS (Gray et al., 1999). While illegal, women still get abortions for other reasons including being young, unmarried, contraceptive failure, economic hardship, and an inability to care for an additional child (Narkavonnakit and Bennett 1981:59).

Buddhism and abortion

I elaborate about Thai beliefs towards abortion in a broader context in an effort to understand why some women would be willing to abort given that it is illegal and it is the taking of a life, which Theravada Buddhist canonical scriptures plainly forbids (Ling 1969: 58).⁶ According to Buddha " ... if there is a coitus of the parents, and if it is the woman's season, and if the ganhabba (a being ready to be reborn) is present," then there is conception (Ling 1969:56-7).⁷ Therefore, although one does not know when the ganhabba is present or not, some argue that Buddhist principals recognize the fetus as a human being from the moment of conception. According to teachings in the Phra Apitham, however, the heart is the dwelling place of the spirit (Saeng, 1975). Therefore, the beating of the heart is a sign of spiritual conception and abortion can be done in the early part of pregnancy while the fetus is still a form and not a human being with a beating heart.

Abortion can be justified for economic reasons from a Buddhist concern to avoid poverty and to provide the best for one's children that are already born. The ideal Buddhist society is absent of extremes. Wealth and poverty must not exist to ensure the best conditions for the pursuit of Buddhist religious goals (Ling 1969:54). Therefore a Buddhist perspective might be more amenable to limiting population size by any means if the size of the population was outstripping available resources resulting in such social ills as poverty and crime.

⁶ Most of the population adheres to Theravada Buddhism.

⁷ Ling quotes the Majjhimanikaya, I265f.; cf. II.157.

Furthermore, some in the Buddhist community point out that in Buddhist morality the intent of the action, the motivation behind the deed, has much to do with the karmic⁸ result of the act (Klausner 1987:202). Buddhist morality is a personal undertaking, not something imposed from without. Therefore, abortion is a personal moral dilemma, whereby everyone must decide for herself or himself (Florida 1999: 21); the law does not institutionalize this belief. The individual woman must consider the negative consequences for herself, other concerned individuals, and society before getting an abortion. But the individual getting the abortion is ultimately responsible and the karmic result will largely only affect that individual. Lastly, the majority of Thais take a moderate view of Buddhist ethics towards abortion. Thais recognize that to err is human and that the average person has faults (Ratanakul 1999:62).

If a woman does abort, she can lessen the negative karmic result by making merit, by performing a variety of different rituals. Women who have had an elective abortion typically make merit by performing the same rituals that one performs for a dead person. These meritorious acts include alms-giving to the community of monks, installing statues of the Buddha in temples, offering money for the ordination of monks or novices, and getting themselves ordained as temporary nuns (Ratanakul 1999:57).

Thai attitudes towards abortion

The major impediments to widespread acceptance of abortion are actually social, cultural, and religious rather than legal (Ling, 1969). Several studies have examined Thai attitudes towards abortion, however, and show a trend towards greater acceptance. Whereas the first studies of small selective samples found general disapproval for abortion (Hawley & Prachuabmoh, 1966) with some variability (Cowgill et al. 1969:129), only a few years later, in 1972, researchers found that slightly more than half of the nationally representative sample of married rural women aged 15-44 (57.7 per cent) felt that induced abortion was acceptable under certain circumstances, primarily legal reasons. A large majority, however, still did not approve of abortion for socio-economic reasons⁹ (Burnight and Leoprapai 1975:12).

This disapproval of abortion for economic reasons appears to be changing (Ratanakul 1999). A study conducted in 1979 found nearly 57 per cent of policymakers and 53 per cent of the general public, married men and women from urban and rural areas in the central region of Thailand, felt that abortion should be legal if a couple could not support another child (Rauyajin 1979:91). Another study using data from the 1979 National Survey of Fertility, Mortality, and Family Planning in Thailand similarly found nearly half (44.6 per cent) supported abortion for economic reasons (Siriboon, 1987). Approval of abortion for economic reasons may have been greater in urban areas. One study conducted in 1981 found over two thirds (69.2 per cent) of Bangkok

⁸ Most Thais accept reincarnation. They believe that good actions earn merit and bad actions demerit, and both alter one's karma, which affects the extent of suffering to be experienced in one's current or next incarnation.

⁹ Nearly thirty-three per cent approved of abortion if the woman was unmarried and 18.8 per cent approved of abortion if the family cannot support an additional child.

men and women interviewed approved of abortion if the woman could not afford another child (Bhiromkaew, 1982).

Similarly, providers' attitudes towards abortion have changed. Fawcett (1971) found most providers were unwilling to perform an abortion unless the life of the women was in danger (p.69). Four years later, a survey of medical students found more than half (59 per cent) were willing to perform an induced abortion due to the parent's inability to afford another child (Varakamin et al. 1977:291). Therefore there appears to be a cohort effect with the younger medical students, soon to be providers, willing to perform abortions even for economic reasons.

Use of abortion

I now provide information from a variety of data sources to better understand a the extent that abortion has been and is currently used in Thailand. In the early 1970s, estimates of abortion were primarily based on hospital admissions. Cook and Leoprapai (1974) estimated an abortion rate of 28/1000 or 200,000-230,000 cases in 1972-73 for all of Thailand based on admissions to all provincial hospitals including Bangkok, and assuming a 10 per cent complication rate of abortions. Hospital admissions are not representative of all Thai women who get abortions and therefore these estimates are subject to considerable error.

In the late 70s, there were several studies to better understand the incidence of abortion. Using 1976 data from the Northern Thailand Fertility Study, Shevasunt, Hogan and Thaithong (1978) estimated a low abortion rate of 33 per 1000 pregnancies and a high rate of 136/1000 for Chiang Mai and a medium and high rate of 11/1000 and 46/1000, respectively for Chiang Rai (p. 218-19).¹⁰ Two studies also in the late 70s based on interviews with rural providers found high rates in rural areas. One estimated 300,000 abortions were annually performed in rural areas of Thailand (Narkavonnakit 1979:227) and the other estimated a rate of 107 abortions per 1000 rural women aged 15-44 in 1979 (Narkavonnakit and Bennett 1981:62).

The latter estimated abortion rate was derived from only one province in the northeastern of Thailand, which may have had an unusually high incidence of abortion, however. A study of hospital admissions from all regions of the country found that the highest number of abortions were performed in the northeast in nearly every year from 1966 to 1974, followed closely by the northern region (Rauyajin 1979:34). There is not much information regarding why the regional variation takes place. It may be due to the fact that the massage technique of aborting a fetus was fairly widespread and accepted in the Northeast prior to the influx of modern contraceptives. Conversely since abortion is illegal, there is chronic underreporting or in some cases non-reporting of abortion when attempting to collect statistics directly from the provider. Providers may be reluctant to provide accurate reports of the number of abortions they have performed due to the illegality and social undesirability of performing an abortion (see previous section on Buddhism and Abortion). Therefore these high rates derived from provider interviews may still be lower than actual figures.

¹⁰ Comparative figures: U.S. abortion rate 28/1000 and the Soviet Union 71/1000 (Henshaw 1990:80).

Two additional studies in the late 70s found an increasing trend in abortion (Chaturachinda et al. 1981; Rauyajin 1979:10-11). For example, Chaturachinda et al. (1981) estimated a rate of 10/1000 in 1975 that increased monotonically to 258/1000 in 1979 at Ramathibodi Hospital in Northern Bangkok (p.261). This trend has probably not continued, however, since abortion is often used in the beginning of a fertility transition when attitudes of family size begin to change but contraception is not widely available or known (Henshaw 1990:88; Potts, Diggory and Peel 1977) regardless of its legality. Thai's now largely desire only two children and contraceptive use is widespread (Knodel et al., 1996). Therefore, the abortion rate has likely fallen from this earlier period. There are no accurate statistics of its prevalence, however, and with increasing adolescent sexuality, the use of abortion may continue to play an important role in limiting unwanted pregnancy (Asian Development Bank, 1997:17).

More recently, according to the 1996 Contraceptive Prevalence Survey, 80 per cent of ever-married women were aware of abortion as a method of birth control, only 2.7 per cent spontaneously mentioned abortion. The lack of a spontaneous response highlights the difficulty of using abortion as an indicator of fertility limitation. Women may have either not mentioned it because it is still a sensitive topic in Thailand and largely illegal or they did not consider it a form of contraception.

Hypothesis

During this time of economic uncertainty, couples in Thailand are most likely desirous of limiting their fertility. I, therefore, expect to find higher levels of contraceptive use and willingness to abort to be associated with short-term negative changes in the economic situation of households. I believe this pathway to be the result of families facing increased financial difficulties and consequently deciding to delay the birth of a child. Contraception and/or abortion would be viewed as a cheaper alternative to having an additional child. I expect to find that women who are affected by the crisis are more likely to use family planning than those who are less affected by the crisis.

I examine the effect of the economic downturn by using data of either actual or perceived changes in the situations of individuals. Even without the economic downturn, there may be individuals who change their situations with respect to every variable that I identify as a crisis indicator. My implicit rationale for this approach is that 1) in the crisis there will be higher per centages of individuals who experience the negative side of my indicators than non-crisis times, and 2) to the extent that those who have negative experiences are different from those who do not, there will be an overall aggregate level impact due to a compositional effect.

Data

The data derive from the reproductive health study, 1999, which examined the effects of the economic crisis on access to reproductive health services.¹¹ I use the

¹¹ See Chayovan, Peracca and Ruffolo 2000 for a more detailed discussion of the study and research design.

quantitative data from this study to examine if contraceptive use including a willingness to abort has changed since the crisis.

The reproductive health survey was conducted in Bangkok, Sri Saket and Ang Tong. The sample consists of currently married women aged 15-39 currently living with their partner. The sample design called for interviews with 300 women from rural areas of Ang Tong and Sri Saket and 300 from low-income communities in the municipal areas of the selected provinces and Bangkok. Women living in low-income communities may be particularly vulnerable to sudden changes in economic well-being.

We conducted the field survey for the quantitative aspect of the study from April 20-May 10, 1999. In households with more than one eligible woman, only one was selected for the interview using the random number table. A total of 620 currently married women were interviewed. The total response rate was 81.0 per cent. Very few women actually refused an interview. More women did not participate in the study because they were not found at home during the times that interviewers visited their homes.¹²

The majority of the women in the sample are ethnic Thai (92.4 per cent), aged 25 to 39 (79 per cent). Only 4.4 per cent of the sample are young adolescents, aged 15-19. Regarding education, slightly less than a third, 26.1 per cent, have either never studied or completed less than grade 6,¹³ slightly more than a third, 36.9 per cent, have completed primary school. Women in the rural areas have the least amount of education with the highest per centage having completed only primary school.

Limitations of the reproductive health study

Few women in the sample reported actually experiencing abortion. Therefore, I may undercount the actual likelihood that an individual would experience an abortion, particularly since it is a sensitive issue and largely illegal. This possible undercount complicates the use of abortion to indicate desire to delay childbearing. However, since I do not believe that underreporting is associated with my measures of the crisis, my independent variable of interest, I do not believe bias is introduced by underreporting.

Underreporting may also arise because family members were present at many of the interviews. The presence of a third person or a general lack of privacy during the interview has been found to increase the chance that the respondent will be reluctant to answer questions candidly about pregnancy, abortion or sexual behaviour (Casterline & Chidambaram, 1984). Therefore, the likelihood of abortion being underreported is exacerbated.

¹² Interviewers visited the homes at night, weekends, holidays and during the week in an attempt to interview every women regardless of work schedule.

¹³ Since the women aged 31 and older women were likely in primary school before the official mandatory level of primary school completion was raised to 6th grade in 1978, there is likely a cohort effect with substantially more of these women stopping at grade 4 than among the younger cohorts of women in my sample. I cannot separate those who had no education or less than 4th from those who completed 4th or 5th because the questionnaire did not ask for grade completed but instead had general categories for respondents to check. Therefore, this figures is slightly misleading in terms of who had below the minimum requirements for education.

To address this possible undercount, I include those who miscarried or had a stillbirth within the time frame specified.¹⁴ Using a more restrictive criterion for defining valid responses lowers the overall percentages of reported abortions or the likelihood of aborting but does not change the interpretations of these relationships.

The questionnaire included many retrospective questions. Most of these questions were factual, revolving around understanding the respondents' economic situation within a one-year time frame compared to their situation three years ago. These questions may be measuring the respondent's poverty status rather than any change in wealth status due to the crisis. Respondents may not consider their answer in relative terms to three years ago. They may instead consider that since they feel that their situation is generally disadvantaged or has not improved, they may respond that their situation is worse now than before without their financial situation really changing from three years ago. To address this possible limitation, I include a variable to attempt to control for wealth differentials.

The sample in the urban centers includes individuals with varying levels of income ranging from 1,000 to 50,000+ baht/month. As we targeted low-income communities, the sample of individuals who would be classified as middle class is small. Thus these data will likely miss effects based on class differences. The sample should also not be thought of as representative of the municipal areas but instead of as low-income areas within these municipal areas.

My ability to determine if the current economic downturn has had any effect on well-being is tempered by the fact that the downturn only recently took place in 1997. I therefore can only examine short-term effects of the crisis on contraceptive use and attitudes toward abortion. Moreover, changes I do find could be attributable to lagged effects from other events. As mentioned earlier, however, fertility effects are concentrated in the short-term and therefore it is justifiable to use this data for this end.

Variables

Dependent Variables

The desired number and spacing of births, the prevalence and the effectiveness of contraceptive use, and the probability of an abortion to avoid unintended births are direct determinants of pregnancy outcomes (Bongaarts and Westoff 2000:4-6). I do not expect the crisis to influence the desired number of births but perhaps the spacing of these births. Since the crisis recently took place, instead of examining changes in actual fertility, I examine two direct determinants of pregnancy outcomes: contraceptive use

¹⁴ A study in Eastern Europe found women to misreport the incidence of abortion and therefore argued for an allowance of greater ambiguity regarding the timing and the nature of the pregnancy termination to account for more women who actually aborted but do not wish to acknowledge it (Anderson et al., 1994).

and abortion.¹⁵ These two pathways enable me to determine if women are limiting their fertility.

Abortion is a common method of fertility control throughout the world. Even where abortion is illegal, Johnston and Hill (1996) found that abortion is widely used to control fertility. As a result of its wide usage, abortion is an important determinant of fertility; using data from the Demographic and Health Surveys in 21 developing countries Johnston and Hill (1996) found that on average the fertility-reducing effect of abortion was similar to that of contraceptive use and marriage (pg. 111).

Abortion, like other topics related to sexual behaviour, however, is often a sensitive subject. Women are often reluctant to admit to their use of abortion services (AGI 1997:3; Jones and Forrest 1992) either because they believe it to be a private matter, they may be concerned of the social stigma attached to having an abortion or they may be concerned about confidentiality. Therefore, accurate abortion statistics collected directly from the respondents are difficult to gather.

In light of these problems and since very few in the sample state that they have had an abortion, to better understand the likelihood of aborting, I use attitudinal questions regarding abortion. I create an attitudinal incidence of abortion by examining if the respondents would abort a child if they currently became pregnant rather than asking overall if they approve or disapprove of abortion and on what grounds. I recognize that attitudes are weak predictors of behaviour. Nonetheless, by obtaining information regarding not only the incidence of abortion but the willingness to abort, I gain greater power in my analyses to understand to what extent economic duress and willingness to abort are related.

I combined four questions in examining the likelihood that respondents were willing to abort¹⁶ if they became pregnant (see Table 1). The first question asked the thirty-six women who were currently pregnant if they planned their current pregnancy or not. The second question asked the ten women who did not plan to get pregnant, if they ever thought that they would abort their current pregnancy. The survey then included a question asking the women who stated that they had not thought about aborting their current pregnancy if they could have postponed their current pregnancy would they have or did they not want any children at all. This third question I assume captures women who might abort, but may have been hesitant to actually say that they would abort. I presume that these women would have liked to abort, but because abortion is largely illegal, not readily accepted and not readily available, they did not. The fourth question asked all women who were not currently pregnant, whether or not they would get an abortion if they became pregnant at this time.

For those that had no intention of aborting, I combine the following responses from the above-mentioned four questions. I first combine respondents from question one who state that they intended their current pregnancy (72.2 per cent) or that they somewhat did (2.8 per cent) with respondents from question two who state that they

¹⁵ My measure for abortion is willingness to abort combined with the incidence of abortion.

¹⁶ The term for abortion (teng) in Thai as it does in English encompasses both induced and spontaneous abortion. In the Thai questionnaire, however, the phrase that clearly specifies induced abortion (tham teng) was used.

never thought of aborting their current pregnancy (90.0 per cent). I then combine these with those in question three who state that they would not have postponed their current pregnancy if they had had the opportunity (55.6 per cent). Lastly I include those respondents from the fourth question that state that they would keep the child (83.7 per cent), they cannot decide (1.0 per cent) or that it depends (0.5 per cent).¹⁷ All of these individuals are coded as not aborting their child.

To determine those who would be willing to get an abortion, I included the following responses to the above-mentioned four questions. I combine those respondents in question two who state that they had thought of aborting their current pregnancy (10 per cent) with respondents from question three who state that they don't want to be pregnant at all (5.6 per cent) or would postpone their current pregnancy given the chance (38.9 per cent). Lastly from question four, I add those respondents that state that if they were hypothetically pregnant, they would abort (9.0 per cent). All of these respondents are coded as saying that they would get an abortion.

Since Anderson et al. (1994) argues for an allowance of some ambiguity concerning the nature of the pregnancy outcome, I examined the characteristics of the women who had had a miscarriage within the last year (1.8 per cent of the sample) to determine if any should be recoded as having an intent to abort. Miscarriages are more common among women who are of high parity or in their forties than not. Therefore, reporting of miscarriages at young ages is possibly indicative of having an elective abortion. Only one of these women stated that they would abort. Since none of the women who miscarried within the last year had more than two children, I only included those women who miscarried and were aged 29 or less in the category of willingness to abort.

This measure of abortion provides a new way of understanding Thai women's attitudes toward abortion in the case of economic need. It increases the power of the variable for abortion, since self-reported and actual incidence of abortion may be relatively low amongst Thai women because of a high contraceptive prevalence rate of 74 percent.

Independent Variables

To determine if there is any association between the economic crisis and my dependent variables, I use seven crisis indicators. They include: 1) change in unemployment status of the respondent 2) change in unemployment status of the husband 3) change in household expenses 4) change in income level of husband 5) change in income level of wife, 6) change in financial situation, and 7) the level of impact of the crisis on the family. These indicators enable me to study the short-term self-perceived variations of economic well-being at the individual and the household level. All are based on the perceptions of the respondents though arguably the variables determining change in unemployment are more factual than the other

¹⁷ I coded those that stated it depends or that they cannot decide as aborting and the results were the same. I also kept undecided separately and ran multinomial logits and the results were still the same.

variables. Nonetheless perceptions of change are likely formed partly by media coverage rather than actual experiences.

The two variables regarding change in unemployment status last year compared to three years ago have four possible categories: 1) never unemployed, 2) three years unemployed only, 3) last year unemployed only, and 4) no change in unemployment status. I recoded the variables into three categories to best capture the effect of the crisis rather than economic status. These new categories were: 1) respondents that had improved their situation, they were unemployed 3 years ago and now were employed; 2) respondents that were in the same situation either never having been unemployed or were unemployed both three years ago and last year; and 3) respondents that had their situation worsen whereby they were employed 3 years ago and now were unemployed. I define unemployed as being unemployed or without work continuously for 3 months or more to distinguish unemployment from seasonal fluctuations in work. I do not know whether work is paid or unpaid, although I include a variable for income of husband and wife separately.

To determine a change in household expenses, I use a question that asked respondents whether their expenses in total had increased, stayed the same, or decreased last year compared to three years ago. I also constructed a variable that asked the women about their household's expenditures on particular items such as food, clothing, health care, and education. In some of these questions, respondents were clearly asked whether the cost of these items had increased. With diversified consumption in Thailand, it is unrealistic to think that any combination of expenditures, however, would provide a reliable indicator of the budgetary pressures experienced by the household (Palloni, Hill and Aguirre 1993:16). Therefore, I use the overall question of the woman's perceived change in household expenses since the crisis.¹⁸

This measure is somewhat problematic, however, because the respondent may have answered the question in terms of the amount bought rather than the actual cost of items. If an individual has increased his/her expenditures because s/he has bought more items then an increase in expenditures denotes a positive experience. If, however, an increase in expenditures refers to the cost of essential items then the individual is suffering more because the cost of essential items has increased.

In a crisis, relative to an individual's income, if the cost of items increases then the individual is less likely to be able to afford these items. Since the downturn took place, comparing 1996 to 1998, overall consumption expenditures of Thais increased (National Statistical Office, 1999:414-415). I include change in household expenses as a crisis indicator because I assume that an increase in expenses refers to an increase in the cost of essential goods rather than an increase in spending on nonessential goods (e.g. entertainment). I assume this because the index of questions, which clearly asked a few questions in terms of the cost of items, and the one overall question regarding expenditures were highly correlated. Furthermore, it may be associated with an increase number of individuals in the household due to returning migrants, and an increase in the cost of inputs for agricultural production, such as fertilizer and pesticides. All of these scenarios imply that an increase in expenditures relates to a worsening

¹⁸ I included the two measures of expenses in separate equations and the results from the two models were the same.

situation. Therefore, I believe that if expenditures have increased the respondent feels as though they are worse off.

I cannot be sure, however, if this assumption is correct. It may be that those with increased expenditures are better off because they are consuming more; they are buying more nonessential goods. Another problem with this variable is that respondents may state that expenses have increased regardless of whether or not they have. Therefore, I must stress caution in interpreting these data, which are based on the perceptions of changes in expenditures rather than on an actual record of expenditures past and present.

I include both the change in income level of the husband and wife separately because the costs of having a child may be different for mothers than for fathers; grouping them together loses specificity. For both parents the financial burden of having a child increases if income levels fall, but for mothers who are primarily responsible for child care their opportunity costs decrease. If she is earning less money, it may be better for her to take care of her children rather than to work. Change in income level of husband and wife are based on questions asking the respondent if their or their husband's income has changed. The response categories are 1) increase in income, 2) no change, 3) decrease in income.

I combined two questions regarding a respondent's feeling that their financial situation had changed. The first question asks the respondent to rate their present financial situation from 0-10; the second asks the respondent to rate her financial situation three years ago from 0-10. I compare the two answers and create a variable with three categories 1) improvement 2) stayed the same, or 3) worsened. Lastly the respondent answered a question regarding the extent to which they had experienced an impact from the crisis 1) none 2) some 3) a lot.

The crisis indicators are not highly correlated with each other as they reflect different aspects of economic effects of the crisis on the family. Therefore, I include each of them together in my models.

Since the indicators were not correlated, I do not run any data reduction methods; they would not be reliable. I do, however, believe that conceptually the variables measure two different concepts. One concept encompasses actual experiences since the crisis, whereas the other represents the respondent's impressions of the overall change in their situation. Therefore, since variables that are causal indicators of an outcome but are often not correlated can be considered to measure a similar concept (Bollen 1989: 222-223; Lennox and Bollen 1991), I combine my crisis indicators into two separate variables. One indicator, the factual crisis index, includes the variables that capture changes in the unemployment of the wife, husband and other household members.¹⁹ The other indicator, the impressionistic crisis index, is formed by combining the variables regarding the respondent's impression of the overall impact of the crisis: the change in their financial situation, the change in their income,

¹⁹ I include unemployment of other household members as it increases the power of this variable. Conceptually if other household members are unemployed as a result of the crisis then they no longer contribute to the family budget and thus may affect the fertility desires of a couple in that household. I do not include the variable separately as there are only 2 cases where household members were employed three years ago and are now unemployed.

the overall impact of the crisis and the change in expenses. These variables were then standardized so that each variable contributed equal weight to the composite variable. They were then summed to create one variable. I examine the effect of these two crisis indicators on my outcomes replacing the individual crisis indicators.

I include the following background characteristics in the models: age, area of residence, region, educational level of the respondent, total number of living children, wealth and the number of insurance plans to which they belong. My measure of household wealth attempts to control for current economic status of the household. The index is a composite variable of four variables: ownership of house, land, car and/or motorcycle.²⁰ The respondent received a score of 1 for each item owned. Therefore, the highest hypothetical value is 4. Roughly 15 per cent of the respondents state that they do not own any of these items, 29.8 per cent own 1 item, 27.3 per cent own 2 items, only 21.8 per cent own three items, and 6.5 per cent own all four items.

Methods

I first performed univariate and bivariate analyses to understand the economic situation of the sample, the distribution of family planning behaviour amongst the sample, and to determine the relationship between contraceptive use and willingness to abort and each of the economic indicators without controlling for any other variables.

Although contraceptive prevalence has always been high, even more women may now be using contraception as a result of the economic crisis. To test this hypothesis, I conducted logistic regression to determine the relationship between contraceptive use and a variety of selected crisis indicators. I estimated the effects of the crisis indicators individually on each of the two fertility indicators as a preliminary analysis without any controls to obtain the unadjusted odds ratio. I use logistic regression because both of my dependent variables are dichotomous and skewed. Roughly eighty per cent of Thai women in our sample are currently using contraception and roughly eleven per cent were willing to have an abortion if they were currently pregnant.

Using logistic regression, I regressed contraceptive use on each of the crisis indicators, including the two constructed crisis indices, in separate models with controls. Therefore, there are nine models each with a different crisis indicator to show the likelihood of contraceptive use as a function of each of the selected crisis indicators separately. My final full model included all of the crisis indicators and the control variables. The adjusted odds ratios for the full and reduced models regarding contraceptive use are reported in Table 3. The same models are shown in Table 4 for women willing to get an abortion.

Most of the independent variables are categorical and I use the category denoting no change as the reference group. I report the results as odds ratios and report the significance of the whole variable. The odds ratios that are significant are bolded in the tables for easy identification.

²⁰ The variables are all coded the same, 0= no ownership, 1= ownership. These variables do not capture whether or not the respondent owned more than one of these items.

Results

Preliminary analyses of data show that, to some extent, the crisis has impacted the lives of many women. The majority of the crisis indicators show that the respondents have recently undergone some change in their economic situation.

Measures of economic crisis

The number of unemployed in Thailand increased in 1998 compared to 1995, according to respondents. A larger per cent of women were unemployed this past year (49.2 per cent) than were three years ago (34.8 per cent). Similarly men were slightly more likely to be unemployed in 1998 (33.4 per cent) than three years ago (29.3 per cent). Nearly 6 per cent of respondents stated that they had a household member who had become unemployed within the last year, and roughly 75 per cent of these respondents with at least one household member unemployed within the last year, stated that the household member had been employed three years ago. Overall there was an increase in unemployment this past year compared to three years ago for the respondents and those close to them.

Bangkok residents were more affected by the crisis than women living elsewhere in terms of unemployment levels. Bangkok women were more likely to be recently unemployed (27.5 per cent) or unemployed last year and 3 years ago (25.5 per cent) than never unemployed (38.9 per cent) in contrast to a large per cent of women from the provincial urban (59.3 per cent) or rural areas (40.4 per cent) who were never unemployed. Bangkok women also had a higher proportion of close relatives and close friends currently unemployed and were more likely to state that there had been an increase in household members and close relatives who were recently unemployed. Women in Bangkok also suffered slightly more from underemployment and reduced salaries according to their reasons for having lower incomes now compared to three years ago (Chayovan, Peracca and Ruffolo 2000:46).

The majority of women in the sample stated that they experienced increased hardship in 1999 compared to three years ago, at least in terms of reduced income and an increase in household expenses. Two-thirds of the total sample felt that their financial situation was worse in 1999 than three years ago. Furthermore, likely as a result of decreasing incomes and the increased cost of living, fewer couples were able to save in 1999 than they had in the past.

The respondents generally felt that their families experienced some level of impact from the crisis; almost a third of the sample felt that their family had been significantly affected. Overall the majority of women highlighted the increased cost of living as the type of impact their families experienced. The majority stated that household expenses increased since three years ago; specifically the majority of women reported spending less on items that could be considered luxury items such as travel, entertainment, eating out, and clothing, and spending more on necessities such as food, education and health care. Therefore, respondents changed their expenditure pattern since the crisis as a result of the increased cost of items.

Family size desires, contraceptive use and willingness to abort

Contraceptive prevalence among Thai women in this sample was high. Overall 80 per cent of women were currently using contraception. As mentioned earlier Thai's prefer a two child family, which bears out in our sample with more than half of respondents desiring two children, although nearly a quarter (24.8 per cent) desire three or more.

The decision to use contraception is not likely related to proximity of a clinic as the majority of women who did not use contraception in the sample lived within 15 minutes of a health facility. In addition, the cost of traveling to receive family planning services and the cost of contraceptives probably did not influence contraceptive use. As shown in Table 3, over eighty per cent of women stated that the cost of family planning was not a burden; the costs of family planning are relatively low or often free.²¹

The actual costs of receiving services varied by the respondent's residence. The proportion who have to pay for family planning services is the same for Bangkok and rural respondents and higher for provincial urban women. The rural areas have the highest proportion, 25.1 per cent, saying that the cost of family planning is somewhat of a burden or quite a burden. Women in the provincial urban areas are the least likely to state that the cost is a burden (9.1 per cent) (Chayovan et al., 2000).

The per cent who ever had an abortion was 6.2 per cent, which was an increase from the 1987 Contraceptive Prevalence Study findings of 3.7 per cent of women aged 15-44 who had ever had an abortion (Leoprapai & Thongthai, 1989).²² If I include the per cent aged 29 or less who had a miscarriage in the per cent ever having an abortion, I have 17.6 per cent of my sample ever having an abortion. The per cent having an abortion during the last three years and last year is of course smaller at 5.0 per cent and 2.6 per cent respectively.

The percentage willing to have an abortion (11.5 per cent) was much higher than the experience of actually having an abortion; we asked all women about their willingness to abort, including those who were contracepting and currently pregnant. Many women have not had to act on their intentions.

Relationship between economic indicators and dependent variables

I examine the extent to which women are using contraception or are willing to abort to delay childbearing as a result of financial difficulties in this section. In the previous section, I found contraceptive prevalence and accessibility to family planning among Thai women in this sample was relatively high. Although contraceptive prevalence has always been high, women may be particularly motivated to use contraception as a result of the economic crisis.

²¹ This measure was originally included in the models as a control but it was not significantly associated with any of the outcome variables and thus dropped from further analyses.

²² This figure is likely an underestimate as women often do not report having an abortion. Even in the U.S., where abortion is legal, the 1982 National Survey of Family Growth found only roughly half of all known abortions during the time covered (Jones and Forrest 1989:103).

Background variables

Table 2 shows the probability of women willing to abort or currently using contraception by the background variables that are used as controls in these analyses. Of the different age groups examined, women in their teens are the most likely to state that they are willing to abort, followed by the oldest group in the sample, women aged 35-39. This finding that young women are willing to get an abortion is supported by a finding from the qualitative data of this same study whereby several hospital administrators stated that they felt that there had been an increase in young unmarried women using abortion services. This finding also supports evidence from earlier studies that there is a cohort shift in attitudes with younger groups more accepting of abortion than older groups.

Women with 3 or more children were the most willing to abort or use contraception. Women with no living children were the second most likely to state that they were willing to abort, whereas women with 2 living children were the second most likely to use contraception at 93.6 per cent. Women with less than 2 children may be less willing to use contraception because they have not yet attained their desired family size, or as in the case with adolescent females they do not feel comfortable accessing family planning services and thus resort to abortion as a last ditch effort to delay childbearing.

More women from Bangkok were willing to abort (nearly 17 per cent), than women in Sri Saket (15.1 per cent) or in Ang Tong (7.5 per cent). Similarly, more women from urban areas were willing to abort (14.9 per cent) compared to women from rural areas (10.7 per cent). This finding is contrary to earlier studies, which found greater acceptance of abortion in rural areas (Chaturachinda et al. 1981:23; Rauyajin 1979:22-23).

Regarding contraceptive use, women in Ang Tong were more likely to use contraception (82.3 per cent) than women in Sri Saket (79.5 per cent) or women from Bangkok (78.7 per cent). Slightly more women from the rural areas (82.3 per cent) were using contraception than those living in urban areas (78.2 per cent).

For those willing to abort by educational level, the smallest per cent of women willing to abort (6.6 per cent) were those with the highest education level. Similarly only 7.6 per cent of the sample of women willing to abort had the highest educational level. Women who had completed 9 years of schooling were the most likely to state that they would be willing to abort (15.9 per cent), followed by women with the least education, less than 6 years of schooling, and women who had completed 6 years of schooling. The fact that younger women tended to be more highly educated but also were less likely to have achieved their desired family size may account for this curvilinear relation between willing to abort and education.

There is a different pattern in willingness to abort by wealth. The poorest women in our sample, with no wealth items and the wealthiest women in the sample with 4 wealth items were the most likely to state that they would be willing to abort. A greater per cent of women with no insurance (nearly 18 per cent) state that they would be willing to abort if currently pregnant than women with some insurance. Women with no insurance may view the cost of abortion at roughly 100 Baht (US\$5.00) to be cheaper than the consistent outlay of cash needed for the use of modern contraceptives. Women with no insurance in the sample, however, were also more likely to state that

they were using contraception (82.9 per cent) than women with one (79.4 per cent) or more types of health insurance (75.9 per cent). It appears that women with no insurance were the most eager to limit their fertility.

Regarding contraceptive use, women with the least amount of education, less than 6 years were the most likely to be using contraception (86.4 per cent), followed by women completing grade 6 (83.0 per cent). Women who had completed 9 years of schooling were the least likely to be using contraception (71.0 per cent). Using the wealth indicator, the wealthier a woman was the more likely she was to be using contraception.

Contraceptive use

Table 3 shows the adjusted odds ratios of the relationships between contraceptive use and a variety of selected crisis indicators. Models 1-9 show the odds ratio for a logistic regression that included the selected crisis indicator and the control variables. Model 10 shows the odds ratios for the crisis indicators in the full model, with all the crisis indicators and the control variables.

In the reduced models, only change in household expenditures is significantly associated with use of contraception. Regardless of whether a respondent felt that their household expenses had increased or decreased, they were more likely to use contraception than someone who felt their expenditures were the same as before the crisis. The odds ratio of using contraception is greater for those who felt that their expenses had decreased than for those who felt that their expenses had increased. This relationship is contrary to what I expected. I presumed that those who stated that their expenses had increased were worse off than they were three years ago and would therefore be more likely to use contraception than those who were better off.

To understand if those who had their expenses increased could afford this increase, I interacted wealth and expenses to test if those who were poorer and had their expenses increase were more likely to use contraception. The results were not significant. Perhaps individuals who were more likely to state that their expenses had decreased were more likely to use contraception because they were more frugal and had already considered the added cost of a child. Therefore, those stating that they had decreased expenses in the last year compared to three years ago would be most likely to use contraception because they had made a concerted effort to reduce expenses during the downturn. As mentioned earlier, a problem with this variable is whether the respondent interpreted the question as the overall cost of expenses or as their spending pattern.

Examining the full model, model 10, with all of the economic indicators in the model with the controls, two crisis indicators are significantly associated with contraceptive use. The relationship between change in household expenditures and contraceptive use is the same as found in the model without the other crisis indicators, though the odds ratios have increased and the difference in magnitude between those who have increased expenditures and those who have decreased expenditures is reduced.

The level of crisis impact is also significantly associated with whether a couple will use contraception. Those who have been affected a lot and those who have been

affected somewhat are less likely to use contraception than those who have not been affected at all. Perhaps these women are now having the children that they had previously desired.

Two of the background variables, region and number of living children, are significantly associated with contraceptive use. Women from both Ang Tong and Bangkok are more likely to be using contraception than women from Sri Saket. Lastly, the greater the number of children the more likely a woman will be using contraception.

Willingness to abort

Table 4 presents the relationship between the nine crisis indicators and willingness to abort separately in models 1-9 and it also presents the results from the full model, with all of the crisis indicators and the controls in model 10. Three variables help to explain why women stated that they were willing to abort since the crisis took place: change of expenses, husband's unemployment status and the perceived level of impact from the crisis.

Those that experienced some or a lot of impact were more likely to be willing to abort than those who did not experience any impact. The magnitude of the effect was greater for those who experienced a lot of impact than for those who experienced some impact. Perceived level of impact, however, is only significant in the reduced model.

Women who felt their household expenses had increased or decreased this past year compared to three years ago were less willing to abort than women who stated they had experienced no change in household expenditures. The magnitude of effect for those with an increase in household expenditures was greater than for those who felt they experienced a decrease in household expenditures. In the reduced model, model 8, those who experienced a decrease in household expenses were no different than those who had no change in expenses.

Women who experienced a change in their husband's employment status were more likely to state that they were willing to abort than women who had experienced no change. The magnitude of the relationship was greater for those whose husbands had recently become unemployed than for those whose husband's employment status had improved. Therefore, couples were more likely to desire to delay their fertility if the husband in the family had recently become unemployed. Although not significant, women who felt that they had experienced some or a lot of impact from the crisis were more likely to be in favor of abortion.

Two background characteristics were also significant in this model, region and number of types of health insurance. Women from Bangkok and from Ang Tong were less likely to be willing to get an abortion than women from Sri Saket. The magnitude was greater for women from Ang Tong than for women from Bangkok. Those who had no insurance or at least one card were more willing to abort than those who had two or more types of health insurance. The magnitude was much greater for those without any health insurance than for those with at least one type of insurance.

Discussion and Conclusions

In the case of Thailand, the relationship between an increase in fertility and an increase in the price of food, as in pre-industrial times, is no longer relevant. However,

there is some evidence that a link exists between a change in standard of living and fertility limiting behaviour. Of the seven crisis indicators chosen to represent differential effects of the economic downturn in Thailand, three help to explain why some women desire to limit their fertility: change in expenses, change in husband's employment, and perceived impact from the downturn.

Whether a woman has experienced an increase or decrease in household expenditures since the economic downturn helps explain why a woman desires to limit her fertility (see model 10 in both Table 3 and 4). Although it is likely that those whose expenses have increased have experienced a worsening of their situation, they are less likely to limit fertility than those who have experienced a decrease in expenditures. They are still more likely to limit their fertility than those who experienced no change in their expenses. As mentioned earlier, the women who state that their expenditures have decreased may have cut their budget to save money and therefore do not desire an additional child; they see the child as an additional expense. Consequently, the variable regarding household expenses may be capturing preparedness or precaution amongst Thai families. If this is the case, it is logical that these women would be more willing to limit their fertility than those who have not thought about the negative consequences of having a child during times of economic duress. It may be that any change is seen as disruptive and therefore couples are more likely to use contraception to avoid additional changes in their lifestyle, namely the addition of a child, regardless of whether their expenditures increased or decreased recently.

Examining model 10 in Table 3 and 4 again, we find two other variables that were associated with a desire to limit fertility but they were associated with either use of contraception or willingness to abort not both. Contrary to what I hypothesized, women who felt that they were impacted somewhat or a lot by the crisis were less likely to use contraception than those who stated that they were not affected at all as shown in model 10 in Table 3. Perhaps these women did not think of the consequences of not using contraception, or perhaps for these women the cost of contraception²³ or the availability of contraception affected their likelihood of using contraception. Since contraception is indicative of long term planning behaviour, these couples may have thought that they could rely on abortion instead, which can be used to stop a certain and existing pregnancy when it is seen as undesirable. In fact, although significant only in the reduced model and not in the full model, those experiencing perceived impact from the downturn were more willing to abort. Since women's unemployment status is not significantly associated with contraceptive use it is not likely that those experiencing greater impact desire to actually have a child that they had possibly delayed due to employment. Interestingly, all of the other crisis indicators, which were not significant, support my hypothesis of a desire to limit fertility with household financial distress or with women's greater earning power, which increases opportunity costs.

The second crisis indicator that was related to willingness to abort was the husband's unemployment status as shown in model 10 in Table 4. Respondents whose husbands had become unemployed in the last year but had been employed three years

²³ The actual cost of contraception, however, was not significantly associated with whether one would use contraception or not. Therefore, it is less than certain that this is the pathway explaining why those experiencing less impact were more likely to use contraception.

ago were more likely to say that they would be willing to abort the child than those who were not worse off in terms of their husband's unemployment status. Therefore I found the hypothesized relationship between husband's employment and willingness to abort.

Region was significant in both the reduced model and the full model. Women living in Sri Saket were more willing to abort and less likely to be using contraception than women from either Bangkok or Ang Tong. The greater acceptance of abortion is perhaps because traditionally abortion was common in Thailand and past studies have found a higher incidence of abortion in the Northeast. Women ingested 'hot' medicine made of alcohol, ginger, peppers, and cobra, to name a few of the items. If this failed they often resorted to the massage technique, though it was recognized to be painful and dangerous (Cook & Leoprapai, 1974).

Wealth did not play a role in whether a women was willing to abort or not. I controlled for wealth believing that poorer women would be more willing to abort but this was not the case. Studies in the past also did not find abortion to vary by socioeconomic status. There may be a link between employment and willingness to abort, however. Although not significant, women who had an increase in their income or were now employed but had not been three years ago were more willing to abort than those who did not experience these changes. This willingness to abort may be linked to these women's consideration of the time cost tradeoff between work and children.

In conclusion, I tentatively state that contraceptive use and willingness to abort are associated with a change in certain indicators of a household's economic well being; the economic downturn does not appear to have greatly affected the fertility limiting behaviour of Thai married women aged 15-39. Although, women were willing to abort if their husbands had recently become unemployed, if their expenses had changed, either increased or decreased, they were less willing to abort. This unwillingness to abort may be related to the fact that women who had a change in household expenditures were more likely to use contraception.

Unexpectedly, women who experienced some impact from the crisis were less likely to use contraception. They perhaps were not thinking of long term planning but recognized that if needed they could stop an existing pregnancy if it occurred because of its undesirability at the moment. We must further explore the relationship between any effect of an economic downturn on the family and fertility limitation by using qualitative data to understand if a change in women's inherent value of children has changed or if couples consider the economic costs of children if a downturn has only just begun. The duration and intensity of an economic downturn will affect a families' decision regarding their fertility limiting behaviour.

Furthermore, a study using real expenditure data and income data rather than perceived and comparative levels would eliminate some of the problems associated with measurement error. In addition, the measures used may not have adequately captured short term effects, as the study was conducted less than two years after the downturn. These problems may explain why for some of my measures the relationship is not as expected.

Although not significant many of the other crisis indicators did reveal an expected pattern of negative financial experiences since the downturn and an increase in contraceptive use. Perhaps the respondents believed that the crisis would be short-lived, which would explain why there are only a few effects. We did not, however, ask

questions to determine their perception of the duration of the downturn. Changes may also be very slight and therefore the sample size may have been too small to detect such changes in fertility limiting behaviour.

BIBLIOGRAPHY

- Anderson, B.A., Katus, K., Puur, A. and Silver, B.D. (1994), 'The Validity of Survey Responses on Abortion: Evidence from Estonia', *Demography*, 31, 1, 115-32.
- Ashton, B., Hill, K., Piazza, A. and Zeitz, R. (1984), 'Famine in China, 1958-61', *Population and Development Review*, 10, 4, Dec., 613-645.
- Asian Development Bank, A. (1997), 'Supplementary Background Paper on Health', Bangkok, Asian Development Bank Social Sector Programme Loan.
- Becker, G.S. (1960), 'An Economic Analysis of Fertility', *Demographic and Economic Change in Developed Countries*, Princeton, Princeton University Press.
- Bhiromkaew, S. (1982), 'The Attitudes of People in Bangkok towards Abortion', Singapore, Institute of Southeast Asian Studies.
- Bollen, K. (1989), *Structural Equations with Latent Variables*, New York, Wiley.
- Bongaarts, J. and Westoff, C.F. (2000), 'The Potential Role of Contraception in Reducing Abortion', New York, The Population Council.
- Burnight, R.G. and Leoprapai, B. (1975), 'Attitudes of Rural Thai Women Toward Induced Abortion', Salaya, Mahidol University.
- Butz, W.P. and Ward, M.P. (1979), 'The Emergence of Countercyclical U.S. Fertility', *American Economic Review*, 69, 3, 318-328.
- Casterline, J.B. and Chidambaram, V.C. (1984), 'The Presence of Others During the Interview and the Reporting of Contraceptive Knowledge and Use', in Ross, J.A. and McNamara, R. (eds.), *Survey Analysis for the Guidance of Family Planning Programmes*, Liege, ORDINA.
- Chaturachinda, K., Tangtrakul, S., Pongthai, S., Phuapradit, W., Phanusopone, A., Benchakan, V. and Clinton, J.J. (1981), 'Abortion: An Epidemiologic Study at Ramathibodi Hospital, Bangkok', *Studies in Family Planning*, 12, 6/7, June/July, 257-262.
- Chayovan, N., Peracca, S. and Ruffolo, V.P. (2000), 'Thailand's Economic Crisis and Reproductive Health: A Case Study of Bangkok, Ang Tong and Sri Saket', Bangkok, College of Population Studies, Chulalongkorn University.
- Cook, M.T. and Leoprapai, B. (1974), 'Some Observations on Abortion in Thailand', Kathmandu, Nepal, Paper prepared for the Asian Regional Research Seminar on Psycho-Social Aspects of Abortion.

- Cowgill, D.O., Keovichit, S., Burnight, R.G., Yamarat, C. and Udry, J.R. (1969), 'Family Planning in Bangkok, Thailand', Salaya, Institute for Population and Social Research, Mahidol University.
- Easterlin, R.A. (1965), 'Long Swings in U.S. Demographic and Economic Growth: Some Findings on the Historical Pattern', *Demography*, 2, 490-507.
- Fawcett, W. (1971), 'Thailand', in Lee, L. and Larson, A. (eds.), *Population and Law: A Study of the Relations between Population Problems and Law*, Durham, North Carolina, Rule of Law Press.
- Florida, R.E. (1999), 'Abortion in Buddhist Thailand', in Keown, D. (ed.), *Buddhism and Abortion*, Honolulu, University of Hawai'i Press.
- Gray, A., Punpuing, S., Yodumnern-Attig, B., Congsatitum, C., Thongkrajai, E. and Singchaungchai, P. (1999), 'Gender, Sexuality and Reproductive Health in Thailand', Nakorn Pathom, Mahidol University.
- Hawley, A.H. and Prachuabmoh, V. (1966), 'Family Growth and Family Planning in a Rural District of Thailand', in Berelson, B. (ed.), *Family Planning and Population Programmes*, Chicago, University of Chicago.
- Henshaw, S.K. (1990), 'Induced Abortion: A World Review, 1990', *Family Planning Perspective*, 22, 2, 76-89.
- Hill, K. (1991), 'Demographic Response to Economic Shock', *Background Paper for the 1990 World Development Report*, Washington, D.C., World Bank.
- Institute, A.G. (1997), 'The Limitations of U.S. Statistics on Abortion', *Issues in Brief*, New York, Alan Guttmacher Institute.
- Institute of Population Studies, C.U. (1982), 'Knowledge and Attitudes Concerning Abortion Practice in Urban and Rural Areas of Thailand', Bangkok, IPS, Chulalongkorn University.
- Institute of Population Studies, C.U. (1987), '*Demographic and Health Survey, (DHS)*', Bangkok, Institute of Population Studies, Chulalongkorn University.
- Johnston, H.B. and Hill, K.H. (1996), 'Induced Abortion in the Developing World: Indirect Estimates', *International Family Planning Perspectives*, 22, 3, 108-114 & 137.
- Jones, E. and Forrest, J. (1992), 'Underreporting of Abortion in Surveys of U.S. Women: 1976-1988', *Demography*, 29, 113-26.
- Jones, E.F. and Forrest, J.D. (1989), 'Contraceptive Failure in the United States: Revised Estimates from the 1982 National Survey of Family Growth', *Family Planning Perspectives*, 21, 4, 103-109.

- Klausner, W. (1987), *Reflections on Thai Culture*, Bangkok, The Siam Society Under Royal Patronage.
- Knodel, J., Chayovan, N. and Frisen, C. (1988), 'Has Thailand's Fertility Decline Stalled?', *Asia-Pacific Population Journal*, 3, 3-20.
- Knodel, J., Ruffolo, V.P., Ratanalangkarn, P. and Wongboonsin, K. (1996), 'Reproductive Preferences and Fertility Trends in Post-transition Thailand', *Studies in Family Planning*, 27, 6, 307-318.
- Lee, R. (1990), 'The Demographic Response to Economic Crisis in Historical and Contemporary Populations', *Population Bulletin of the United States*, 29, 1-15.
- Lennox, R. and Bollen, K. (1991), 'Conventional Wisdom on Measurement: A Structural Equation Perspective', *Psychological Bulletin*, 110, 305-14.
- Leoprapai, B. and Thongthai, V. (1989), 'Contraceptive Practice of Thai Women 1987, Results of the Study on Determinants and Consequences of Contraceptive Use Patterns in Thailand', Salaya, Thailand, Institute of Population and Social Research, Mahidol University.
- Ling, T.O. (1969), 'Buddhist Factors in Population Growth and Control: A Survey Based on Thailand and Ceylon', *Population Studies*, 23, 1, March, 53-60.
- Menken, J. and Bongaarts, J. (1978), 'Reproductive Models in the Study of Nutrition-Fertility Interrelationships', in Mosley, W.H. (ed.), *Nutrition and Human Reproduction*, New York, Plenum Press.
- Narkavonnakit, T. (1979), 'Abortion in rural Thailand: A Study of Practitioners', *Studies in Family Planning*, 10, 8/9, August/September, 223-229.
- Narkavonnakit, T. and Bennett, T. (1981), 'Health Consequences of Induced Abortion in Rural Northeast Thailand', *Studies in Family Planning*, 12, 2, February, 58-65.
- National Statistical Office, N. (1999), *Statistical Yearbook Thailand*, Bangkok, NSO.
- Ohlsson, R. and Bengtsson, T. (1984), 'Population and Economic Fluctuations in Sweden 1749-1914', in Bengtsson, T., Fridlitzius, G. and Ohlsson, R. (eds.), *Pre-Industrial Population Change*, Stockholm, Almquist and Wiksell International.
- Palloni, A., Hill, K. and Aguirre, G.P. (1993), 'Economic Swings and Demographic Changes in the History of Latin America, CDE Working Paper 93-21', Madison, Center for Demography and Ecology, University of Wisconsin.
- Podhisita, C., Havanon, N., Knodel, J. and Sittitrai, W. (1990), 'Women's Work and Family Size in Rural Thailand', *Asia-Pacific Population Journal*, 5, 2, June, 31-52.

- Potts, M., Diggory, P. and Peel, J. (1977), *Abortion*, Cambridge, Cambridge University Press.
- Ranjan, P. (1999), 'Fertility Behaviour under Income Uncertainty', *European Journal of Population*, 15, 1, 25-43.
- Ratanakul, P. (1999), 'Socio-Medical Aspects of Abortion in Thailand', in Keown, D. (ed.), *Buddhism and Abortion*, Honolulu, University of Hawaii Press.
- Rauyajin, O. (1979), 'Induced Abortion: Facts and Prospects in Thailand', *Faculty of Social Sciences and Humanities*, Bangkok, Mahidol University.
- Richards, T. (1984), 'Weather, Nutrition and the Economy: the Analysis of Short Run Fluctuations in Births, Deaths and Marriages, France 1740-1909', in Bengtsson, T., Fridlitzius, G. and Ohlsson, R. (eds.), *Pre-Industrial Population Change: the mortality decline and short-term population movements*, Stockholm, Almqvist and Wiksell International.
- Richter, K., Podhisita, C., Chamratrithirong, A. and Soonthornhdada, K. (1994), 'The Impact of Child Care on Fertility in Urban Thailand', *Demography*, 31, 4, 651-662.
- Saeng, J.-N. (1975), 'Abortion and Buddhism', *Journal of Humanities*, 6th year, 2, September.
- Shevasunt, S., Hogan, D.P. and Thaithong, K. (1978), 'Fertility and Family Planning in Rural Northern Thailand', *Studies in Family Planning*, 9, 8, 212-221.
- Siriboon, S. (1987), 'The Impact of Education on Attitudes towards Abortion among Women in Rural-Urban Thailand', Bangkok, Institute of Population Studies.
- United Nations Fund for Population Activities. (1999), 'Southeast Asian Populations in Crisis: Challenges to the Implementation of the ICPD Programme of Action', Bangkok, UNFPA, and The Australian National University.
- United Nations Department of Economic and Social Affairs, United Population Division. (1999), 'World Contraceptive Use 1998', New York, UNDP.
www.undp.org/popin/wdtrends/wcu/fwcu.htm
- Varakamin, S., Devaphalin, V., Narkavonkit, T. and Wright, N.H. (1977), 'Attitudes toward Abortion in Thailand: A Survey of Senior Medical Students', *Studies in Family Planning*, 8, 11, November, 288-293.
- Watkins, S.C. and van de Walle, E.. (1983), 'Nutrition, Mortality, and Population Size: Malthus' Court of Last Resort', *Journal of Interdisciplinary History*, XIV, 2, 205-226.

Working Group on Demographic Effects of Economic and Social Reversals, N.R.C.,
Panel on the Population Dynamics of Sub-Saharan Africa, Committee on
Population, and Commission on Behavioural and Social Sciences and Education
(1993), *Demographic Effects of Economic Reversals in Sub-Saharan Africa*,
Washington, DC, National Academy Press.

Table 1: Chart of coding for composite variable willing to abort.

Survey Questions	Willing to Abort	Not Willing to Abort
Did you plan this pregnancy?	---	Yes/somewhat did plan pregnancy Never thought of aborting
If this pregnancy was not planned, did you think about aborting your pregnancy?	Yes	
If you could postpone this pregnancy, would you?	Postpone or don't want to be pregnant	No, would not have postponed birth.
If not currently pregnant: would you abort if you now became pregnant?	Yes, would abort if became pregnant	Would keep the child, cannot decide, it depends
Aged 29 or less and reported miscarriage	Yes	

Table 2: Per cent distribution and probability of women willing to abort or use contraception by background variables.

	Willingness to Abort	Using Contraception
Age		
15-19	25.9	70.4
20-24	10.7	73.8
25-29	11.3	78.8
30-34	10.0	79.4
35-39	16.7	89.3
Total number of living children		
0	18.1	43.1
1	8.8	70.7
2	10.0	93.6
3+	24.5	94.7
Region		
Bangkok	16.8	78.7
Ang Tong	7.5	82.3
Sri Saket	15.1	79.5
Rural/Urban residence		
Urban	14.9	78.2
Rural	10.7	82.3
Women's educational level		
Less than 6 years of schooling	13.6	86.4
Completed 6 years of schooling	12.7	83.0
Completed 9 years of schooling	15.9	71.0
Completed any level of schooling beyond 9 yrs	6.6	76.9
Wealth		
None	15.4	78.0
1 item	10.8	77.3
2 items	13.0	81.1
3 items	12.6	83.0
4 items	15.0	87.5
Number of types of health insurance		
None	17.5	82.9
1	10.0	79.4
2 or more	7.2	75.9
N=	620	620

Table 3: Odds ratios of using contraception as a function of crisis indicators.

Models	1	2	3	4	5	6	7	8	9	10
Women's unemployment status										
Last year & 3 years ago	1.00									
Last year only	1.16									
Three years ago only	.65									
Never unemployed	1.60									
Woman's unemployment status										
Worse		.93								1.03
Same		1.00								1.00
Better		.51								.46
Husband's unemployment status										
Last year & 3 years ago			1.00							
Last year only			1.16							
Three years ago only			.82							
Never unemployed			1.32							
Husband's unemployment status										
Worse				.96						.96
Same				1.00						1.00
Better				.67						.80
Change of woman's income level in the last 3 years										
Decreased					.95					.81
Same/just married/don't know					1.00					1.00
Increased					.95					1.02
Change of husband's income level in the last 3 years										
Decreased						1.19				1.20
Same/just married/don't know						1.00				1.00
Increased						.80				.73
Change of financial situation										
Worse							1.21			1.17
Same							1.00			1.00
Better							.95			.88
Change in household expenses								**		**
Increased								2.90		3.60
Same								1.00		1.00
Decreased								3.47		3.71
Level of crisis impact on own family										*
Not at all									1.00	1.00
Some									.45	.42
A lot									.46	.38
Factual crisis index									.99	
Impressionistic crisis index									1.01	
Chi square										136

N										595

* Denotes significant at .1 level , ** significant at less than .05 level, *** significant at less than .005 (two-tailed).

Note: The control variables depicted in Table 2 are included in each of the models in this table.

Table 4: Odds ratios of willingness to abort as a function of crisis indicators.

Models	1	2	3	4	5	6	7	8	9	10
Woman's unemployment status										
Last year & 3 years ago	1.00									
Last year only	1.32									
Three years ago only	1.22									
Never unemployed	1.19									
Woman's unemployment status										
Worse		1.20								.85
Same		1.00								1.00
Better		1.11								1.07
Husband's unemployment status										
Last year & 3 years ago			1.00							
Last year only			2.26							
Three years ago only			1.83							
Never unemployed			1.16							
Husband's unemployment status				**						*
Worse				2.03						2.33
Same				1.00						1.00
Better				1.64						1.52
Change of woman's income level in the last 3 years										
Decreased					1.17					.84
Same/just married/don't know					1.00					1.00
Increased					1.78					1.53
Change of husband's income level in the last 3 years										
Decreased						1.87				2.12
Same/just married/don't know						1.00				1.00
Increased						2.30				2.66
Change of financial situation										
Worse							.85			.66
Same							1.00			1.00
Better							.78			.68
Change in household expenses								***		**
Increased								.39		.29
Same								1.00		1.00
Decreased								1.01		.81
Level of crisis impact on own family									*	
Not at all									1.00	1.00
Some									1.64	1.35
A lot									2.03	1.98
Factual crisis index									.98	
Impressionistic crisis index									.92	
Chi square										54.7

N										595

*Sig at .1 ** sig <.05 *** sig <.005

Note: The control variables depicted in Table 2 are included in each of the models in this table.