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REGIONAL AND SOCIOECONOMIC DIFFERENTIALS IN INFANT AND CHILDHOOD MORTALITY IN CAMEROON

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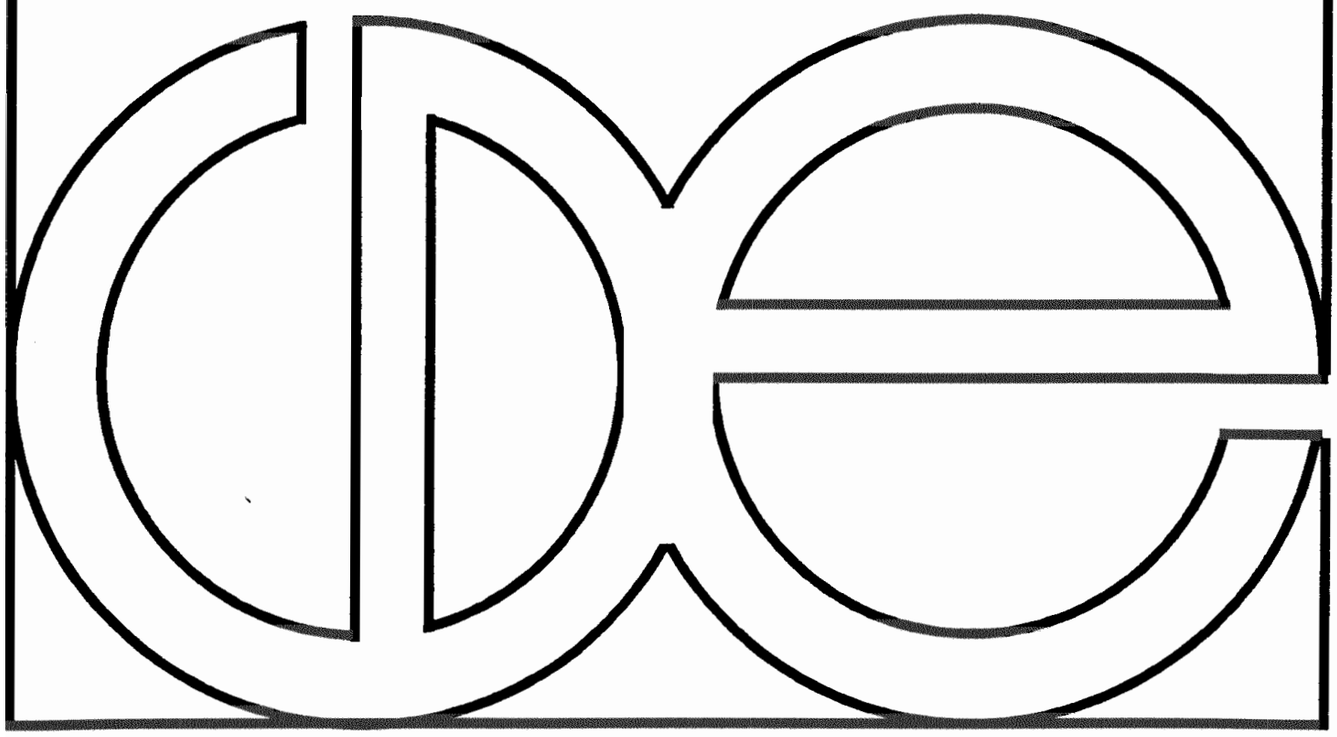

REGIONAL AND SOCIOECONOMIC DIFFERENTIALS IN INFANT AND CHILDHOOD MORTALITY IN CAMEROON¶

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Research on socioeconomic and regional differentials in infant and child mortality in sub-Saharan Africa remains limited. The few available studies have not always disentangled the pathways through which the social, cultural, economic, environmental and community factors affect child survival. Using a piecewise logit modelling approach, this paper assesses the mechanisms through which rurality, region of residence, mother's education, marital status and type of union, religion and ethnicity, operate to impact the survival chances of children under five years of age in Cameroon. The most vulnerable groups of children are: rural residents, residents from the provinces of East, North and South-West, children affiliated with the ethnic groups from the East and North provinces, children of uneducated women, and children of unmarried women or women in polygamous unions. The data suggest that the type of place of residence is likely to be a proxy for inequalities in the provision of and/or access to health care services in the country. The inverse education-mortality relationship is indirect in the first year of life and direct in the next four years. Ethnicity and utilization of health care services mediate the effects of mother's schooling in the first year of life. Furthermore, education has a greater effect in rural areas and higher-mortality regions than in urban areas and lower mortality regions.

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REGIONAL AND SOCIOECONOMIC DIFFERENTIALS IN INFANT AND CHILDHOOD MORTALITY IN CAMEROON

Introduction

Information on socio-economic and regional differentials in mortality in developing countries, particularly in Africa, is surprisingly limited, although in recent years more information has become available, notably from analysis of World Fertility Surveys. Available evidence suggests that determinants of mortality trends and differentials can be usefully separated into social, economic factors, and environmental factors (Hobcraft et al. 1984, 1985; United Nations 1985, 1986). Although the effects of these factors are clearly interrelated, they may be associated with different strategies for reducing mortality. Indeed, during the last forty years, governments in the developing countries have adopted social, economic, and environmental policies which have had major implications for their national mortality levels. While mortality during this period fell almost everywhere, it has reached "low" levels in only a minority of developing countries (Halstead et al. 1985; Caldwell 1986). While the practice of primary health care, along with other interventions, will probably lead to further reductions in the mortality of many developing countries, it is likely to be less effective unless policies are based upon a clear understanding of the factors which influence the mortality patterns in those countries. Unfortunately, most studies of differential mortality in developing countries have not always disentangled the ways in which the social, cultural and economic characteristics of individuals and families operate to impact the survival

of children. Most often the mechanism is surmised. In this study, we assess infant and child mortality differences by mother's education, region of residence, ethnicity, marital status and union type, and religion in Cameroon, in an attempt to isolate the mechanisms through which those differences are perpetuated.

Major relations

We focus our attention on the potential influences of rurality, province of residence, ethnicity, religion, mother's education, marital status and type of union (polygamous/monogamous) on mortality under five years of age in Cameroon. Control variables include other maternal background factors (e.g., employment) proximate maternal and child characteristics (maternal obstetric history, maternal age, parity, child's sex, multiplicity) , utilization of health services, life-time migration history of women, cohort of birth, period of reference, and quality of birth history data. These variables are defined in Table 1.

[Table 1 about here]

(a) Rural/urban residence and mortality

Some have suggested that urban/rural differences transcend in importance many other social and economic characteristics. The general presumption in the literature is that rural or urban residence distinguishes sufficiently and clearly between poor and good conditions of sanitation, housing structure, and availability of health resources (Mosley 1983; Mott 1982; Caldwell 1979; Puffer and Serrano 1973). While urban/rural variations in mortality during the nineteenth century were almost consistently reported as being higher in urban than in rural areas

in England and Wales and other western countries (United Nations 1953, 1973), research on mortality in developing countries has frequently shown that mortality is lower in the cities (e.g., Behm and Vallin 1982). In the former, contagious disease, environmental contamination, starvation, and warfare were common threats to urban residents; in the latter, access to health care and the availability of recent medical advances have been suggested as reasons for the urban advantage (United Nations 1973). This view implies that the majority of people in developing countries are subject to higher mortality because they live mainly in rural areas. Yet, there is conflicting evidence. Preston and Trussell (1982) for example found that rural mortality was slightly lower than urban mortality in the Republic of Korea and Sri Lanka. Some studies point out that even when facilities are available in rural areas, they are often ill-suited to deliver the primary health services needed by the rural population (United Nations 1973, 1985). The importance of health resources for the urban advantage is mentioned in case studies of Nepal (Thapa and Retherford 1982), Sri Lanka (Trussell and Hammerslough 1983), and India (Rosenzweig and Schultz 1982). Others have suggested that observed disparities in mortality merely reflect the very different socio-economic standards that exist between the countryside and the city in less developed countries (Behm and Vallin 1982). These socio-economic factors require examination because they may be acting independently on mortality, thus causing a spurious relationship between mortality and type of residence. Clearly, although urban populations usually benefit from more and better health resources, they also have a higher average income and are better educated than rural-dwellers (United Nations 1985). Finally, the

differences between urban and rural mortality could be due partly to differences in the age and sex composition of the population. All these controls will be introduced in our analyses.

(b) Relationships between province of residence and mortality

There is no generally accepted theory that links infant and child mortality with region of residence, although a number of recent studies attempt to document and explain areal variations in developing countries. Region of residence and areal differences are potential community variables that may reflect environmental and/or socioeconomic factors that influence infant and child mortality. Community data are particularly valuable for policy purposes because they provide information on factors affecting health and survival that are often directly manipulable by policies and programs. Furthermore, from an analytic point of view, community data are more likely than most other factors affecting or measuring mortality and morbidity risk factors to be exogenous to household decisionmaking and thus, it is much easier to obtain an unbiased estimate of its effect (Schultz 1984). The question then arises as to the major causes of regional variation in infant and child mortality in Cameroon. It has been proposed that regional variation in climate may help to explain variation in disease environment and thus, variation in morbidity and mortality. In Kenya (Anker and Knowles 1980) and Sudan (Farah and Preston 1982), disease prevalence was put forth as a possible explanation for regional variation in mortality. Geographical variation also has been examined in Sri Lanka in an attempt to explain the linkages between geography, climate and malaria endemicity prior to the malaria campaign (Newman 1969; Gray 1974; Meegama

1985). Behm and Vallin (1982) argue that behind areal inequalities are inequalities in such critical socio-economic factors as education, income and health care services. These conjectures will be assessed in this study by controlling for the family's socio-economic characteristics and the availability of health resources, among other controls. In particular, since in Cameroon each province has its dominant ethnic group, the possibility of confounding effects between region and ethnicity should be sought.

We will also assess the mortality differentials between the metropolitan areas (Yaoundé, Douala) and the rest of the country. We expect the lowest mortality to occur in metropolitan areas and the highest in rural areas. This is especially likely given the confounding of many other socio-economic attributes with place of residence. It can be expected that in a country like Cameroon with very high levels of infant and child mortality, the contrast between the experience of women in the large cities of Yaoundé and Douala and those in the countryside would be pronounced.

(c) Ethnicity and child survival

Ethnicity has sometimes been identified as an important variable associated with child mortality (Morley et al. 1963; DaVanzo et al. 1983; Fernando 1981; United Nations 1985). It is possible that customs might strengthen or weaken a group's defenses against environmental hazards (Blacker 1991). Such practices may include: 1) obstetric methods used by traditional birth attendants, especially the type of dressing put on the umbilical stump; 2) traditions affecting the duration of breastfeeding, including that of full, partial breastfeeding and the ap-

propriate period before breastfeeding is discontinued; 3) type and nutritional value of the weaning foods generally given to infants and the methods of their preparation, particularly their susceptibility to bacterial contamination; 4) traditional diets and food avoidances likely to affect the nutritional status of pregnant and lactating mothers and hence the birthweight of their children and their own ability to breastfeed adequately; 5) other traditional practices, particularly postpartum abstinence, likely to affect birth spacing; 6) traditional treatments and remedies prescribed for childhood sicknesses, particularly diarrhea, with particular reference to whether or not fluids are withdrawn, and other practices likely to aggravate the condition and weaken the child; 7) traditional practices relating to sanitation and the disposal of human excrement; 8) modes of living that affect crowding; 9) child care and childrearing practices. This suggests that numerous aspects of behavior which are unrelated to socioeconomic status and development can nevertheless have an important influence on child survival. In the African countries in general and in Cameroon in particular, the groups are differentiated primarily on the basis of language and culture. Morley at al. (1963) had drawn attention to the important influence of traditional beliefs and practices on measles mortality and their contributing role toward complications. In most ethnic groups, there is no disease other than measles for which there has been developed so impressive an array of nursing care practices, dietary restrictions and medicinal therapies. These practices are likely to influence the mortality, the severity and the kinds of temporary and permanent sequelae which ensue. Among the mechanisms by which ethnicity may influence child survival, genetic elements should also be considered.

The most obvious of these is the sickle-cell trait, which protects against malaria but also contributes to infant mortality through sickle-cell anemia, particularly among populations of black origin. Although many studies have suggested strong effects of ethnicity on mortality of children in Africa (United Nations 1985; Wenlock 1979; Cantrelle et al. 1986; Hill and Randall 1984), none have been able to demonstrate the contingencies of the operation of these effects. Ethnicity could impact infant mortality through a number of ways stressed above. Thus, the issue remains how much of the influences of ethnicity on mortality remains after controlling for confounding factors?

(d) Religion and child survival

A number of studies have found religious differences in infant and child mortality (United Nations 1985; Caldwell 1986; Akoto 1990). At a more general level, there has been a good deal of reflection on the relationship between religion and modernization. Some attitudes and beliefs held by certain religious communities may be at odds with modern rationalism and hinder individual well-being and material progress, but opinions on the subject differ. In an examination of a rural community in Lebanon, no difference was found between Muslims and Christians in their attitudes towards the importance of faith when faced with personal and family difficulties (United Nations 1985). This author argues that the more important determinants of behaviour are Arab culture in general and a number of concomitants of rural life. Akoto (1990) suggests that religion is a reflection of contacts with the western civilisation (Catholic and Protestants, other foreign religions) or in contrast of the importance of traditions (traditional religions), and

can also serve as a proxy for social status of an individual in the society. Caldwell (1986) argues that the central aspect of the relationship between Islam and mortality levels is undoubtedly the separate and distinctive position of women operating partly through their access to education but also in many other ways. Evidence from Senegal (Cantrelle et al. 1986) and Kenya (Ewbank et al. 1986) supports the view that the religious differences in mortality could be explained by differences in mother's education. United Nations (1985) found that in Ghana and Kenya where Muslim women were found to have very high child mortality, the introduction of background variables virtually eliminates their disadvantage in relation to the referenced Catholic mothers. But these studies did not account for a number of potential confounding factors (e.g., health care practices, ethnicity; region of residence within the country).

(e) Relationships between mother's education and child survival

Several studies have suggested that child mortality in developing countries is associated more closely with maternal education than with any other socio-economic factor (Caldwell 1979; Cochrane et al. 1980; Caldwell and Santow 1989; Cleland 1990; Cleland and Ginneken 1988; Caldwell and MacDonald 1981; Hobcraft et al. 1984; Farah and Preston 1982; Rosenzweiz and Schultz 1981). This has led some researchers to conclude that the mother's education is an important and independent covariate of mortality. According to Caldwell (1986), the mother's education is not a simple substitution variation for a set of other variables with which it is correlated, but produces its own impact.

This inverse association has been attributed to many causes: (a) by breaking

with traditional child-raising practices and facilitating the acquisition of information related to family planning – which, through its effects on spacing and timing of births and pregnancies reduce the risk of mortality – education acts to delay adolescent childbearing which is a risk factor of infant and child mortality; (b) decreased fatalism about illness and increased use of modern medical facilities; (c) education creates aspirations for upward social mobility and the accumulation of wealth, enhances the likelihood of outside female employment, reduces the perceived economic utility of children and increases availability of higher-quality foods made possible by increased income. Some **joint effects** have also been singled out. Modernization and urbanization more generally are theorized to influence mortality through, or jointly with, education. In a recent review, Cleland and van Ginneken (1989) argue that economic advantages associated with education (e.g., income, water and latrine facilities, clothing, housing quality) account for about one-half of the overall education-mortality association. Finally, there might be 'spillover effects' – by which is meant the effects of others' education – (that is the average level of education in the community). However, in many settings, it is still not clear why education is related to child survival.

In most parts of the world, it is the mother who is most directly involved in the care of young children, and women's education can be expected to have an effect on child survival. But, in a country as diverse as Cameroon (e.g., more than 200 ethnic groups, major religions along provincial lines, a variety of climates) it is not clear how much of the relationship is a direct effect of education and how much is due to factors correlated with education but not held constant in the comparisons.

For some regions of the country, it is probable that a mother's religious affiliation pre-dated her educational experience and in part may have determined whether she attended school or how much education she received. In certain regions, however, the causal link may in fact be reversed, particularly in regions where education is or has been under the auspices of church groups. Thus, for example, conversion to Christianity may be the consequence of attending school. On the other hand, the extent of the interactive effect between education and other putative risk factors of mortality, however, is not yet unravelled. Little is known about how developmental and community-level variables affect this relationship at the individual level. Such clearer understanding of the nature of the effects of education upon mortality would undoubtedly find its greatest benefit in the area of policy formulation in Cameroon where up to the present, no research exists to suggest specific educational policies that would affect mortality levels. There are two fundamental questions that must be answered before better policies can be adopted: (a) how far the influence of education is direct or indirect through the mediation of other variables? and (b) whether education acts alone or only in concert with one or more other factors to affect mortality. For instance, if mortality differentials are mainly explained by better access among highly educated groups, then for a goal of reducing mortality, developing health programmes with wide access may be more expedient and cheaper than investing solely in education. Secondly, adolescent childbearing has been linked to socioeconomic status (mainly education), besides being an intermediate variable affecting mortality. The question here is of degree: is the independent effect of education significant compared to its indirect effect

through rising age at childbearing? Depending on the answer, policy decisions may vary, for if the indirect effect is the more important one, policies aimed at mortality reduction by raising age at childbearing may achieve a drop in mortality nearly equal to that resulting from a comprehensive, educational programme at a fraction of the cost. Once again, however, research findings to the present have not been able to yield unequivocal answers to this problem in Cameroon.

Another problematical interrelationship concerns the role of urbanization. It has been suggested that mortality differentials by education are greater in urban settings than in rural ones. A deeper understanding of the joint and separate effects of these variables would aid in the evaluation of development plans emphasizing rural education. Previous evidence on the effects of rural versus urban environment on the mortality-education relation is inconclusive (for review, United Nations 1985). Presumably, educated women who live in rural areas differ from educated women in urban areas in other respects than merely residence (Mosley 1983) and recognition of these differences might produce a sharply different picture of rural/urban differences in the mortality-education relation. The effect of health care access on child mortality is often said to vary with education such that the highly educated, who presumably have the means and the knowledge to deal with modern bureaucracies, are more likely to take advantage of modern medical services (Ware 1984). If those who utilized medical services are indeed selected for higher social status, then the effect of health care on child survival will be greatest where education is most common.

(f) Marital status, type of union and child survival

Several studies have reported higher mortality rates for out-of-wedlock children compared to children of married women (World Health Organization 1978; United Nations 1973; United Nations 1985). Several other explanations have been proposed for such a relation: a) higher socio-economic status of currently married women as reflected, in particular, in their higher educational attainment; b) it is possible that widowhood and divorce are associated with substantial stress, which in turn may affect child health. By depriving the mother of a principal means of support for her child-rearing activities, widowhood and divorce may also have a calamitous effect on her financial situation; c) these effects are doubtedless culturally mediated (United Nations 1985). World Health Organization (1978) suggests that much of this higher mortality could be ascribed to the fact that the birthweight distribution of babies of unmarried mothers was lower. Some additional disadvantage of births to umarried women resulted from their being born disproportionately to teen-age mothers and to women without previous births. In Latin America, it was found that infant mortality rate was consistently higher for illegitimate than for legitimate births, the differential being larger in the post-neonatal than in the neo-natal period, which suggests that it may be produced principally by environmental factors, including aspects of child care, rather than by endogenous factors present at a child's birth (United Nations 1985).

But married women do not constitute a homogenous entity in many African societies. In fact, one important cultural difference among groups in Cameroon is the prevalence of polygamy. Polygamy might be related to income differences, is often less common in urban areas and may be related to religious and other

cultural differences. There has been some discussion in the literature about the possible association between infant and child mortality and type of marriage. But the strength of the association is a matter of speculation. A number of studies that have examined differences in child mortality between polygamous and monogamous unions have found that the detrimental effects of polygamy dominate (Caldwell 1979; Mott 1982; Aaby et al. 1983, 1984). Infants in a polygamous union may receive less attention than children in a monogamous marriage, and it is possible that their general level of well-being may be lower and their potential for survival somewhat reduced. Since polygamous marriages are associated with more traditional childbearing practices, there may be some significant association between polygamy and infant mortality. Finally, women in polygamous unions may on average have less education than monogamous wives and for this reason have somewhat higher infant mortality. Perhaps more important is the association between polygamy and traditionalism, particularly in traditional family systems in Africa where polygamy is most prevalent (Caldwell 1979). This traditionalism is likely to be associated with traditional health practices (Mott 1982). Finally, in a polygamous union a man's attention and resources must be shared by several women and their children. In addition, it is not rare to see that husbands sometimes devote all their attention and resources to another wife and her children. However, polygamy has not always been found to increase mortality. Isaac and Feinberg (1982) found that in Sierra Leone, infant survival was independent of mother's type of union or her rank within the polygamous household. There are several reasons to expect that polygamous unions in some settings might have

lower child mortality (United Nations 1985). First, polygamy may increase the length of the interbirth interval for a woman by delaying the resumption of intercourse after childbirth or by reducing frequency of intercourse. Second, the men who take several wives in a polygamous society are generally wealthier, so that polygamy may be associated with increased resources for child-rearing. On the other hand, those resources must be shared among more wives and more children, so that the predicted net effect is ambiguous. Thus, the extent of polygamy effects (direct or indirect, if any) on infant and child mortality is still open to debate.

Methodological considerations

The study uses data from the Cameroon Fertility Survey (CFS). This survey was conducted from January to October 1978 under the auspices of the Cameroon ministry of Plan and Regional Development in collaboration with the World Fertility Survey (WFS). The CFS was a large, nationally representative survey. The mortality to be analysed is that experienced by the children reported by the women interviewed. This data set has been assessed in various previous studies (Ministère de l'Economie et du Plan 1983; Santow and Bioumla 1984; Rutstein 1985). In terms of data deficiencies on several checks, Rutstein (1985) did not single out Cameroon as a country with a seriously deficient survey. Overall, the data set has been found to be of acceptable quality by these reports for studies of mortality differentials, but not of its levels. These studies suggest that there are some obvious deficiencies in the mortality data in the CFS beyond a 10-year window. As a consequence, this analysis will be restricted to children born within the last 10

years preceding the survey.

In the WFS data sets, the index child (child under study) mortality is differentiated by characteristics of parents at the time of the survey, and observed relationships are often interpreted as reflecting the impact of those characteristics on children's survival chances. However, the parental characteristics might have been different during the life and at the time of death of their children. The timing of the measurement of variables will generally bias downward the effects of selected variables on mortality. However, in one respect, it may also exaggerate the impact of a variable on mortality if child mortality has affected a woman's status. For example, a child's death could destabilize a union and lead to separation or divorce. In this case, mortality would have helped to shape one's current status, rather than the other way around. Although the data analysis in this study is based on the assumption that characteristics of parents remain the same for a sufficiently long period of time in the past, the assumption is wrong for some parents. As a consequence, some of the observed patterns or absence could be produced by violations of that assumption. To test the magnitude of the potential bias introduced in our results by such assumption, we will introduce a control for each woman's life-time migration history. To minimize the other measurement problems and other biases encountered in the CFS (Santow and Bioumla 1984; Rutstein 1985) analyses are restricted to births which took place during the last 10 years from the interview date. For instance, because the CFS data on type of marriage refer to the woman's current status and to the number of wives of the current husband of the child's mother, this restriction will help reduce the likelihood that the births precede entry

into a polygamous union. Another problem has to do with the national representativeness of data. This can be undermined by self-selection of respondents. In the CFS, there are high proportions of non-response to some important questions such as region of residence and ethnicity. If true mortality differentials by a factor are significantly different between those who responded to the question and those who did not, the observed pattern may not be nationally representative. For this reason, observations with missing information on these strategic variables were excluded from the analyses. However, preliminary analyses including them (with a dummy category for missing) did not alter any of our conclusions.

For the estimation of the effects of selected factors, we use piecewise logit models. The same procedure used to fit the general logit model with a single time interval is employed. The most distinctive feature of the piecewise framework is the explicit differentiation between those covariates that remain unchanged over time (although their effects might vary across age intervals) and those that are time-varying (with age-dependent effects in addition). A simple analytical procedure which facilitates significance of the time-covariable interaction is to divide the time scale into a number of subintervals, and to make separate estimates of the coefficients within each one. The segments are (in completed months): 0, 1-3, 4-7, 8-11, 12-23, 24-59, 1-11, 0-11, 0-23, 0-59 months. Refined specifications of age intervals will allow us to assess the age-dependent effects (if any) of the potential influences, while broader age-segments will allow us to capture the overall pattern of influences. The unit of analysis is the individual child, and the dependent variable is a dichotomy denoting whether or not the child survived through

the age interval in question. This discrete-time approach would allow us to handle non-proportional effects, by predicting various outcomes for children at several age-intervals for those children still observed at the beginning of each age-interval of interest. We will derive separate estimates for each age-interval, so as to be able to assess the time-interaction effects of fixed and time-varying covariates on such outcomes. Also, we will use more structured analyses of possible interactions between the covariables and time by modelling the interaction effects directly within the logit model.

Results of fitting separate models with all covariables in the respective periods will be compared to those obtained using the sample as a whole, so as to highlight the changes (attenuation or not) in the effects of the covariables with time. Thus, the comparison of log-likelihood obtained allowing sets of parameters from the piecewise procedure to that achieved with the single set of logistic regression estimates will clearly show the statistical significance of the departure from the unconditional logit model.

Results

The estimates of the effects of rurality on infant and child mortality are shown in Table 2. There are clear age-dependent effects of rural/urban residence on mortality. The rural disadvantage is concentrated in the neonatal period and in the age-segments 12-23 and 24-59 months. These results are virtually unaffected by controls for socio-economic background, ecological and regional differences, ethnic and religious differences, maternal reproductive patterns and obstetric history,

child's characteristics, health services utilization (hospital delivery, medical assistance at delivery, mother's life-time migration history, cohort and period effects, and quality of the birth history data. If the urban and rural mortality differentials were due to the socioeconomic characteristics of the families and areas, then it should be expected that mortality differential would be greater among postneonatal than neonatal mortality; this is because postneonatal mortality is heavily determined by exogenous diseases which in turn are closely related to socioeconomic characteristics of the families and areas. Such conjecture is not confirmed by these data, since the odds of dying in the neonatal period are higher than those of dying in the postneonatal period. In the first year of life (i.e., 1-11 months or 0-11 months), the nature of the rurality-mortality relation is even reversed after a control for medical assistance at delivery (model 14). Meanwhile, for the broader age-segments 0-23 months (first two years of life) or 0-59 months (first 5 years of life), the relative advantage of the urban milieu is completely eliminated once hospital delivery is accounted for (model 13). Thus, type of place of residence (rural/urban) is likely to be a proxy for inequalities in the provision of and/or access to health care services in Cameroon.

[Table 2 about here]

Table 3 examines the causes of provincial differences in mortality. In general, residents of the provinces of East, North and South-West have the lowest survival chances. The unfavourable position of these provinces is also age-dependent and involves mostly the neonatal period and the second year of life. For the neonatal period: the disadvantage of the provinces of South-West and North-West (the two

English speaking provinces of the country) disappear after a control for rurality (model 2), for the North province (predominantly Muslim) after a control for maternal employment (model 4); but the disadvantage of the East province remains very strong ($p \prec .01$) even after all controls are introduced. Maternal education seems to explain all the disadvantage of the North province in the postneonatal period and beyond (model 3). During the second year of life, rural/urban differentials account for the disadvantage of the East province (model 2) and the South-West province remains at disadvantage under all contingencies. For the 24-59 months, all the regional differences are almost explained by rural/urban differences in mortality in those provinces. For broader age segments, the disadvantage is restricted to the provinces of the East and South-West after all controls, although there is some marginal disadvantage associated with the Littoral province.

[Table 3 about here]

Table 4 shows the estimates of Yaoundé and Douala residence on infant and child mortality. As expected, these metropolitan areas are associated with the lowest mortality risks at all ages. But the introduction of controls indicates that these differences are confounded by socio-economic and cultural attributes associated with these places of residence. The advantage of Douala residence (notably during the neonatal period and the second year and beyond) is eliminated after controlling for maternal background characteristics (especially ethnicity). One striking result – with no apparent explanation – is the significant, positive and robust effect found in Yaoundé in 1-3 months once ethnicity is accounted for. However, for the age-segments 0 and 12-23 months, the advantage of Yaoundé residence is unaffected

by controls ($p \prec .05$). For broad age-segments of 0-11, 0-23 and 0-59 months, there is some indication that mortality differences betwen Yaoundé/Douala and the rest of the country can be explained almost exclusively in cultural terms: education (model 2) for 0-11 months, and practices of polygamy (model 5) and notably ethnicity (model 6).

[Table 4 about here]

Table 5 presents the estimated effects of ethnicity on infant and child mortality. There are substantial ethnic differences, although the statistical significance, magnitude and direction of their effects are age-dependent and sometimes confounded by other variables. Of significance is the finding that the disadvantage associated with the ethnic groups of the East province in the neonatal period is eliminated after a control for province of residence (model 6). This may reflect the pathology of the environment (e.g., prevalence of tetanus associated with practices of childbirth in the East province). On the whole, it appears that the observed disadvantage associated with ethnic groups from the East province are completely independent of the other factors studied as well as controls introduced. The disadvantage associated with the ethnic groups of the North province are partly explained by maternal employment (model 3), practices of polygamy (model 5), and utilization of health care services (model 13). There is no evidence to suggest that these ethnic differences in infant and child mortality are due to genetic factors (e.g., sex, multiplicity, maternal age, parity). Overall, the CFS data suggest that ethnic differences tend to persist, albeit at a reduced level, when a variety of other factors are considered.

[Table 5 about here]

Table 6 presents the estimated effects of religious affiliation on child survival. While religious effects are noted, they appear to be basically mediated by other factors included in the analysis. There is no clear age-pattern of effects of religion for the first year of life: the estimated religious groups have lower mortality risks in 1-3 months, but higher in 8-11 months than the referent group. For broader age-groups (1-11, 0-11, 12-23, 24-59, 0-23 and 0-59 months) the advantage is geared towards Protestants and Catholics. However, there is consistent evidence that Protestants, Catholics, and to a lesser extent Muslim have lower mortality after the first year of life than their counterparts affiliated with other religions; this advantage is largely explained by the socio-economic status of the mother (e.g., education (model 2), employment (model 3), and mostly polygamy (model 5)).

Maternal background characteristics explain all the religious differences in mortality. After controlling for one important factor, the mother's education, some variation persists across religious groupings (model 2). However, when the full complement of socio-economic factors is considered, religious differentials in infant and child mortality are greatly reduced (models 3 through 6) and even eliminated (model 7). These findings tend to confirm the largely untested hypothesis that religion stands as a proxy for other socio-economic factors and should settle the debate over the effects of religion on child survival.

[Table 6 about here]

The estimates of pathways of influences of maternal schooling on child survival are shown in Table 7. The expected pattern emerges clearly: the mortality of children of women with no education is higher than the mortality of the offspring

of mothers with some schooling. This pattern is evident at all ages, but especially in the first 4 months and from the second year of life on. There is evidence of direct effects of maternal education on mortality in 1-4 completed years, years during which environmental factors are more important than endogenous factors in differentiating children. In the first year of life, the protective effects of education cannot be explained by the employment opportunity it offers to the mother (model 2), by her marital status (model 3), or by her type of union (model 4). Ethnicity (model 5) appears to explain most of the effects in the first year of life, probably reflecting the influences of attachment of educated and uneducated women alike to ethnically-driven practices of child-rearing and child care. These direct effects on child care are likely to be most important very early in life, because most of the rituals are performed in the next few months of the newborn in many societies in Africa. There is susbtantial evidence that any residual effects of education on mortality in the first year of life are totally explained by utilization of health care services (models 14 and 15). It is likely that the education of the mother acts as a proxy for better access to and use of available health resources, which appears to be critical early in life. For broader age groups (0-11, 0-23, and 0-59 months), once all controls are introduced, the effects of education on mortality are marginal in 0-11 months ($p \prec .10$), and robust in 0-23 months ($p \prec .05$) and 0-59 months ($p \prec .01$).

[Table 7 about here]

Table 8 deals with the possibility that some of the education-mortality associations might be modified by other studied factors which have shown some form

of significant interaction effects. As noted above, less investigated in the literature has been this possibility of interactive effects of education and other factors influencing child survival. We found that maternal education has stronger effects in rural than in urban areas, in regions of higher mortality than those of lower mortality. Also, the beneficial effects of maternal schooling are accrued by the access to and use of health care services, particularly in the neonatal period.

[Table 8 about here]

Table 9 presents the estimated effects of marital status/type of union on infant and child survival. It appears that unmarried mothers and mothers in polygamous union are more likely to lose their children than their counterparts married in monogamous unions. Model 2 shows that the disadvantage of these women cannot be explained by their socio-economic conditions (education, employment, ethnicity), their residence status (rural/urban), their province of residence, their religion, their reproductive patterns (age and parity), their previous obstetric history (any history of pregnancy wastages, abortions, stillbirths), and their children's characteristics (gender, multiplicity). Furthermore, their disadvantage persists even after controls for utilization of health care services (model 3), medical assistance at delivery (model 4), life-time migration history of these women (model 5), cohort effects (model 6), period effects (model 7) and quality of birth history data (model 8).

[Table 9 about here]

Overall, the marital status and type of union appear to affect directly infant and child mortality in Cameroon. It is likely that such effects are a reflection

of the marginal status and social stigma associated with unmarried motherhood, while the deleterious effects of polygamy may result from limitations imposed on household resources, overcrowded conditions (particularly in cities) in such family structures, and norms and taboos associated with traditional values (one of which is the practice of polygamy itself in the African milieu).

Discussion

This study was concerned with socio-economic and regional differentials in infant and child mortality in Cameroon. The most vulnerable groups in the country are: rural residents, residents from the high risks mortality provinces (East, North and South-West), women from the ethnic groups of the East and North provinces, women of 'other' religion affiliations, uneducated women, and unmarried women or women in polygamous unions.

The interpretation of the significance of place of residence variables (rural/urban residence, province of residence) is a complex one in Cameroon. The problem is that any variable which is essentially geographic in character encompasses a multiplicity of underlying determinants. These can include the obvious climatic factors and differences in institutional infrastructures but also may involve socioeconomic and cultural differences at the household level in a multiethnic country like Cameroon. The data suggest that the type of place of residence (rural/urban) in Cameroon is likely to be a proxy for inequalities in the provision of and/or use of health services. Indeed, when the disadvantage in access to health services and/or medical assistance at delivery is accounted for, the nature of the relation between

rural/urban residence and mortality is even reversed.

Improvements in maternal socio-economic status (education and employment) will eliminate the disadvantage of the North province (essentially Muslim). However, the disadvantage of the East province is robust and restricted in the neonatal period ($p \prec .01$), while the disadvantage of the South-West province is localized and robust in the second year of life ($p \prec .01$). It has been suggested that region of residence is not a determinant of mortality in the same sense as other demographic or socio-economic factors (Farah and Preston 1982). They feel that 'region should be viewed as accounting for the current environmental setting, and, as such, it acts as a mediator for associated characteristics which may be either undefined or ill-defined.' Since socio-economic factors and health services are controlled and regional variations persist in Cameroon, the argument for considering the ecological explanation seems convincing. The robustness of the significance of disadvantage of newborns in the neonatal mortality in the East province probably reflects the prevalence of tetanus in that province vis-à-vis the rest of the country. Although the ecological factors determining its prevalence are far from clear, in general tetanus is thought to be more prevalent in areas with warm, humid climates and fertile soils (Stanfield and Galazka 1984), and to be notably absent in high, mountainous, and arid areas (Ball et al. 1987). Environmental factors (notably climate) may account for the disadvantage of the South-West province.

As expected in a country like Cameroon with quite high levels of infant and child mortality, the contrast between the experience of women in the large cities of Yaoundé and Douala and those in the countryside is found to be pronounced.

This seems to reinforce the view that these largest cities, which have the most modern and best-equipped health facilities, present the lowest child mortality in the country. The data indicate that life in these cities may be conducive to child survival, either from services the city renders or because residents of large cities experience better socio-economic conditions in general.

The ethnicity and religion of the mother have rarely been included as explanatory factors in analyses of determinants of infant and child mortality. When considered, the treatment has usually been superficial, and explanations of observed differentials have been largely speculative. It is generally believed that variations in mortality across ethnic groups probably reflect mainly differences in factors such as socio-economic status and accessibility of health facilities and services, rather than inherent differences among the groups themselves (United Nations 1985). This argument has been put into question by some investigators; DaVanzo et al. (1983) for example found that in Malaysia, not all ethnic differences in infant mortality could be explained by standard variables. In Cameroon, ethnic groups continue to exhibit large, statistically significant differentials in infant and child mortality. These differences are only slightly reduced or even enlarged from those obtained in the primary associations; this finding suggests that the effect is largely independent of the other background variables. After all controls, there are still persistent mortality differentials between the ethnic groups of the East province (and to some extent of the North province) and the other ethnic groups. The quality of data could not explain these variations by ethnic groups (Table 5, model 17). The fact that in Cameroon – where the variety of ethnic categories (more

than 200 ethnic groups) reflects the heterogeneous nature of these societies – the ethnicity-mortality relationship remains relatively strong suggests that there are other important channels through which ethnic identity operates. These channels possibly are linked with norms, traditions, attitutes, practices and behaviour which have direct impact on health (e.g., drinking, smoking, feeding, social organization, social network, kinship, attitudes towards health care, higher probability of low birthweight, lack of prenatal care). In fact, children from those vulnerable ethnic groups were found to be more likely to have low birthweight (Kuate Defo 1990) and to die in infancy (Kuate Defo and Palloni 1991); also their parents are less likely to seek prenatal care or to give birth at hospitals (Kuate Defo 1993). These factors in turn may have linkages to some extent.

This study suggests that different levels of mortality are almost always found among the various religious groups in the country. While these variations are important from the viewpoint of public health and medical programmes, they do not reflect innate differences among the groups themselves. The data indicate that these variations are accounted for by the fact that these groups are differently situated with respect to education, practices of polygamy, ethnicity, and residence status.

Previous studies have shown that births from educated mothers have a higher chance of survival than those from non-educated mothers. This relationship is observed in Cameroon. It appears to be an indirect one in the first year of life and a direct one in the second year and beyond. This age-pattern of the education-mortality relation is consistent with the evidence from other studies of WFS surveys

which have found that the net effects of maternal education on neonatal and post-neonatal mortality are modest, whereas at childhood ages, there is a radical shift in the relative importance of parental education with educational levels exerting a more important influence on survival between ages one and five than in infancy (Hobcraft et al. 1984; Cleland 1990). Ethnicity and utilization of health care services mediate the effects of maternal schooling in the first year of life; after the first year of life, the introduction of all controls (e.g., other background characteristics of the mother, rural/urban residence, province of residence, child's characteristics, maternal reproductive and obstetric history, health resources, life-time migration history, cohort and period effects, and quality of birth history data) did not affect the magnitude, direction and robustness of the education-mortality relationship in Cameroon ($p \prec .05$). The interpretation of low infant and child mortality among educated parents in rural Africa is still unsatisfactory. Where educated parents were almost completely isolated, their children had lower mortality than those of uneducated parents, but not of the same order as in another village where the educated parents had access to health facilities (Caldwell 1986). We found that education has a greater effect in rural areas and higher-mortality regions than in urban areas or lower mortality regions where modern health facilities and other amenities are concentrated, which suggests that mother's education may act as a substitute for health care services. This is consistent with the consideration paid to mother's attributes in England and the United States at the beginning of this century as a means to secure infant and child health and welfare (Ewbank and Preston 1990; Preston and Haines 1991). Knowledge of basic preventive and cura-

tive procedures may be more readily acquired in areas or regions where health care systems are better developed. However, where clinics and hospitals are uncommon (as it is the case for most rural areas in Cameroon where unfortunately some 70% of the population live), then education could fill the gap by providing information on health and personal hygiene. The finding that access to and utilization of health care services accounted for most of the education-mortality relationship in the first year of life implies that formal education, on the other hand, may facilitate knowledge and use of the available health care services. In this case, education and health facilities are complementary; and once again, education effects might be expected to be stronger in low-mortality areas and regions of the country. Even if education is found to promote utilization of health services, an important question remains: whether educated women use health services because they can afford it or because schooling undermines their belief in traditional remedies (Ware 1984). Our data suggest that at least during infancy, education helps to break the ties to traditionalism and ethnically-driven values, norms and practices harmful for survival chances (Table 7, model 5).

Finally, this study shows that mortality of children is raised if the woman is not currently married or if she is in a polygamous union. it appears that there is strong, direct association between stable family relationships and low risks of infant and child mortality in Cameroon, although the direction of causation cannot be conclusively inferred from the data at hand. The data suggests that polygamous unions are not simply acting as a proxy for religion, ethnicity or certain socio-economic variables, since these are controlled. The polygamy-mortality association

found probably operates through factors such as dilution of household resources, overcrowding, harmful traditional norms, taboos and values, or their combinations.

Table 1: Definition of Selected Variables

Variables	Definition
MEDU	1 if mother educated
EMPM	1 if mother employed before and since marriage
MSIT	1 if mother not married
POLYG	1 if mother in polygamous union
BETI	1 if ethnic groups of the regions of Centre and South
DOUBA	1 if ethnic groups of the regions of Littoral and South-West
BANT	1 if ethnic groups of the region of East
NORTH	1 if ethnic groups of the region of North
EAST	1 if administrative region of East
LITTO	1 if administrative region of Littoral
NORTH	1 if administrative region of North
NWEST	1 if administrative region of North-West
WEST	1 if administrative region of West
SWEST	1 if administrative region of South-West
RURAL	1 if rural residence
YAOUNDE	1 if Yaounde residence
DOUALA	1 if Douala residence
CATHOLIC	1 if Catholic
PROTEST	1 if Protestant
MUSLIM	1 if Muslim
FEMALE	1 if female birth
NDEL	1 if multiple births
FAGE	1 if maternal age at child's birth < 20 years
LAGE	1 if maternal age at child's birth > 34 years
SECO	1 if birth order 2-3
THIR	1 if birth order 4+
PREP	1 if mother has had pregnancy wastages
STBI	1 if mother has had stillbirths
ABOR	1 if mother has had induced or spontaneous abortions

Table 1 (con):

DELHOSP	1 if delivery of last or penultimate pregnancy at hospital
MEDASS	1 if assisted by a doctor or a nurse during the delivery of last or penultimate pregnancy
MIGRATE	1 if history of migration
COHORT	1 if child belongs to the 1973-1978 birth cohorts
PERIOD	1 child born during the last 5 years preceding the survey
QUAFAIR	1 if the reliability of birth history data was fair
QUAPOOR	1 if the reliability of birth history data was poor

Note: All variables were coded as dummies.

Table 2: Rural-Urban Differences in Infant and Child Mortality in Cameroon

	Age Intervals (in completed months)									
	0	1-3	4-7	8-11	12-23	24-59	1-11	0-11	0-23	0-59
					Model 1					
RURAL	.60*	.25¶	-.01	-.15	1.17*	.52$	.05	.27*	.38*	.42*
	(.11)	(.14)	(.13)	(.16)	(.22)	(.13)	(.09)	(.07)	(.07)	(.06)
					Model 2					
RURAL	.37$	.03	-.08	-.13	.94*	.47$	-.05	.11	.21$	.27*
	(.14)	(.17)	(.16)	(.21)	(.26)	(.16)	(.10)	(.09)	(.08)	(.07)
					Model 3					
RURAL	.34$	-.03	-.11	-.16	.83*	.38$	-.10	.07	.16$	.20$
	(.14)	(.17)	(.17)	(.21)	(.26)	(.16)	(.11)	(.09)	(.08)	(.08)
					Model 4					
RURAL	.36$	.01	-.06	-.19	.75$	.36$	-.07	.09	.16$	.20$
	(.14)	(.18)	(.17)	(.21)	(.26)	(.17)	(.11)	(.09)	(.08)	(.08)
					Model 5					
RURAL	.37$	.01	-.06	-.19	.76$	.37$	-.07	.10	.17$	.20$
	(.14)	(.18)	(.17)	(.21)	(.26)	(.17)	(.11)	(.09)	(.08)	(.08)
					Model 6					
RURAL	.37$	.01	-.06	-.20	.76$	.36$	-.07	.09	.16$	.20$
	(.14)	(.18)	(.17)	(.21)	(.26)	(.17)	(.11)	(.09)	(.08)	(.08)
					Model 7					
RURAL	.36$	-.01	-.09	-.24	.75$	.31¶	-.10	.07	.14¶	.17$
	(.14)	(.18)	(.17)	(.22)	(.26)	(.17)	(.11)	(.09)	(.08)	(.08)
					Model 8					
RURAL	.36$	-.05	-.10	-.19	.74$	.31¶	-.11	.07	.14¶	.17$
	(.14)	(.18)	(.17)	(.21)	(.26)	(.17)	(.11)	(.09)	(.08)	(.08)
					Model 9					
RURAL	.40$	-.02	-.08	-.18	.73$	.31¶	-.09	.09	.16¶	.19$
	(.14)	(.18)	(.17)	(.22)	(.27)	(.17)	(.11)	(.09)	(.09)	(.08)
					Model 10					
RURAL	.39$	-.03	-.08	-.18	.73$	.31¶	-.10	.08	.15¶	.18$
	(.14)	(.18)	(.17)	(.22)	(.27)	(.17)	(.11)	(.09)	(.09)	(.08)
					Model 11					
RURAL	.37$	-.05	-.08	-.18	.72$	.31¶	-.10	.07	.14¶	.17$
	(.14)	(.19)	(.17)	(.22)	(.27)	(.17)	(.11)	(.09)	(.09)	(.08)
					Model 12					
RURAL	.37$	-.04	-.08	-.18	.72$	.31¶	-.09	.07	.14¶	.18$
	(.14)	(.19)	(.17)	(.22)	(.27)	(.17)	(.11)	(.09)	(.09)	(.08)
					Model 13					
RURAL	.33$	-.18	-.11	-.18	.73$	.23	-.17	.01	.09	.11
	(.15)	(.19)	(.18)	(.22)	(.27)	(.17)	(.11)	(.09)	(.09)	(.08)
					Model 14					
RURAL	.33$	-.21	-.12	-.17	.69$	.25	-.18¶	.01	.07	.10
	(.14)	(.19)	(.18)	(.22)	(.27)	(.17)	(.11)	(.09)	(.09)	(.08)
					Model 15					
RURAL	.32$	-.21	-.12	-.24	.68$	.28¶	-.19¶	-.01	.07	.10
	(.14)	(.19)	(.18)	(.22)	(.27)	(.17)	(.11)	(.09)	(.09)	(.08)
					Model 16					
RURAL	.31$	-.21	-.13	-.25	.68$	.28¶	-.19¶	-.13¶	.07	.11
	(.14)	(.19)	(.18)	(.22)	(.27)	(.17)	(.11)	(.08)	(.09)	(.08)
					Model 17					
RURAL	.31$	-.21	-.13	-.25	.68$	.27¶	-.19¶	-.01	.07	.11
	(.14)	(.19)	(.18)	(.22)	(.27)	(.17)	(.11)	(.09)	(.09)	(.08)

Note: Variables are abbreviated as shown in Table 1. Standard errors are in parentheses underneath the estimated logit coefficients.
* p<.01 ; $ p<.05 ; ¶ p<.10.
Model 1 = Baseline estimates; Model 2 = Model 1 +EAST+LITTO+NORTH+NWEST+WEST+SWEST;
Model 3 = Model 2 +MEDU; Model 4 = model 3 +EMPM; Model 5 = Model 4 +MSIT;
Model 6 = Model 5 +POLYG; Model 7 = Model 6 +CESETH+LITSWETH+ESETH+NORETH;
Model 8 = Model 7 +CATHOLIC+PROTEST+MUSLIM;
Model 9 = Model 8 +SEX+NDEL; Model 10 = Model 9 +FAGE+LAGE; Model 11 = Model 10 +SECO+THIR; Model 12 = Model 11 +PREP+STBI+ABOR; Model 13 = Model 12 +DELHOSP;
Model 14 = Model 13 +MEDASS; Model 15 = Model 14 +MOVE;
Model 16 = Model 15 +COHORT+PERIOD; Model 17 = Model 16 +QUAFAIR+QUAPOOR.

Table 3: Regional Differences in Infant and Child Mortality in Cameroon

	Age Intervals (in completed months)									
	0	1-3	4-7	8-11	12-23	24-59	1-11	0-11	0-23	0-59
						Model 1				
EAST	.94*	.15	.27	.44¶	.55§	.39§	.28§	.60*	.60*	.57*
	(.14)	(.22)	(.20)	(.25)	(.26)	(.18)	(.13)	(.10)	(.09)	(.08)
LITTO	.01	-.12	.10	.40¶	-.13	-.04	.11	.07	.05	.03
	(.16)	(.21)	(.19)	(.24)	(.28)	(.18)	(.12)	(.10)	(.10)	(.09)
NORTH	.50*	.46§	.10	.11	.80*	.31§	.25§	.36*	.43*	.42*
	(.13)	(.18)	(.18)	(.24)	(.22)	(.16)	(.11)	(.09)	(.08)	(.08)
NWEST	.29¶	-.10	-.28	-.64¶	.45¶	-.28	-.29§	-.03	.04	-.03
	(.16)	(.24)	(.24)	(.36)	(.26)	(.22)	(.15)	(.11)	(.10)	(.10)
WEST	.01	.39¶	.18	.47¶	.30	.50§	.33§	.23§	.24§	.31*
	(.18)	(.22)	(.22)	(.27)	(.29)	(.19)	(.14)	(.11)	(.11)	(.09)
SWEST	.36¶	.47¶	.15	-.20	1.45*	.28	.21	.28§	.52*	.47*
	(.21)	(.27)	(.29)	(.45)	(.27)	(.26)	(.18)	(.14)	(.13)	(.12)
						Model 2				
EAST	.82*	.14	.30	.48¶	.31	.25	.30§	.56*	.53*	.48*
	(.14)	(.23)	(.21)	(.27)	(.26)	(.19)	(.14)	(.10)	(.10)	(.09)
LITTO	.14	-.11	.07	.35	.22	.14	.09	.11	.13	.13
	(.17)	(.22)	(.20)	(.25)	(.30)	(.20)	(.13)	(.10)	(.10)	(.09)
NORTH	.41§	.45§	.13	.14	.60§	.20	.26§	.33*	.37*	.34*
	(.14)	(.18)	(.19)	(.25)	(.22)	(.17)	(.12)	(.09)	(.09)	(.08)
NWEST	.24	-.10	-.27	-.62¶	.34	-.34	-.28¶	-.05	.01	-.07
	(.16)	(.24)	(.24)	(.36)	(.27)	(.22)	(.16)	(.11)	(.11)	(.10)
WEST	-.05	.38¶	.20	.50¶	.17	.43§	.34§	.21§	.20§	.26§
	(.19)	(.22)	(.22)	(.27)	(.30)	(.19)	(.14)	(.11)	(.10)	(.10)
SWEST	.24	.46¶	.18	-.15	1.20*	.13	.23	.11	.45*	.38*
	(.22)	(.28)	(.30)	(.45)	(.27)	(.27)	(.19)	(.08)	(.13)	(.12)
						Model 3				
EAST	.78*	.07	.28	.45¶	.20	.17	.25¶	.51*	.47*	.41*
	(.14)	(.23)	(.21)	(.27)	(.27)	(.19)	(.14)	(.10)	(.10)	(.09)
LITTO	.12	-.14	.05	.33	.14	.08	.07	.09	.09	.09
	(.17)	(.22)	(.20)	(.25)	(.30)	(.20)	(.13)	(.10)	(.10)	(.09)
NORTH	.30§	.28	.07	.07	.34	-.01	.14	.21§	.23§	.16§
	(.15)	(.20)	(.20)	(.26)	(.24)	(.17)	(.13)	(.10)	(.09)	(.08)
NWEST	.15	-.25	-.32	-.68¶	.13	-.52§	-.38§	-.15	-.11	-.21§
	(.17)	(.24)	(.25)	(.37)	(.28)	(.23)	(.16)	(.12)	(.11)	(.10)
WEST	-.12	.26	.15	.44¶	-.03	.27	.26¶	.13	.10	.13
	(.19)	(.22)	(.23)	(.27)	(.30)	(.20)	(.14)	(.12)	(.11)	(.10)
SWEST	.20	.39	.15	-.18	1.09*	.06	.18	.19	.39*	.31§
	(.22)	(.28)	(.30)	(.45)	(.28)	(.27)	(.19)	(.15)	(.13)	(.12)
						Model 4				
EAST	.77*	.06	.27	.46¶	.21	.17	.25¶	.51*	.47*	.41*
	(.14)	(.23)	(.21)	(.27)	(.27)	(.19)	(.14)	(.10)	(.10)	(.09)
LITTO	.10	-.17	.02	.35	.19	.09	.05	.07	.09	.09
	(.17)	(.23)	(.20)	(.25)	(.30)	(.19)	(.13)	(.10)	(.10)	(.09)
NORTH	.26	.22	-.01	.12	.37	.02	.11	.18¶	.22§	.16¶
	(.15)	(.20)	(.21)	(.27)	(.24)	(.18)	(.13)	(.10)	(.10)	(.08)
NWEST	.16	-.24	-.31	-.69¶	.12	-.52§	-.37§	-.14	-.11	-.21§
	(.17)	(.25)	(.25)	(.37)	(.28)	(.23)	(.16)	(.12)	(.11)	(.10)
WEST	-.13	.25	.13	.46¶	.09	.27	.25¶	.12	.10	.31§
	(.19)	(.22)	(.23)	(.28)	(.30)	(.20)	(.14)	(.12)	(.11)	(.12)
SWEST	.18	.37	.12	-.16	1.14*	.06	.16	.17	.39*	.20§
	(.22)	(.28)	(.30)	(.46)	(.28)	(.27)	(.19)	(.15)	(.13)	(.08)

Table 3 (con):

						Model 5				
EAST	.73*	.06	.26	.43¶	.17	.12	.23	.48*	.44*	.38*
	(.15)	(.23)	(.21)	(.27)	(.27)	(.19)	(.14)	(.10)	(.10)	(.09)
LITTO	.09	-.15	.03	.35	.18	.08	.06	.07	.09	.09
	(.17)	(.22)	(.20)	(.25)	(.30)	(.20)	(.13)	(.11)	(.10)	(.09)
NORTH	.19	.23	-.02	.06	.41¶	-.04	.09	.13	.17¶	.12
	(.15)	(.20)	(.21)	(.27)	(.25)	(.18)	(.13)	(.10)	(.10)	(.09)
NWEST	.12	-.21	-.30	-.70¶	.10	-.54$	-.36$	-.15	-.12	-.22$
	(.17)	(.25)	(.25)	(.37)	(.28)	(.23)	(.16)	(.12)	(.11)	(.10)
WEST	-.26	.28	.11	.38	-.08	.18	.24¶	.06	.03	.06
	(.19)	(.23)	(.23)	(.28)	(.31)	(.20)	(.14)	(.12)	(.11)	(.10)
SWEST	.16	.33	.10	-.19	1.11*	.03	.13	.15	.36$	.28$
	(.22)	(.28)	(.30)	(.46)	(.28)	(.27)	(.19)	(.15)	(.13)	(.12)
						Model 6				
EAST	.82*	-.19	-.08	.38	.25	.28	-.01	.42*	.39*	.38*
	(.20)	(.32)	(.30)	(.36)	(.38)	(.26)	(.19)	(.14)	(.13)	(.12)
LITTO	.32¶	-.11	.08	.41	.29	.11	.11	.19	.21¶	.20¶
	(.21)	(.28)	(.25)	(.32)	(.40)	(.25)	(.17)	(.13)	(.13)	(.12)
NORTH	.17	.12	-.48	-.15	.54	-.15	-.18	-.02	.06	.02
	(.27)	(.37)	(.34)	(.49)	(.49)	(.35)	(.23)	(.18)	(.17)	(.16)
NWEST	.31	-.08	-.11	-.52	.24	-.37	-.19	.03	.06	-.04
	(.23)	(.33)	(.32)	(.44)	(.42)	(.30)	(.21)	(.15)	(.15)	(.13)
WEST	-.07	.41	.33	.57¶	.05	.37	.42$	.24¶	.21¶	.26$
	(.25)	(.32)	(.31)	(.38)	(.44)	(.29)	(.20)	(.16)	(.15)	(.13)
SWEST	.44¶	.39	.16	-.11	1.24*	.06	.20	.30¶	.51*	.42$
	(.27)	(.35)	(.36)	(.51)	(.41)	(.33)	(.23)	(.18)	(.17)	(.15)
						Model 7				
EAST	.81*	-.18	-.11	.36	.25	.26	-.01	.42*	.39*	.38*
	(.20)	(.32)	(.30)	(.36)	(.38)	(.26)	(.19)	(.14)	(.13)	(.12)
LITTO	.33¶	-.12	.08	.42	.30	.13	.11	.19	.21¶	.20¶
	(.21)	(.28)	(.25)	(.32)	(.40)	(.26)	(.16)	(.13)	(.13)	(.12)
NORTH	.23	.08	-.55¶	-.07	.46	-.13	-.20	-.01	.05	.02
	(.27)	(.38)	(.35)	(.48)	(.49)	(.35)	(.23)	(.18)	(.17)	(.16)
NWEST	.33	.01	-.10	-.57	.25	-.33	-.17	.05	.08	-.01
	(.23)	(.33)	(.32)	(.45)	(.42)	(.30)	(.21)	(.16)	(.15)	(.14)
WEST	-.01	.33	.25	.67¶	-.06	.38	.38$	.24¶	.20	.25¶
	(.25)	(.33)	(.32)	(.39)	(.45)	(.29)	(.20)	(.16)	(.15)	(.14)
SWEST	.47¶	.40	.17	-.11	1.23*	.11	.21	.31¶	.52*	.44$
	(.27)	(.36)	(.36)	(.51)	(.41)	(.33)	(.23)	(.18)	(.16)	(.15)
						Model 8				
EAST	.86*	-.16	-.11	.38	.28	.26	.01	.44*	.42*	.40*
	(.20)	(.33)	(.30)	(.36)	(.38)	(.26)	(.19)	(.14)	(.13)	(.12)
LITTO	.34¶	-.11	.08	.43	.32	.14	.11	.19	.22¶	.21¶
	(.21)	(.28)	(.25)	(.32)	(.40)	(.26)	(.17)	(.13)	(.13)	(.12)
NORTH	.29	.13	-.52¶	-.05	.49	-.11	-.18	.05	.10	.05
	(.27)	(.38)	(.35)	(.48)	(.49)	(.35)	(.23)	(.18)	(.18)	(.16)
NWEST	.31	-.03	-.14	-.60	.23	-.34	-.20	.02	.04	-.04
	(.23)	(.33)	(.32)	(.45)	(.42)	(.31)	(.21)	(.16)	(.15)	(.14)
WEST	.01	.30	.22	.68¶	-.06	.37	.36¶	.24¶	.19	.25¶
	(.25)	(.33)	(.32)	(.39)	(.45)	(.29)	(.20)	(.16)	(.15)	(.14)
SWEST	.45¶	.40	.16	-.11	1.23*	.11	.19	.29¶	.51*	.42$
	(.27)	(.35)	(.36)	(.51)	(.41)	(.33)	(.23)	(.18)	(.17)	(.15)
						Model 9				
EAST	.87*	-.16	-.10	.38	.27	.25	.01	.44*	.42*	.39*
	(.20)	(.33)	(.30)	(.36)	(.38)	(.26)	(.19)	(.14)	(.13)	(.12)
LITTO	.35¶	-.10	.09	.45	.33	.12	.12	.20¶	.22¶	.21¶
	(.21)	(.28)	(.25)	(.32)	(.40)	(.26)	(.17)	(.13)	(.13)	(.12)
NORTH	.29	.15	-.50	-.06	.49	-.10	-.17	.05	.10	.06
	(.27)	(.38)	(.35)	(.48)	(.49)	(.35)	(.23)	(.18)	(.18)	(.16)
NWEST	.32	-.01	-.11	-.60	.24	-.34	-.19	.03	.06	-.03
	(.23)	(.33)	(.32)	(.45)	(.42)	(.31)	(.21)	(.16)	(.15)	(.14)
WEST	.01	.31	.23	.70¶	-.05	.36	.37¶	.25¶	.20	.25¶
	(.25)	(.33)	(.32)	(.39)	(.45)	(.30)	(.20)	(.16)	(.15)	(.14)
SWEST	.46¶	.40	.17	-.09	1.24*	.10	.20	.30¶	.51*	.42$
	(.27)	(.36)	(.36)	(.52)	(.42)	(.33)	(.23)	(.18)	(.16)	(.15)

Table 3 (con):

						Model 10				
EAST	.79*	-.37	-.17	.31	.21	.13	-.11	.34§	.32§	.29§
	(.20)	(.34)	(.31)	(.37)	(.39)	(.27)	(.20)	(.15)	(.14)	(.12)
LITTO	.36¶	-.08	.10	.45	.34	.15	.14	.22¶	.24¶	.23¶
	(.21)	(.28)	(.25)	(.32)	(.40)	(.26)	(.17)	(.13)	(.13)	(.12)
NORTH	.24	-.01	-.56¶	-.11	.44	-.20	-.26	-.03	.03	-.03
	(.28)	(.40)	(.36)	(.49)	(.50)	(.36)	(.24)	(.19)	(.18)	(.16)
NWEST	.33	.01	-.11	-.60	.24	-.33	-.18	.04	.07	-.02
	(.23)	(.34)	(.32)	(.45)	(.42)	(.31)	(.21)	(.16)	(.15)	(.14)
WEST	.01	.29	.23	.69¶	-.06	.35	.37¶	.25	.20	.25¶
	(.26)	(.34)	(.32)	(.39)	(.45)	(.30)	(.20)	(.16)	(.16)	(.14)
SWEST	.47¶	.39	.16	-.09	1.24*	.11	.19	.30¶	.51*	.42§
	(.27)	(.36)	(.36)	(.52)	(.42)	(.34)	(.23)	(.18)	(.16)	(.15)
						Model 11				
EAST	.79*	-.39	-.18	.32	.20	.14	-.12	.33§	.31§	.28§
	(.20)	(.34)	(.31)	(.37)	(.39)	(.27)	(.20)	(.15)	(.14)	(.12)
LITTO	.36¶	-.10	.08	.46	.33	.16	.12	.21¶	.23¶	.22¶
	(.21)	(.29)	(.25)	(.32)	(.40)	(.26)	(.17)	(.13)	(.13)	(.12)
NORTH	.23	-.03	-.58¶	-.10	.42	-.19	-.28	-.04	.02	-.03
	(.28)	(.40)	(.36)	(.49)	(.50)	(.36)	(.24)	(.19)	(.18)	(.16)
NWEST	.33	-.01	-.11	-.60	.24	-.33	-.18	.04	.06	-.02
	(.23)	(.34)	(.32)	(.45)	(.42)	(.31)	(.21)	(.16)	(.15)	(.14)
WEST	.01	.27	.21	.69¶	-.07	.36	.36¶	.24¶	.19	.24¶
	(.26)	(.34)	(.32)	(.39)	(.45)	(.30)	(.20)	(.16)	(.16)	(.14)
SWEST	.46	.38	.16	-.09	1.24*	.12	.18	.29¶	.51*	.42§
	(.27)	(.36)	(.36)	(.52)	(.42)	(.34)	(.23)	(.18)	(.17)	(.15)
						Model 12				
EAST	.79*	-.39	-.18	.32	.20	.13	-.12	.33§	.31§	.28§
	(.20)	(.34)	(.31)	(.37)	(.39)	(.27)	(.20)	(.15)	(.14)	(.12)
LITTO	.36¶	-.10	.08	.44	.33	.18	.12	.20¶	.22¶	.22¶
	(.21)	(.29)	(.26)	(.32)	(.41)	(.26)	(.17)	(.13)	(.13)	(.12)
NORTH	.19	-.02	-.57¶	-.29	.42	-.08	-.32	-.08	-.02	-.04
	(.28)	(.40)	(.37)	(.51)	(.50)	(.36)	(.25)	(.19)	(.18)	(.17)
NWEST	.28	.01	-.10	-.79¶	.23	-.21	-.23	-.01	.02	-.03
	(.24)	(.35)	(.33)	(.46)	(.43)	(.31)	(.22)	(.16)	(.16)	(.14)
WEST	-.04	.28	.22	.50	-.08	.49¶	.31	.19	.14	.23¶
	(.26)	(.35)	(.33)	(.40)	(.47)	(.30)	(.21)	(.17)	(.16)	(.14)
SWEST	.46¶	.38	.16	-.10	1.24*	.13	.18	.29¶	.50*	.42§
	(.27)	(.36)	(.36)	(.52)	(.42)	(.34)	(.23)	(.18)	(.16)	(.15)

Table 3 (con):

						Model 13				
EAST	.79*	-.39	-.18	.33	.19	.13	-.12	.33§	.31§	.28§
	(.20)	(.34)	(.31)	(.37)	(.39)	(.27)	(.20)	(.15)	(.14)	(.12)
LITTO	.35¶	-.10	.08	.45	.32	.17	.12	.20¶	.22¶	.22¶
	(.21)	(.29)	(.26)	(.32)	(.41)	(.26)	(.17)	(.13)	(.13)	(.12)
NORTH	.19	-.02	-.57¶	-.28	.41	-.08	-.32	-.08	-.02	-.04
	(.28)	(.40)	(.37)	(.50)	(.51)	(.36)	(.25)	(.19)	(.18)	(.17)
NWEST	.29	.01	-.10	-.80¶	.23	-.21	-.23	-.01	.02	-.03
	(.24)	(.35)	(.33)	(.46)	(.43)	(.31)	(.22)	(.16)	(.15)	(.14)
WEST	-.04	.28	.22	.50	-.09	.48¶	.31	.19	.14	.23¶
	(.26)	(.35)	(.33)	(.40)	(.47)	(.30)	(.21)	(.17)	(.16)	(.14)
SWEST	.46¶	.38	.16	-.10	1.24*	.14	.18	.29¶	.51*	.43§
	(.27)	(.36)	(.36)	(.52)	(.42)	(.34)	(.23)	(.18)	(.17)	(.15)
						Model 14				
EAST	.79*	-.36	-.19	.30	.17	.16	-.12	.34§	.31§	.29§
	(.20)	(.34)	(.31)	(.37)	(.39)	(.27)	(.20)	(.15)	(.14)	(.12)
LITTO	.35¶	-.10	.08	.47	.33	.16	.12	.20	.22¶	.22¶
	(.21)	(.29)	(.26)	(.32)	(.41)	(.26)	(.17)	(.13)	(.13)	(.12)
NORTH	.21	.01	-.60¶	-.26	.42	-.03	-.31	-.07	-.01	-.02
	(.28)	(.41)	(.37)	(.50)	(.51)	(.36)	(.25)	(.19)	(.18)	(.17)
NWEST	.30	.05	-.13	-.83¶	.22	-.18	-.23	.01	.02	-.02
	(.24)	(.35)	(.33)	(.46)	(.43)	(.31)	(.22)	(.16)	(.15)	(.14)
WEST	-.03	.28	.20	.56	-.04	.54¶	.31	.20	.15	.25¶
	(.26)	(.35)	(.33)	(.40)	(.47)	(.30)	(.21)	(.17)	(.16)	(.15)
SWEST	.49¶	.42	.12	-.10	1.24*	.20	.19	.30¶	.52*	.45*
	(.27)	(.37)	(.36)	(.52)	(.42)	(.34)	(.23)	(.18)	(.17)	(.15)

Note: Variables are abbreviated as shown in Table 1. Standard errors are in parentheses underneath the estimated logit coefficients.
* p<.01 ; § p<.05 ; ¶ p<.10.
Model 1 = Baseline estimates;
Model 2 = Model 1 +RURAL;
Model 3 = Model 2 +MEDU;
Model 4 = model 3 +EMPM;
Model 5 = Model 4 +MSIT+POLYG;
Model 6 = Model 5 +CESETH+LITSWETH+ESETH+NORETH;
Model 7 = Model 6 +CATHOLIC+PROTEST+MUSLIM;
Model 8 = Model 7 +SEX+NDEL+FAGE+LAGE+SECO+THIR;
Model 9 = Model 8 +PREP+STBI+ABOR;
Model 10 = Model 9 +DELHOSP;
Model 11 = Model 10 +MEDASS;
Model 12 = Model 11 +MOVE;
Model 13 = Model 12 +COHORT+PERIOD;
Model 14 = Model 13 +QUAFAIR+QUAPOOR.

Table 4: Differences in Infant and Child Mortality Between Yaounde-Douala and the Countryside

	Age Intervals (in completed months)									
	0	1-3	4-7	8-11	12-23	24-59	1-11	0-11	0-23	0-59
						Model 1				
YAOUNDE	-.75*	.20	-.04	-.13	-1.80*	-.48§	.04	-.25§	-.39*	-.42*
	(.21)	(.21)	(.23)	(.31)	(.56)	(.24)	(.14)	(.12)	(.12)	(.11)
DOUALA	-.40§	-.41¶	.03	.24	-.77§	-.47§	-.05	-.19§	-.27§	-.32*
	(.16)	(.23)	(.19)	(.23)	(.30)	(.20)	(.13)	(.10)	(.10)	(.09)
						Model 2				
YAOUNDE	-.63*	.43¶	.01	-.10	-1.50§	-.28	.16	-.12	-.24§	-.24§
	(.21)	(.22)	(.24)	(.32)	(.57)	(.25)	(.15)	(.13)	(.12)	(.11)
DOUALA	-.30¶	-.22	.08	.27	-.52¶	-.29	.06	-.09	-.14	-.16¶
	(.16)	(.24)	(.20)	(.24)	(.31)	(.21)	(.13)	(.10)	(.10)	(.09)
						Model 3				
YAOUNDE	-.64*	.39¶	-.02	-.09	-1.46§	-.28	.14	-.14	-.24§	-.24§
	(.21)	(.22)	(.24)	(.32)	(.56)	(.25)	(.15)	(.13)	(.12)	(.11)
DOUALA	-.31¶	-.29	.01	.29	-.43	-.28	.01	-.12	-.15	-.16¶
	(.17)	(.24)	(.21)	(.24)	(.31)	(.22)	(.13)	(.11)	(.10)	(.09)
						Model 4				
YAOUNDE	-.64*	.39	-.03	-.09	-1.46§	-.28	.13	-.15	-.25§	-.25§
	(.22)	(.22)	(.24)	(.32)	(.57)	(.25)	(.15)	(.13)	(.12)	(.11)
DOUALA	-.30¶	-.27	.03	.31	-.42	-.27	.03	-.11	-.14	-.15¶
	(.17)	(.24)	(.21)	(.24)	(.31)	(.22)	(.13)	(.11)	(.10)	(.09)
						Model 5				
YAOUNDE	-.60*	.39	-.02	-.05	-1.43§	-.24	.15	-.12	-.22¶	-.22§
	(.22)	(.22)	(.25)	(.33)	(.57)	(.25)	(.15)	(.13)	(.12)	(.11)
DOUALA	-.26¶	-.27	.04	.35	-.39	-.23	.05	-.08	-.11	-.12
	(.17)	(.24)	(.21)	(.25)	(.31)	(.22)	(.14)	(.11)	(.10)	(.10)
						Model 6				
YAOUNDE	-.56§	.48§	.04	-.02	-1.38§	-.25	.21	-.07	-.17	-.19¶
	(.23)	(.23)	(.25)	(.33)	(.57)	(.26)	(.15)	(.13)	(.13)	(.12)
DOUALA	-.14	-.21	.09	.37	-.39	-.23	.09	.01	-.04	-.07
	(.17)	(.25)	(.22)	(.26)	(.32)	(.22)	(.14)	(.11)	(.11)	(.10)
						Model 7				
YAOUNDE	-.58§	.46§	.05	-.01	-1.38§	-.25	.21	-.08	-.17	-.19¶
	(.23)	(.23)	(.25)	(.33)	(.57)	(.26)	(.15)	(.13)	(.13)	(.12)
DOUALA	-.16	-.22	.12	.38	-.39	-.21	.10	-.01	-.07	-.06
	(.17)	(.25)	(.22)	(.26)	(.32)	(.22)	(.14)	(.11)	(.11)	(.10)
						Model 8				
YAOUNDE	-.56§	.47§	.05	-.01	-1.38§	-.25	.21	-.06	-.16	-.18¶
	(.23)	(.23)	(.25)	(.33)	(.57)	(.26)	(.15)	(.13)	(.13)	(.12)
DOUALA	-.20	-.24	.11	.38	-.39	-.21	.09	-.03	-.05	-.08
	(.17)	(.25)	(.22)	(.26)	(.32)	(.23)	(.14)	(.11)	(.11)	(.10)
						Model 9				
YAOUNDE	-.56§	.49§	.06	-.01	-1.37§	-.25	.22	-.05	-.16	-.17
	(.23)	(.23)	(.25)	(.33)	(.57)	(.26)	(.16)	(.13)	(.13)	(.12)
DOUALA	-.19	-.22	.12	.38	-.37	-.20	.10	-.02	-.05	-.07
	(.17)	(.25)	(.22)	(.26)	(.32)	(.23)	(.14)	(.11)	(.11)	(.10)
						Model 10				
YAOUNDE	-.56§	.48§	.06	-.01	-1.37§	-.25	.22	-.05	-.16	-.17
	(.23)	(.23)	(.25)	(.33)	(.57)	(.26)	(.16)	(.13)	(.13)	(.12)
DOUALA	-.19	-.23	.12	.38	-.37	-.20	.10	-.02	-.06	-.07
	(.17)	(.25)	(.22)	(.26)	(.32)	(.23)	(.14)	(.11)	(.11)	(.10)
						Model 11				
YAOUNDE	-.57§	.47§	.04	-.01	-1.37§	-.24	.20	-.07	-.17	-.18
	(.23)	(.23)	(.25)	(.33)	(.57)	(.26)	(.16)	(.13)	(.13)	(.12)
DOUALA	-.19	-.24	.11	.38	-.37	-.21	.09	-.02	-.06	-.08
	(.18)	(.25)	(.22)	(.26)	(.32)	(.23)	(.14)	(.11)	(.11)	(.10)
						Model 12				
YAOUNDE	-.51§	.58§	.06	-.03	-1.32§	-.17	.26¶	-.01	-.11	-.12
	(.23)	(.24)	(.25)	(.33)	(.57)	(.26)	(.16)	(.13)	(.13)	(.12)
DOUALA	-.11	-.09	.13	.38	-.31	-.12	.16	.05	.02	.01
	(.18)	(.26)	(.22)	(.26)	(.32)	(.23)	(.14)	(.11)	(.11)	(.10)

Table 4 (con):

						Model 13				
YAOUNDE	-.49§	.62§	.09	-.02	-1.30§	-.19	.28¶	.01	-.11	-.11
	(.23)	(.24)	(.25)	(.33)	(.57)	(.26)	(.16)	(.13)	(.13)	(.12)
DOUALA	-.10	-.07	.14	.38	-.30	-.12	.17	.06	.02	.01
	(.18)	(.26)	(.22)	(.26)	(.32)	(.23)	(.14)	(.12)	(.11)	(.10)
						Model 14				
YAOUNDE	-.49§	.62	.08	.01	-1.30§	-.21	.29¶	.02	-.09	-.11
	(.23)	(.24)	(.25)	(.33)	(.57)	(.26)	(.16)	(.13)	(.13)	(.12)
DOUALA	-.10	-.07	.14	.42¶	-.30	-.17	.19	.07	.03	.01
	(.18)	(.26)	(.22)	(.26)	(.33)	(.23)	(.15)	(.12)	(.11)	(.10)
						Model 15				
YAOUNDE	-.49§	.62§	.08	.05	-1.31§	-.22	.29	.02	-.09	-.12
	(.23)	(.24)	(.25)	(.34)	(.57)	(.26)	(.16)	(.13)	(.13)	(.12)
DOUALA	-.10	-.07	.14	.42¶	-.31	-.18	.19	.07	.03	-.01
	(.18)	(.26)	(.22)	(.26)	(.33)	(.23)	(.15)	(.12)	(.11)	(.10)
						Model 16				
YAOUNDE	-.50§	.59§	.09	.04	-1.29§	-.25	.28¶	.01	-.09	-.12
	(.23)	(.24)	(.25)	(.34)	(.57)	(.26)	(.16)	(.13)	(.13)	(.12)
DOUALA	-.08	-.06	.12	.49¶	-.29	-.15	.19	.08	.04	.01
	(.18)	(.26)	(.22)	(.27)	(.33)	(.23)	(.15)	(.12)	(.11)	(.10)

Note: Variables are abbreviated as shown in Table 1. Standard errors are in parentheses underneath the estimated logit coefficients.
* p<.01 ; § p<.05 ; ¶ p<.10.
Model 1 = Baseline estimates;
Model 2 = Model 1 +MEDU;
Model 3 = model 2 +EMPM;
Model 4 = Model 3 +MSIT;
Model 5 = Model 4 +POLYG;
Model 6 = Model 5 +CESETH+LITSWETH+ESETH+NORETH;
Model 7 = Model 6 +CATHOLIC+PROTEST+MUSLIM;
Model 8 = Model 7 +SEX+NDEL;
Model 9 = Model 8 +FAGE+LAGE;
Model 10 = Model 9 +SECO+THIR;
Model 11 = Model 10 +PREP+STBI+ABOR;
Model 12 = Model 11 +DELHOSP;
Model 13 = Model 12 +MEDASS;
Model 14 = Model 13 +MOVE;
Model 15 = Model 14 +COHORT+PERIOD;
Model 16 = Model 15 +QUAFAIR+QUAPOOR.

Table 5: Infuences of Ethnicity on Infant and Child Mortality in Cameroon

	Age Intervals (in completed months)									
	0	1-3	4-7	8-11	12-23	24-59	1-11	0-11	0-23	0-59
						Model 1				
CESETH	-.03	-.05	.06	-.01	-.21	.01	.01	-.01	-.03	-.02
	(.12)	(.18)	(.17)	(.21)	(.21)	(.15)	(.11)	(.08)	(.08)	(.07)
LITSWETH	-.32¶	.11	.30¶	.22	.14	.12	.22¶	.02	.04	.07
	(.17)	(.22)	(.20)	(.25)	(.24)	(.19)	(.13)	(.11)	(.10)	(.09)
ESETH	.66*	.55§	.74*	.48¶	.32	.26	.63*	.66*	.63*	.57*
	(.14)	(.22)	(.20)	(.27)	(.27)	(.21)	(.13)	(.10)	(.10)	(.09)
NORETH	.28§	.40§	.25¶	.06	.42§	.27§	.27§	.28*	.31*	.32*
	(.10)	(.15)	(.16)	(.20)	(.17)	(.13)	(.10)	(.07)	(.07)	(.06)
						Model 2				
CESETH	.03	.05	.08	.01	-.01	.16	.06	.05	.05	.09
	(.12)	(.18)	(.18)	(.21)	(.21)	(.15)	(.11)	(.08)	(.08)	(.07)
LITSWETH	-.26	.21	.31	.23	.36	.28	.27§	.08	.13	.18§
	(.18)	(.22)	(.21)	(.26)	(.25)	(.19)	(.13)	(.11)	(.10)	(.09)
ESETH	.62*	.49§	.73*	.48¶	.22	.20	.60*	.63*	.58*	.52*
	(.14)	(.22)	(.20)	(.27)	(.27)	(.21)	(.13)	(.10)	(.10)	(.09)
NORETH	.22§	.30§	.24	.05	.24	.15	.22§	.22§	.23*	.21*
	(.11)	(.15)	(.16)	(.20)	(.17)	(.14)	(.10)	(.08)	(.07)	(.06)
						Model 3				
CESETH	.03	.06	.09	.01	-.04	.15	.07	.06	.05	.09
	(.12)	(.18)	(.18)	(.22)	(.21)	(.15)	(.11)	(.09)	(.08)	(.07)
LITSWETH	-.26	.19	.29	.23	.41¶	.29	.26§	.07	.13	.18§
	(.18)	(.22)	(.21)	(.26)	(.25)	(.19)	(.13)	(.11)	(.10)	(.09)
ESETH	.62*	.50§	.75*	.48¶	.20	.19	.61*	.64*	.58*	.52*
	(.14)	(.22)	(.20)	(.27)	(.27)	(.22)	(.14)	(.10)	(.10)	(.09)
NORETH	.22§	.25¶	.18	.05	.38§	.19	.18¶	.20§	.23*	.22*
	(.11)	(.16)	(.17)	(.21)	(.18)	(.14)	(.10)	(.08)	(.07)	(.07)
						Model 4				
CESETH	.01	.04	.07	-.02	-.06	.13	.05	.03	.02	.06
	(.12)	(.18)	(.18)	(.22)	(.22)	(.15)	(.11)	(.09)	(.08)	(.07)
LITSWETH	-.29¶	.15	.25	.18	.36	.24	.21¶	.02	.08	.13
	(.18)	(.22)	(.21)	(.26)	(.25)	(.19)	(.13)	(.11)	(.10)	(.09)
ESETH	.61*	.48§	.73*	.45¶	.17	.16	.59*	.62*	.57*	.50*
	(.14)	(.22)	(.21)	(.27)	(.27)	(.22)	(.14)	(.10)	(.10)	(.09)
NORETH	.20¶	.23	.17	.03	.35§	.17	.16¶	.19§	.21*	.20§
	(.11)	(.16)	(.17)	(.21)	(.18)	(.14)	(.10)	(.08)	(.07)	(.07)
						Model 5				
CESETH	.06	.04	.09	.02	-.02	.18	.07	.07	.06	.10
	(.12)	(.18)	(.18)	(.22)	(.22)	(.16)	(.11)	(.09)	(.08)	(.07)
LITSWETH	-.24	.15	.27	.23	.40¶	.29	.23¶	.06	.12	.17¶
	(.18)	(.22)	(.21)	(.26)	(.25)	(.20)	(.14)	(.11)	(.10)	(.09)
ESETH	.65*	.48§	.74*	.48¶	.20	.20	.61*	.65*	.60*	.53*
	(.14)	(.22)	(.21)	(.28)	(.27)	(.22)	(.14)	(.10)	(.10)	(.09)
NORETH	.19¶	.23	.16	.02	.35§	.16	.16¶	.18§	.20§	.19§
	(.11)	(.16)	(.17)	(.21)	(.18)	(.14)	(.10)	(.08)	(.07)	(.07)
						Model 6				
CESETH	.28¶	.13	.15	.14	.30	.27	.14	.21¶	.22¶	.25§
	(.18)	(.27)	(.26)	(.31)	(.33)	(.23)	(.16)	(.12)	(.12)	(.11)
LITSWETH	-.19	.16	.25	.16	.12	.36	.21	.07	.07	.15
	(.20)	(.26)	(.24)	(.30)	(.29)	(.23)	(.15)	(.12)	(.12)	(.11)
ESETH	.15	.70§	.97*	.42	.11	-.01	.76*	.46*	.42*	.34*
	(.18)	(.31)	(.29)	(.36)	(.35)	(.27)	(.19)	(.13)	(.13)	(.12)
NORETH	.24	.23	.69§	.39	.05	.35	.45§	.35§	.32§	.32§
	(.24)	(.34)	(.32)	(.45)	(.44)	(.33)	(.21)	(.17)	(.16)	(.15)

Table 5 (con):

						Model 7				
CESETH	.22	.13	.17	.19	.16	.19	.17	.19	.19¶	.21§
	(.18)	(.28)	(.26)	(.31)	(.36)	(.24)	(.17)	(.13)	(.12)	(.11)
LITSWETH	-.26	.16	.27	.21	.02	.29	.23¶	.05	.05	.11
	(.20)	(.26)	(.24)	(.30)	(.29)	(.23)	(.16)	(.13)	(.12)	(.10)
ESETH	.14	.71§	.98*	.43	.08	-.02	.76*	.46*	.42*	.33§
	(.18)	(.31)	(.29)	(.36)	(.35)	(.27)	(.19)	(.13)	(.13)	(.12)
NORETH	.21	.23	.70§	.42	.08	.32	.46§	.34§	.30¶	.30§
	(.24)	(.35)	(.32)	(.45)	(.43)	(.33)	(.21)	(.17)	(.16)	(.15)
						Model 8				
CESETH	.21	.12	.16	.19	.16	.16	.16	.18	.18	.19¶
	(.18)	(.28)	(.26)	(.31)	(.36)	(.24)	(.17)	(.13)	(.12)	(.11)
LITSWETH	-.25	.16	.28	.20	.01	.30	.23¶	.06	.05	.12
	(.20)	(.26)	(.24)	(.30)	(.29)	(.23)	(.16)	(.13)	(.12)	(.11)
ESETH	.16	.75§	.98*	.42	.08	-.01	.77*	.47*	.43*	.35§
	(.18)	(.31)	(.29)	(.36)	(.36)	(.27)	(.19)	(.13)	(.13)	(.12)
NORETH	.29	.20	.60¶	.45	-.10	.30	.43§	.36§	.30¶	.30§
	(.25)	(.36)	(.33)	(.45)	(.45)	(.33)	(.22)	(.17)	(.16)	(.15)
						Model 9				
CESETH	.24	.13	.16	.21	.17	.15	.18	.20¶	.20¶	.21§
	(.19)	(.28)	(.26)	(.32)	(.36)	(.24)	(.17)	(.13)	(.12)	(.11)
LITSWETH	-.26	.14	.25	.19	.01	.30	.22	.06	.04	.11
	(.20)	(.26)	(.24)	(.30)	(.29)	(.23)	(.16)	(.13)	(.12)	(.11)
ESETH	.16	.81§	1.00*	.44	.09	.01	.81*	.46*	.44*	.35§
	(.18)	(.32)	(.29)	(.36)	(.36)	(.27)	(.19)	(.14)	(.13)	(.12)
NORETH	.27	.20	.59¶	.44	-.10	.30	.43§	.32¶	.28¶	.28¶
	(.25)	(.36)	(.33)	(.45)	(.45)	(.33)	(.22)	(.17)	(.17)	(.15)
						Model 10				
CESETH	.25	.12	.15	.22	.20	.17	.17	.22¶	.20¶	.22§
	(.19)	(.28)	(.26)	(.32)	(.36)	(.24)	(.17)	(.13)	(.12)	(.11)
LITSWETH	-.25	.16	.26	.20	.02	.30	.23	.08	.06	.13
	(.21)	(.26)	(.24)	(.30)	(.29)	(.23)	(.16)	(.13)	(.12)	(.11)
ESETH	.14	.78§	.99*	.43	.06	-.01	.79*	.45*	.41*	.33§
	(.18)	(.31)	(.29)	(.36)	(.36)	(.27)	(.19)	(.14)	(.13)	(.12)
NORETH	.25	.18	.59¶	.42	-.14	.28	.41¶	.33§	.25	.25¶
	(.25)	(.36)	(.33)	(.45)	(.45)	(.33)	(.22)	(.17)	(.17)	(.15)
						Model 11				
CESETH	.27	.16	.16	.22	.19	.16	.19	.22¶	.22¶	.23§
	(.19)	(.28)	(.26)	(.32)	(.36)	(.24)	(.17)	(.13)	(.12)	(.11)
LITSWETH	-.23	.19	.26	.20	.02	.29	.25	.08	.07	.14
	(.21)	(.26)	(.24)	(.30)	(.29)	(.23)	(.16)	(.13)	(.12)	(.11)
ESETH	.13	.77§	.99*	.43	.06	.01	.78*	.46*	.40*	.32§
	(.18)	(.31)	(.29)	(.36)	(.36)	(.27)	(.19)	(.14)	(.13)	(.12)
NORETH	.27	.19	.59¶	.42	-.15	.27	.42§	.34§	.25	.26¶
	(.25)	(.36)	(.33)	(.45)	(.45)	(.33)	(.22)	(.18)	(.17)	(.15)
						Model 12				
CESETH	.28	.16	.15	.23	.20	.14	.18	.22¶	.22¶	.22§
	(.19)	(.28)	(.26)	(.32)	(.36)	(.24)	(.17)	(.13)	(.12)	(.11)
LITSWETH	-.22	.18	.26	.22	.02	.28	.23	.08	.06	.13
	(.21)	(.26)	(.24)	(.30)	(.29)	(.23)	(.16)	(.13)	(.12)	(.11)
ESETH	.13	.78§	.99*	.43	.07	.01	.79*	.46*	.41*	.33§
	(.18)	(.31)	(.29)	(.36)	(.36)	(.27)	(.19)	(.14)	(.13)	(.12)
NORETH	.28	.20	.59	.41	-.14	.28	.42§	.33¶	.26	.27¶
	(.25)	(.36)	(.33)	(.45)	(.45)	(.33)	(.22)	(.17)	(.17)	(.15)
						Model 13				
CESETH	.28	.12	.14	.22	.18	.12	.16	.21¶	.21¶	.21§
	(.19)	(.28)	(.26)	(.32)	(.36)	(.25)	(.17)	(.13)	(.12)	(.11)
LITSWETH	-.25	.09	.24	.20	-.03	.22	.20	.04	.03	.09
	(.21)	(.26)	(.24)	(.30)	(.29)	(.23)	(.16)	(.13)	(.12)	(.11)
ESETH	.09	.69§	.97*	.39	.04	-.04	.74*	.40§	.37§	.28§
	(.18)	(.31)	(.29)	(.36)	(.36)	(.27)	(.19)	(.14)	(.13)	(.12)
NORETH	.27	.15	.58¶	.40	-.16	.27	.40¶	.32¶	.25	.25¶
	(.26)	(.37)	(.33)	(.46)	(.45)	(.34)	(.23)	(.18)	(.17)	(.16)

Table 5 (con):

						Model 14				
CESETH	.27	.10	.13	.22	.17	.13	.16	.20¶	.20¶	.20¶
	(.19)	(.29)	(.26)	(.32)	(.37)	(.25)	(.17)	(.13)	(.12)	(.11)
LITSWETH	-.26	.08	.23	.20	-.04	.23	.19	.03	.02	.08
	(.21)	(.26)	(.24)	(.30)	(.30)	(.23)	(.16)	(.13)	(.12)	(.11)
ESETH	.08	.68§	.96*	.40	.03	-.01	.73*	.40§	.36§	.28§
	(.18)	(.31)	(.29)	(.36)	(.36)	(.27)	(.19)	(.14)	(.13)	(.12)
NORETH	.26	.15	.58¶	.40	-.17	.27	.40¶	.32¶	.25	.25¶
	(.26)	(.38)	(.34)	(.46)	(.45)	(.34)	(.23)	(.18)	(.17)	(.16)
						Model 15				
CESETH	.26	.10	.13	.18	.17	.15	.15	.19	.19	.20¶
	(.19)	(.29)	(.26)	(.32)	(.37)	(.25)	(.17)	(.13)	(.12)	(.11)
LITSWETH	-.27	.08	.23	.15	-.05	.26	.18	.02	.01	.08
	(.21)	(.26)	(.24)	(.30)	(.30)	(.23)	(.16)	(.13)	(.12)	(.11)
ESETH	.07	.68§	.96*	.34	.03	.02	.72*	.39§	.35	.28§
	(.18)	(.32)	(.29)	(.36)	(.36)	(.27)	(.19)	(.14)	(.13)	(.12)
NORETH	.26	.15	.58¶	.39	-.17	.27	.40¶	.32¶	.25	.25¶
	(.26)	(.38)	(.34)	(.46)	(.45)	(.34)	(.23)	(.18)	(.17)	(.16)
						Model 16				
CESETH	.26	.10	.14	.19	.16	.14	.15	.19	.19	.19
	(.19)	(.29)	(.26)	(.32)	(.37)	(.25)	(.17)	(.13)	(.12)	(.11)
LITSWETH	-.28	.08	.24	.17	-.07	.25	.18	.02	.02	.06
	(.21)	(.26)	(.24)	(.30)	(.30)	(.23)	(.16)	(.13)	(.12)	(.11)
ESETH	.07	.68§	.96*	.33	.03	.02	.72*	.39§	.35§	.28§
	(.18)	(.31)	(.29)	(.36)	(.36)	(.27)	(.19)	(.14)	(.13)	(.12)
NORETH	.27	.15	.58¶	.36	-.16	.28	.39	.32¶	.25	.26¶
	(.26)	(.38)	(.34)	(.46)	(.46)	(.34)	(.23)	(.18)	(.17)	(.16)
						Model 17				
CESETH	.27	.12	.12	.20	.17	.17	.15	.19	.19	.20¶
	(.19)	(.29)	(.26)	(.32)	(.37)	(.25)	(.17)	(.13)	(.12)	(.11)
LITSWETH	-.28	.08	.24	.16	-.07	.25	.18	.02	.01	.06
	(.21)	(.27)	(.24)	(.30)	(.30)	(.23)	(.16)	(.13)	(.12)	(.11)
ESETH	.07	.69§	.96*	.33	.04	.02	.72*	.39§	.35§	.28§
	(.18)	(.32)	(.29)	(.36)	(.36)	(.27)	(.19)	(.14)	(.13)	(.12)
NORETH	.26	.15	.57¶	.33	-.14	.29	.39	.31¶	.25	.25¶
	(.26)	(.38)	(.34)	(.46)	(.45)	(.34)	(.23)	(.18)	(.17)	(.16)

Note: Variables are abbreviated as shown in Table 1. Standard errors are in parentheses underneath the estimated logit coefficients.
* p<.01 ; $ p<.05 ; ¶ p<.10.
Model 1 = Baseline estimates;
Model 2 = Model 1 +MEDU;
Model 3 = model 2 +EMPM;
Model 4 = Model 3 +MSIT;
Model 5 = Model 4 +POLYG;
Model 6 = Model 5 +EAST+LITTO+NORTH+NWEST+WEST+SWEST;
Model 7 = Model 6 +RURAL;
Model 8 = Model 7 +CATHOLIC+PROTEST+MUSLIM;
Model 9 = Model 8 +SEX+NDEL;
Model 10 = Model 9 +FAGE+LAGE;
Model 11 = Model 10 +SECO+THIR;
Model 12 = Model 11 +PREP+STBI+ABOR;
Model 13 = Model 12 +DELHOSP;
Model 14 = Model 13 +MEDASS;
Model 15 = Model 14 +MOVE;
Model 16 = Model 15 +COHORT+PERIOD;
Model 17 = Model 16 +QUAFAIR+QUAPOOR.

Table 6: Infuences of Religion on Infant and Child Mortality in Cameroon

	Age Intervals (in completed months)									
	0	1-3	4-7	8-11	12-23	24-59	1-11	0-11	0-23	0-59
					Model 1					
CATHOLIC	.03	-.70*	-.09	.67$	-.74*	-.09	-.25$	-.14	-.25*	-.22$
	(.14)	(.16)	(.20)	(.34)	(.19)	(.17)	(.12)	(.09)	(.08)	(.08)
PROTEST	-.07	-.89*	-.18	.72$	-.66*	-.31¶	-.34$	-.23$	-.32*	-.33*
	(.14)	(.17)	(.20)	(.34)	(.20)	(.18)	(.12)	(.10)	(.09)	(.08)
MUSLIM	.13	-.69*	.14	.90$	-.47$	.10	-.09	-.01	-.09	-.05
	(.16)	(.21)	(.22)	(.36)	(.23)	(.20)	(.14)	(.11)	(.10)	(.09)
					Model 2					
CATHOLIC	.17	-.57*	-.07	.71$	-.48$	.09	-.18	-.03	-.11	-.06
	(.14)	(.17)	(.20)	(.34)	(.20)	(.18)	(.12)	(.10)	(.09)	(.08)
PROTEST	.06	-.77*	-.17	.76$	-.44$	-.16	-.27$	-.14	-.20$	-.19$
	(.15)	(.18)	(.21)	(.34)	(.20)	(.18)	(.13)	(.10)	(.09)	(.08)
MUSLIM	.14	-.68*	.14	.91$	-.44¶	.12	-.08	.01	-.08	-.03
	(.16)	(.21)	(.22)	(.36)	(.23)	(.20)	(.14)	(.11)	(.10)	(.09)
					Model 3					
CATHOLIC	.17	-.56*	-.07	.71$	-.50$	.08	-.17	-.03	-.11	-.06
	(.14)	(.17)	(.20)	(.34)	(.20)	(.18)	(.12)	(.10)	(.09)	(.08)
PROTEST	.06	-.77*	-.17	.75$	-.46$	-.16	-.27$	-.14	-.20$	-.19$
	(.15)	(.18)	(.21)	(.34)	(.20)	(.18)	(.13)	(.10)	(.09)	(.08)
MUSLIM	.15	-.79*	.08	.95$	-.30	.19	-.14	-.02	-.08	-.02
	(.17)	(.22)	(.23)	(.37)	(.25)	(.21)	(.14)	(.11)	(.10)	(.09)
					Model 4					
CATHOLIC	.17	-.57*	-.08	.70$	-.47$	.07	-.18	-.04	-.12	-.07
	(.14)	(.17)	(.20)	(.34)	(.20)	(.18)	(.12)	(.10)	(.09)	(.08)
PROTEST	.05	-.77*	-.17	.75$	-.44$	-.17	-.28$	-.14	-.20$	-.19$
	(.15)	(.18)	(.21)	(.34)	(.20)	(.18)	(.12)	(.10)	(.09)	(.08)
MUSLIM	.13	-.81*	.06	.93$	-.30	.16	-.16	-.04	-.09	-.04
	(.17)	(.22)	(.23)	(.37)	(.25)	(.21)	(.14)	(.11)	(.10)	(.09)
					Model 5					
CATHOLIC	.22¶	-.57*	-.06	.75$	-.39¶	.12	-.16	-.01	-.08	-.03
	(.14)	(.17)	(.20)	(.37)	(.24)	(.18)	(.12)	(.10)	(.09)	(.08)
PROTEST	.09	-.77*	-.16	.78$	-.38¶	-.14	-.27$	-.12	-.18$	-.17$
	(.15)	(.18)	(.21)	(.37)	(.23)	(.18)	(.13)	(.10)	(.09)	(.08)
MUSLIM	.14	-.81*	.06	.93$	-.30	.16	-.16	-.04	-.09	-.04
	(.17)	(.22)	(.23)	(.37)	(.25)	(.21)	(.14)	(.11)	(.10)	(.10)
					Model 6					
CATHOLIC	.34$	-.58$	-.13	.75$	-.37	.12	-.20	.03	-.05	-.01
	(.16)	(.20)	(.23)	(.37)	(.25)	(.20)	(.14)	(.11)	(.10)	(.09)
PROTEST	.22	-.78*	-.24	.76$	-.42¶	-.14	-.31$	-.09	-.15	-.14¶
	(.26)	(.20)	(.23)	(.37)	(.25)	(.20)	(.14)	(.11)	(.10)	(.09)
MUSLIM	.07	-.83*	.05	.92$	-.28	.16	-.17	-.07	-.13	-.06
	(.17)	(.22)	(.23)	(.37)	(.25)	(.21)	(.15)	(.11)	(.10)	(.10)
					Model 7					
CATHOLIC	.22	-.46$	-.13	.82$	-.36	.19	-.14	.01	-.06	-.01
	(.17)	(.20)	(.23)	(.38)	(.25)	(.21)	(.14)	(.11)	(.10)	(.09)
PROTEST	.14	-.68*	-.23	.93$	-.40¶	.01	-.22	-.07	-.14	-.14¶
	(.17)	(.21)	(.24)	(.38)	(.25)	(.21)	(.15)	(.11)	(.10)	(.09)
MUSLIM	.02	-.81*	.07	.97$	-.25	.18	-.14	-.08	-.12	-.06
	(.17)	(.22)	(.24)	(.37)	(.25)	(.21)	(.15)	(.11)	(.10)	(.10)
					Model 8					
CATHOLIC	.23	-.46$	-.14	.81$	-.35	.20	-.14	.01	-.05	-.01
	(.17)	(.20)	(.24)	(.38)	(.25)	(.21)	(.14)	(.11)	(.10)	(.10)
PROTEST	.16	-.68*	-.23	.92$	-.40¶	.02	-.22	-.07	-.13	-.10
	(.17)	(.21)	(.24)	(.38)	(.25)	(.21)	(.15)	(.11)	(.10)	(.10)
MUSLIM	.04	-.81*	.07	.96$	-.25	.20	-.15	-.07	-.12	-.06
	(.17)	(.22)	(.24)	(.37)	(.25)	(.21)	(.15)	(.11)	(.10)	(.10)

Table 6 (con):

					Model 9					
CATHOLIC	.18	-.47§	-.14	.80§	-.35	.20	-.14	.01	-.10	.01
	(.17)	(.20)	(.24)	(.38)	(.25)	(.21)	(.14)	(.11)	(.10)	(.10)
PROTEST	.12	-.68*	-.23	.91§	-.39¶	.03	-.22	-.07	-.16	-.10
	(.17)	(.21)	(.24)	(.37)	(.25)	(.21)	(.14)	(.11)	(.11)	(.10)
MUSLIM	.02	-.81*	.07	.97§	-.24	.20	-.15	-.08	-.13	-.05
	(.17)	(.22)	(.24)	(.37)	(.25)	(.21)	(.15)	(.11)	(.11)	(.10)
					Model 10					
CATHOLIC	.18	-.52§	-.16	.80§	-.35	.20	-.18	-.04	-.10	-.01
	(.17)	(.20)	(.24)	(.38)	(.25)	(.21)	(.14)	(.11)	(.10)	(.10)
PROTEST	.12	-.72*	-.25	.91§	-.37	.03	-.25	-.10	-.16	-.10
	(.17)	(.21)	(.24)	(.38)	(.25)	(.21)	(.15)	(.11)	(.11)	(.10)
MUSLIM	.01	-.82*	.06	.97§	-.23	.20	-.15	-.09	-.13	-.05
	(.17)	(.22)	(.24)	(.37)	(.25)	(.21)	(.09)	(.11)	(.11)	(.10)
					Model 11					
CATHOLIC	.18	-.53§	-.17	.80§	-.35	.20	-.19	-.04	-.10	-.04
	(.17)	(.21)	(.24)	(.38)	(.25)	(.21)	(.14)	(.11)	(.11)	(.10)
PROTEST	.13	-.72*	-.25	.92§	-.37	.03	-.25¶	-.10	-.16	-.12
	(.17)	(.21)	(.24)	(.38)	(.25)	(.21)	(.15)	(.12)	(.11)	(.10)
MUSLIM	.01	-.82*	.06	.97§	-.24	.20	-.15	-.09	-.14	-.06
	(.17)	(.22)	(.24)	(.37)	(.25)	(.21)	(.15)	(.12)	(.11)	(.10)
					Model 12					
CATHOLIC	.18	-.53§	-.17	.79§	-.35	.20	-.19	-.04	-.10	-.04
	(.17)	(.21)	(.24)	(.38)	(.25)	(.21)	(.14)	(.11)	(.11)	(.10)
PROTEST	.13	-.72*	-.25	.90§	-.37	.03	-.25	-.10	-.16	-.12
	(.18)	(.21)	(.24)	(.38)	(.25)	(.21)	(.15)	(.12)	(.11)	(.10)
MUSLIM	.01	-.84*	.06	.98§	-.24	.20	-.15	-.09	-.14	-.06
	(.17)	(.22)	(.24)	(.38)	(.25)	(.21)	(.15)	(.11)	(.11)	(.10)
					Model 13					
CATHOLIC	.25	-.36¶	-.17	.85§	-.29	.20	-.18	-.04	-.03	-.04
	(.18)	(.21)	(.24)	(.38)	(.25)	(.21)	(.14)	(.12)	(.11)	(.10)
PROTEST	.20	-.56§	-.25	.96§	-.32	.03	-.25	-.10	-.08	-.12
	(.18)	(.22)	(.24)	(.38)	(.25)	(.21)	(.15)	(.11)	(.11)	(.10)
MUSLIM	.07	-.69*	.05	1.03§	-.19	.18	-.15	-.10	-.07	-.06
	(.17)	(.22)	(.24)	(.38)	(.25)	(.21)	(.15)	(.11)	(.11)	(.10)
					Model 14					
CATHOLIC	.25	-.36¶	-.17	.85§	-.30	.30	-.19	-.04	-.03	-.04
	(.18)	(.21)	(.24)	(.38)	(.25)	(.21)	(.14)	(.12)	(.11)	(.10)
PROTEST	.19	-.55§	-.26	.96§	-.33	.13	-.25	-.02	-.09	-.12
	(.18)	(.22)	(.24)	(.38)	(.25)	(.22)	(.15)	(.12)	(.11)	(.10)
MUSLIM	.06	-.72*	.05	1.04§	-.21	.28	-.16	-.02	-.08	-.07
	(.17)	(.22)	(.24)	(.38)	(.25)	(.21)	(.15)	(.12)	(.11)	(.10)

Table 6 (con):

						Model 15				
CATHOLIC	.25	-.37¶	-.13	.89§	-.30	.31	-.09	.04	-.02	.05
	(.18)	(.21)	(.24)	(.38)	(.25)	(.21)	(.15)	(.12)	(.11)	(.10)
PROTEST	.20	-.56§	-.21	1.00§	-.32	.14	-.16	-.02	-.08	-.03
	(.18)	(.22)	(.24)	(.38)	(.25)	(.22)	(.15)	(.12)	(.11)	(.10)
MUSLIM	.07	-.72*	.09	1.08§	-.20	.29	-.07	-.04	-.07	.02
	(.18)	(.22)	(.24)	(.38)	(.25)	(.21)	(.15)	(.12)	(.11)	(.10)
						Model 16				
CATHOLIC	.25	-.37¶	-.13	.89§	-.30	.29	-.09	.05	-.02	.05
	(.18)	(.21)	(.24)	(.38)	(.25)	(.21)	(.15)	(.12)	(.11)	(.10)
PROTEST	.20	-.56§	-.21	1.00§	-.33	.11	-.16	-.01	-.08	-.04
	(.18)	(.22)	(.24)	(.38)	(.25)	(.22)	(.15)	(.12)	(.11)	(.10)
MUSLIM	.07	-.72*	.07	1.09§	-.22	.26	-.08	-.03	-.08	.04
	(.18)	(.22)	(.24)	(.38)	(.25)	(.21)	(.15)	(.12)	(.11)	(.10)
						Model 17				
CATHOLIC	.27	-.33¶	-.15	.88§	-.31	.33	-.09	.05	-.02	.06
	(.18)	(.21)	(.24)	(.38)	(.26)	(.21)	(.15)	(.12)	(.11)	(.10)
PROTEST	.21	-.52§	-.23	.97§	-.35	.15	-.15	-.01	-.08	-.03
	(.18)	(.22)	(.24)	(.38)	(.25)	(.22)	(.15)	(.12)	(.11)	(.10)
MUSLIM	.08	-.71*	.07	1.11§	-.21	.26	-.07	-.02	-.07	.01
	(.18)	(.22)	(.24)	(.38)	(.26)	(.21)	(.15)	(.12)	(.11)	(.10)

Note: Variables are abbreviated as shown in Table 1. Standard errors are in parentheses underneath the estimated logit coefficients.
* p<.01 ; § p<.05 ; ¶ p<.10.
Model 1 = Baseline estimates;
Model 2 = Model 1 +MEDU;
Model 3 = model 2 +EMPM;
Model 4 = Model 3 +MSIT;
Model 5 = Model 4 +POLYG;
Model 6 = Model 5 +CESETH+LITSWETH+ESETH+NORETH;
Model 7 = Model 6 +EAST+LITTO+NORTH+NWEST+WEST+SWEST;
Model 8 = Model 7 +RURAL;
Model 9 = Model 8 +SEX+NDEL;
Model 10 = Model 9 +FAGE+LAGE;
Model 11 = Model 10 +SECO+THIR;
Model 12 = Model 11 +PREP+STBI+ABOR;
Model 13 = Model 12 +DELHOSP;
Model 14 = Model 13 +MEDASS;
Model 15 = Model 14 +MOVE;
Model 16 = Model 15 +COHORT+PERIOD;
Model 17 = Model 16 +QUAFAIR+QUAPOOR.

Table 7: Pathways of Influences of Maternal Schooling on Infant and Child Mortality in Cameroon

Variable	Age Intervals (in completed months)									
	0	1-3	4-7	8-11	12-23	24-59	1-11	0-11	0-23	0-59
					Model 1					
MEDU	-.35*	-.44*	-.10	-.05	-.80*	-.50*	-.22§	-.28*	-.37*	-.43*
	(.09)	(.13)	(.12)	(.15)	(.16)	(.11)	(.08)	(.06)	(.06)	(.05)
					Model 2					
MEDU	-.35*	-.45*	-.11	-.05	-.78*	-.50*	-.23§	-.29*	-.37*	-.42*
	(.09)	(.13)	(.12)	(.15)	(.16)	(.12)	(.08)	(.06)	(.06)	(.05)
					Model 3					
MEDU	-.33*	-.44*	-.10	-.03	-.76*	-.48*	-.22§	-.28*	-.36*	-.41*
	(.09)	(.13)	(.12)	(.15)	(.16)	(.12)	(.08)	(.06)	(.06)	(.05)
					Model 4					
MEDU	-.27*	-.44*	-.08	.03	-.71*	-.42*	-.20§	-.23*	-.31*	-.36*
	(.09)	(.13)	(.12)	(.16)	(.16)	(.12)	(.08)	(.06)	(.06)	(.05)
					Model 5					
MEDU	-.17¶	-.37§	-.04	.02	-.65*	-.45*	-.15¶	-.17§	-.25*	-.32*
	(.10)	(.14)	(.14)	(.17)	(.20)	(.13)	(.09)	(.07)	(.06)	(.06)
					Model 6					
MEDU	-.18¶	-.32§	-.04	-.04	-.57*	-.45*	-.16¶	-.17§	-.24*	-.32*
	(.10)	(.15)	(.14)	(.18)	(.18)	(.13)	(.09)	(.07)	(.07)	(.06)
					Model 7					
MEDU	-.15¶	-.32§	-.05	-.07	-.49§	-.41*	-.17¶	-.17§	-.22*	-.30*
	(.10)	(.15)	(.14)	(.18)	(.18)	(.13)	(.09)	(.07)	(.07)	(.06)
					Model 8					
MEDU	-.16¶	-.30§	-.04	-.09	-.46§	-.41*	-.16¶	-.17§	-.22*	-.30*
	(.10)	(.15)	(.14)	(.18)	(.18)	(.13)	(.09)	(.07)	(.07)	(.06)
					Model 9					
MEDU	-.15¶	-.30§	-.04	-.09	-.47§	-.41*	-.16¶	-.17§	-.22*	-.29*
	(.10)	(.15)	(.14)	(.18)	(.18)	(.13)	(.09)	(.07)	(.07)	(.06)
					Model 10					
MEDU	-.13	-.27¶	-.03	-.09	-.46§	-.41*	-.15¶	-.15§	-.20*	-.28*
	(.10)	(.15)	(.14)	(.18)	(.18)	(.13)	(.09)	(.07)	(.07)	(.06)
					Model 11					
MEDU	-.16	-.28¶	-.01	-.13	-.55§	-.44*	-.16¶	-.17§	-.24*	-.33*
	(.11)	(.16)	(.15)	(.19)	(.19)	(.14)	(.10)	(.08)	(.07)	(.07)
					Model 12					
MEDU	-.21¶	-.34§	-.02	-.13	-.54§	-.42*	-.19¶	-.21§	-.27*	-.35*
	(.11)	(.17)	(.16)	(.20)	(.20)	(.14)	(.10)	(.08)	(.07)	(.07)
					Model 13					
MEDU	-.21¶	-.33§	-.02	-.14	-.54§	-.42*	-.19¶	-.20§	-.27*	-.35*
	(.11)	(.17)	(.16)	(.20)	(.20)	(.15)	(.10)	(.08)	(.07)	(.07)

Table 7 (con):

					Model 14					
MEDU	-.17¶	-.21	.02	-.10	-.50§	-.34§	-.12	-.15¶	-.20§	-.29*
	(.11)	(.17)	(.16)	(.20)	(.20)	(.15)	(.10)	(.08)	(.07)	(.07)
					Model 15					
MEDU	-.16	-.19	.03	-.10	-.49§	-.36§	-.10	-.14¶	-.20§	-.28*
	(.11)	(.17)	(.16)	(.20)	(.20)	(.15)	(.10)	(.08)	(.07)	(.07)
					Model 16					
MEDU	-.15	-.19	.03	-.08	-.49§	-.38§	-.10	-.13¶	-.20§	-.28*
	(.12)	(.17)	(.16)	(.20)	(.20)	(.15)	(.10)	(.08)	(.08)	(.07)
					Model 17					
MEDU	-.13	-.19	.02	-.14	-.45§	-.35§	-.11	-.13¶	-.18§	-.24*
	(.12)	(.17)	(.16)	(.20)	(.20)	(.15)	(.10)	(.08)	(.08)	(.07)
					Model 18					
MEDU	-.10	-.16	-.02	-.13	-.43§	-.29§	-.10	-.13¶	-.16§	-.21*
	(.12)	(.18)	(.16)	(.20)	(.20)	(.15)	(.10)	(.08)	(.08)	(.07)

Note: Variables are abbreviated as shown in Table 1. Standard errors are in parentheses underneath the estimated coefficients.
* p<.01 ; § p<.05 ; ¶ p<.10.
Model 1 = Univariate estimates;
Model 2 = Model 1 +EMPM;
Model 3 = Model 2 +MSIT;
Model 4 = Model 3 +POLYG;
Model 5 = Model 4 +CESETH+LITSWETH+ESETH+NORETH;
Model 6 = Model 5 +EAST+LITTO+NORTH+NWEST+WEST+SWEST;
Model 7 = Model 6 +RURAL;
Model 8 = Model 7 +CATHOLIC+PROTEST+MUSLIM;
Model 9 = Model 8 +FEMALE;
Model 10 = Model 9 +NDEL;
Model 11 = Model 10 +FAGE+LAGE;
Model 12 = Model 11 +SECO+THIR;
Model 13 = Model 12 +PREP+STBI+ABOR;
Model 14 = Model 13 +DELHOSP;
Model 15 = Model 14 +MEDASS;
Model 16 = Model 15 +MOVE;
Model 17 = Model 16 +COHORT+PERIOD;
Model 18 = Model 17 +QUAFAIR+QUAPOOR.

Table 8: Interaction Effects of Mother's Education and Selected Covariates of Infant and Child Mortality in Cameroon#

	Age Intervals (in completed months)					
	0	1-3	4-7	8-11	12-23	24-59
				Model 1		
MEDU*RURAL	-.285	-.642$	-.004	.248	.249	-.247
	(.247)	(.338)	(.294)	(.354)	(.470)	(.297)
				Model 2		
MEDU*RURAL	-.138	-.905$	.067	.430	.554	-.077
	(.287)	(.395)	(.343)	(.416)	(.531)	(.338)
MEDU*EAST	-.182	.068	-.660	-.332	-1.317$	-.705¶
	(.306)	(.511)	(.470)	(.569)	(.637)	(.428)
MEDU*LITTO	-.011	-.886¶	-.535	.137	-.216	-.111
	(.356)	(.478)	(.444)	(.531)	(.618)	(.401)
MEDU*NORTH	-.370	-1.046	-.373	-.831	-.512	-.566
	(.413)	(.795)	(.543)	(.834)	(.667)	(.545)
MEDU*NWEST	-.303	-.878	-1.654$	-4.792	-.648	-1.179¶
	(.408)	(.693)	(.733)	(4.296)	(.729)	(.744)
MEDU*WEST	.175	.310	-.210	-.087	-.955	-.784¶
	(.404)	(.485)	(.497)	(.596)	(.842)	(.515)
MEDU*SWEST	-1.237$	-.397	-1.095¶	.223	-.670	-.064
	(.553)	(.636)	(.674)	(.917)	(.602)	(.562)
				Model 3		
MEDU*RURAL	-.144	-1.024$	.053	.366	.525	-.167
	(.291)	(.405)	(.348)	(.426)	(.541)	(.345)
MEDU*EAST	-.022	.232	-.134	.646	-.849	-.531
	(.419)	(.730)	(.638)	(.745)	(.847)	(.570)
MEDU*LITTO	.254	-1.309$	.058	.616	.512	.145
	(.457)	(.654)	(.565)	(.685)	(.829)	(.530)
MEDU*NORTH	.068	-.697	-.046	-.769	.141	-.223
	(.619)	(1.051)	(.786)	(1.169)	(1.069)	(.810)
MEDU*NWEST	-.064	-.818	-1.173	-4.144	.034	-.689
	(.528)	(.875)	(.850)	(4.324)	(.983)	(.857)
MEDU*WEST	.408	.398	.273	.581	-.282	-.277
	(.529)	(.733)	(.668)	(.809)	(1.074)	(.676)
MEDU*SWEST	-.920	-.954	-.375	.772	.159	.229
	(.646)	(.824)	(.800)	(1.055)	(.873)	(.694)
MEDU*CESETH	.294	.033	.692	.822	.792	.578
	(.394)	(.634)	(.585)	(.691)	(.760)	(.507)
MEDU*LITSWETH	-.177	1.322$	-.472	.173	-.350	.382
	(.418)	(.551)	(.497)	(.646)	(.614)	(.479)
MEDU*ESETH	.122	-.127	-.210	-1.681	.285	.784
	(.398)	(.733)	(.652)	(1.158)	(.951)	(.650)
MEDU*NORETH	-.286	-.421	.210	.773	-.059	.094
	(.566)	(.988)	(.638)	(.896)	(1.039)	(.770)

Table 8 (con):

				Model 4		
MEDU*RURAL	-.245	-1.033§	.110	.339	.410	-.207
	(.296)	(.415)	(.353)	(.434)	(.548)	(.350)
MEDU*EAST	-.152	.221	-.048	.605	-1.017	-.583
	(.424)	(.737)	(.644)	(.755)	(.859)	(.576)
MEDU*LITTO	.288	-1.307§	.052	.620	.555	.163
	(.456)	(.654)	(.566)	(.686)	(.830)	(.530)
MEDU*NORTH	.046	-.700	-.017	-.776	.121	-.225
	(.620)	(1.051)	(.787)	(1.169)	(1.073)	(.810)
MEDU*NWEST	-.033	-.816	-1.181	-4.139	.066	-.674
	(.529)	(.876)	(.851)	(4.324)	(.986)	(.857)
MEDU*WEST	.404	.397	.291	.574	-.348	-.281
	(.529)	(.733)	(.669)	(.809)	(1.077)	(.676)
MEDU*SWEST	-.919	-.956	-.365	.763	.155	.234
	(.646)	(.825)	(.797)	(1.056)	(.879)	(.695)
MEDU*CESETH	.292	.032	.706	.818	.757	.574
	(.394)	(.633)	(.585)	(.691)	(.763)	(.508)
MEDU*LITSWETH	-.207	1.319§	-.453	.164	-.422	.368
	(.418)	(.552)	(.497)	(.647)	(.618)	(.479)
MEDU*ESETH	.018	-.133	-.151	-1.714	.120	.745
	(.401)	(.735)	(.656)	(1.162)	(.957)	(.652)
MEDU*NORETH	-.302	-.420	.211	.766	-.093	.095
	(.567)	(.988)	(.675)	(.896)	(1.039)	(.769)
MEDU*DELHOSP	-.496§	-.036	.314	-.142	-.626¶	-.213
	(.224)	(.346)	(.348)	(.414)	(.390)	(.300)
				Model 5		
MEDU*RURAL	-.255	-1.044§	.041	.349	.400	-.242
	(.296)	(.416)	(.355)	(.434)	(.550)	(.351)
MEDU*EAST	-.163	.213	-.070	.619	-1.026	-.616
	(.424)	(.738)	(.645)	(.756)	(.860)	(.577)
MEDU*LITTO	.279	-1.314§	.027	.631	.548	.127
	(.457)	(.655)	(.566)	(.686)	(.830)	(.531)
MEDU*NORTH	.040	-.706	-.038	-.772	.116	-.244
	(.620)	(1.051)	(.787)	(1.169)	(1.073)	(.809)
MEDU*NWEST	-.036	-.819	-1.164	-4.132	.064	-.691
	(.529)	(.875)	(.851)	(4.324)	(.986)	(.857)
MEDU*WEST	.396	.390	.243	.580	-.354	-.279
	(.529)	(.733)	(.670)	(.809)	(1.077)	(.676)
MEDU*SWEST	-.925	-.960	-.346	.775	.154	.203
	(.647)	(.825)	(.797)	(1.056)	(.878)	(.695)
MEDU*CESETH	.287	.029	.702	.825	.755	.560
	(.395)	(.634)	(.586)	(.692)	(.763)	(.508)
MEDU*LITSWETH	-.213	1.315§	-.508	.167	-.428	.369
	(.418)	(.552)	(.498)	(.647)	(.618)	(.480)
MEDU*ESETH	.012	-.136	-.154	-1.703	.116	.715
	(.401)	(.735)	(.656)	(1.163)	(.957)	(.653)
MEDU*NORETH	-.304	-.420	.218	.772	-.093	.084
	(.566)	(.988)	(.674)	(.897)	(1.039)	(.768)
MEDU*DELHOSP	-.084	.221	2.318§	-.458	-.190	-.616
	(.691)	(.911)	(.819)	(1.050)	(1.448)	(.577)
MEDU*MEDASS	-.437	-.281	-2.134§	.353	-.455	.127
	(.692)	(.918)	(.786)	(1.082)	(1.451)	(.531)

Note: Variables are abbreviated as shown in Table 1. Standard errors are in parentheses underneath the logit coefficients.
From the models including all variables.
* p<.01 ; § p<.05 ; ¶ p<.10.

Table 9: Pathways of Influences of Marital Status and Type of Union on Infant and Child Mortality in Cameroon

Variables	Age Intervals (in completed months)									
	0	1-3	4-7	8-11	12-23	24-59	1-11	0-11	0-23	0-59
					Model 1					
MSIT	.30*	.39§	.36§	.43§	.45*	.45*	.40*	.37*	.40*	.43*
	(.10)	(.14)	(.14)	(.17)	(.15)	(.12)	(.09)	(.07)	(.06)	(.06)
POLYG	.36*	.05	.08	.27¶	.33§	.34*	.12¶	.23*	.25*	.28*
	(.08)	(.12)	(.12)	(.15)	(.14)	(.10)	(.07)	(.06)	(.05)	(.05)
					Model 2					
MSIT	.30*	.36§	.33§	.44§	.40§	.43*	.38*	.36*	.39*	.42*
	(.10)	(.14)	(.14)	(.17)	(.16)	(.12)	(.09)	(.07)	(.06)	(.06)
POLYG	.35*	-.02	.13	.31§	.26	.27§	.11	.22*	.23*	.25*
	(.09)	(.13)	(.13)	(.16)	(.14)	(.11)	(.08)	(.06)	(.06)	(.05)
					Model 3					
MSIT	.30*	.35§	.33§	.44§	.40§	.42*	.38*	.36*	.39*	.42*
	(.10)	(.14)	(.14)	(.18)	(.16)	(.12)	(.09)	(.07)	(.06)	(.06)
POLYG	.36*	-.01	.14	.31§	.27§	.29§	.13¶	.23*	.24*	.26*
	(.09)	(.11)	(.13)	(.16)	(.14)	(.11)	(.08)	(.06)	(.06)	(.05)
					Model 4					
MSIT	.30*	.34§	.32§	.44§	.40§	.43*	.38*	.36*	.38*	.42*
	(.10)	(.14)	(.14)	(.18)	(.16)	(.12)	(.09)	(.07)	(.06)	(.06)
POLYG	.36*	.01	.14	.31§	.27§	.28§	.13¶	.24*	.25*	.26*
	(.09)	(.13)	(.13)	(.16)	(.14)	(.11)	(.08)	(.06)	(.06)	(.05)
					Model 5					
MSIT	.30*	.34§	.32§	.47§	.40§	.41*	.38*	.36*	.39*	.42*
	(.10)	(.14)	(.14)	(.18)	(.16)	(.12)	(.09)	(.07)	(.07)	(.06)
POLYG	.36*	.01	.14	.31§	.27§	.28§	.13	.24*	.25*	.26*
	(.09)	(.13)	(.13)	(.16)	(.14)	(.11)	(.08)	(.06)	(.06)	(.05)
					Model 6					
MSIT	.30*	.34§	.32§	.49§	.39§	.41*	.38*	.36*	.38*	.41*
	(.10)	(.14)	(.14)	(.18)	(.16)	(.12)	(.09)	(.07)	(.06)	(.06)
POLYG	.36*	.05	.14	.31§	.27¶	.28§	.13¶	.24*	.24*	.26*
	(.10)	(.13)	(.12)	(.16)	(.15)	(.11)	(.08)	(.06)	(.06)	(.05)
					Model 7					
MSIT	.30*	.34§	.32§	.49*	.39§	.41*	.38*	.36*	.38*	.41*
	(.10)	(.14)	(.14)	(.18)	(.16)	(.12)	(.09)	(.07)	(.07)	(.06)
POLYG	.36*	.01	.14	.31§	.27§	.28§	.13¶	.24*	.24*	.26*
	(.09)	(.13)	(.12)	(.16)	(.14)	(.11)	(.08)	(.06)	(.06)	(.05)
MSIT	.30*	.34§	.33§	.48*	.38§	.40§	.38*	.36*	.38*	.40*
	(.10)	(.14)	(.14)	(.18)	(.16)	(.12)	(.09)	(.07)	(.07)	(.06)
POLYG	.35*	.01	.14	.30§	.27§	.28§	.13¶	.24*	.24*	.26*
	(.09)	(.13)	(.13)	(.16)	(.14)	(.11)	(.08)	(.06)	(.06)	(.05)

Note: Variables are abbreviated in Table 1. Standard errors are in parentheses.
Model 1 = Univariate Estimates;
Model 2 = Full model -DELHOSP-MEDASS-MIGRATE-COHORT-PERIOD-QUAFAIR-QUAPOOR;
Model 3 = Model 2 +DELHOSP; Model 4 = Model 3 +MEDASS; Model 5 = Model 4 +MIGRATE;
Model 6 = Model 5 +COHORT; Model 7 = Model 6 +PERIOD;
Model 8 = Model 7 +QUAFAIR+QUAPOOR.
* p<.01 ; § p<.05 ; ¶ p<.10.

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