

Looking for neighborhood effects on health behavior in African cities

The case of Ouagadougou through prenatal care use

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The impact of local context on the behavior of individuals is an old concern in social sciences. Thus, it is well known that a part of individual behavior could be explained by the neighborhood effects. From the sociological point of view, this conception is mainly based on two assumptions that are social interactions within the neighborhood and access to common places and services (Briggs, 2007). As a result, one of the theoretical interests of researches concerning such topics is that they may provide an indication of the degree of interaction between different social strata within neighborhoods. These researches can also highlight the relative importance of some neighborhood characteristics on the individual behavior.

Despite such interest, it is only recently that we know a little about neighborhood effects in Southern cities, in particular with Mark Montgomery and colleagues' studies, using data from Demographic and Health Surveys and analysing some aspects of children's health and schooling (Montgomery and Hewett, 2003 & 2005; Montgomery et al., 2005).

With my interest in Ouagadougou (capital of Burkina Faso) and by supplementing the 1998 and 2003 DHS by data coming from a specific survey about health services availability, I would like to contribute in understanding neighborhood effects on the health behavior in African cities. Specifically, the project is interested in the case of prenatal care use and aims to dissociate neighborhood effects from those of individual or family factors on the earliness of the first prenatal visit and on the number of prenatal visits realized during pregnancy. Moreover, this paper will investigate the nature of complementarity and substitutability between community characteristic and some individual or family characteristics.

Data and statistical methods

The analyses focus primarily on the 1998 and 2003 DHS data. Questions about the antenatal care related to children born since 1993 in the 1998 DHS, and since 1998 in the 2003 DHS. To avoid problems due to small numbers, the option retained is to merge cases from these two databases and to recompute new weighting coefficients while following the sampling procedures used, in order to ensure the representativeness in the city. Resting on two working assumptions (low residential mobility between surveys, low probability of double accounts)¹, such a merging of data is sometimes used in demography to increase the sample size. It has been used for instance by the World Bank (2003) with 1992 and 1998 DHS to study infant and child mortality in Burkina Faso.

¹ I will demonstrate in the manuscript that the probability of double accounts between 1998 DHS and 2003 DHS is low in Ouagadougou. I will also demonstrate while using data from another survey that the rate of residential mobility is also low among women in Ouagadougou.

In this project, neighborhood effects are studied at clusters level². In the cities of Burkina Faso, a cluster (*zone de dénombrement in French*) is a space where on average 1200 people lived in the 1996 census (INSD, 2000). The neighborhood characteristics relate to aggregate educational level, ethnic composition, standard of living and health services availability. Data on health services come from a survey conducted between 2002 and 2004 by the *Institute of Development Research (in Burkina Faso)*. This survey includes retrospective information such as health services dates of creation that make it possible to adopt a person-period approach to assign to each child, the health services which existed in its area at the time of its birth and during pregnancy. This way makes it possible to better estimate the effect of health facilities on the prenatal visit.

With regard to the statistical model, I used Multilevel logistic regression. Two dependent variables have been considered: the earliness of the first prenatal visit (coded 1/0 if it occurred or not in the first trimester of pregnancy) and the number of prenatal visit (coded 1/0 if this number is superior or not to 4). These two criteria (first prenatal visit in the first trimester of pregnancy and four prenatal visits during pregnancy) are two recommendations of the World Health Organization to any pregnant woman (Berg, 1995).

The multilevel analysis makes it possible to dissociate the effect of community covariates from that of individual covariates in the explanation of individual behaviors. It is published since the 1980 years and is a major advance in the field of demography and other social sciences.

First findings

The multilevel analysis has highlighted the importance of neighborhood characteristics on the antenatal visit in Ouagadougou, independently of the effect of individual and family characteristics of the woman. In particular, it appears that the ethnic composition of the neighborhood is a strong determinant of the earliness of the first prenatal visit in Ouagadougou independently of the influence exerted by the woman's own ethnic group. This neighborhood effect is associated with the transfer of ideas, values and beliefs that accompany social interactions in neighborhoods. It also appears that health facilities complement maternal education and household's standard of living.

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² The sample of 1998 DHS consists of 43 clusters in Ouagadougou while the 2003 DHS consists of 19 clusters in this city, which makes a total of 62 clusters for our analysis.

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