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Dudley L. Poston, Jr.; Elizabeth Briody; Katherine Trent; and Harley L. Browning, "Regional Development and Childlessness in the States of Mexico," 1982.

Introduction

This paper examines the relationship between modernization and childlessness in the states of Mexico in 1970. Few analyses of childlessness have been conducted for any developing countries, let alone, Mexico. This may be because of the assumption of many that, since most married women desire and have children, few will be childless. To the extent that childlessness does exist among populations, it should be characterized by little if any variability. We will show rather considerable variation in childlessness among the Mexican states and find that the higher the levels of modernization, the lower the rate of childlessness.

Childlessness may be voluntary or involuntary; that is, a woman may decide voluntarily not to have children, or may be unable to have children due to involuntary factors. However, recent data from the World Fertility Survey for Mexico show that well over 90 percent of its permanent childlessness is involuntary. Involuntary childlessness is due primarily to subfecundity. The principal causes of subfecundity in the developing world today include disease and nutritional deficiencies, a situation perpetuated by the relative absence of quality health care and facilities.

In this paper we argue that various aspects of modernization, such as increases in labor force participation, urbanization, development of transportation systems, educational levels, health care facilities, and reductions in disease and nutritional deficiencies, should be associated with decreases in childlessness to the extent that the childlessness is due to involuntary factors. Further, we anticipate that the health variables should have stronger relationships with childlessness because of their closer proximity to subfecundity than the variables tapping the other modernization dimensions.

Methods and Results

The data for this study on the number of children ever born were obtained from the 1970 Mexican census, *Resumen general*. The data used for developing indicators of modernization were obtained from the 1970 Mexican census, *Resumen general*, the *Anuario estadístico de los Estados Unidos Mexicanos 1970-1971*, and the 1975 *Atlas of Mexico*.

The denominator for the childlessness rate refers to ever-married women. It is defined broadly by including as ever-married not only the married, widowed, divorced, and separated, but also those living in consensual unions. The numerator refers to ever-married women (broadly defined) who report zero children ever born to them.

General Marital Childlessness Rates (GMCR) have been computed for each of the thirty-two states of Mexico (actually thirty states and two territories). The rate may be defined as

$$GMCR=L/P$$

where L represents the number of ever-married women between the ages of 15 and 49 with no children ever born to them, and P represents the total population of ever-married women between the ages of 15 and 49.

Figure 1 is a map of Mexico shaded to represent the high, intermediate, and low values of the GMCR. For Mexico as a whole, the GMCR is .12; this means that, in 1970, for every one hundred ever-married women in Mexico in the 15 to 49 age group, twelve were childless.

The general distribution of these marital-childlessness values agrees with many studies of regional differences in Mexico. Generally, the lowest childlessness rates are found in the Federal District and in some of the northern Mexican states, such as Nuevo León and Chihuahua, regions with relatively high standards of living and well-being. The highest rates are found in many states characterized by scholars as having low levels of well-being, such as Oaxaca, Chiapas, and Guerrero, many of them in southern Mexico.

Twenty independent variables were selected to reflect modernization components of economic activity, education, urbanization, health conditions, and overall structural development. The effects of the various modernization indicators on childlessness vary, but they all support our expectations about the inverse relationship between development and childlessness. The percentage of the population economically active has the highest correlation with childlessness ($r=-.58$). Generally, those states with the lowest percentages of their populations economically active have the highest childlessness rates: Yucatán, Oaxaca, Guerrero, and Michoacán. This relationship is substantiated further by the positive correlation between the percentage of the labor force in agricultural activity and the GMCR ($r=+.49$).

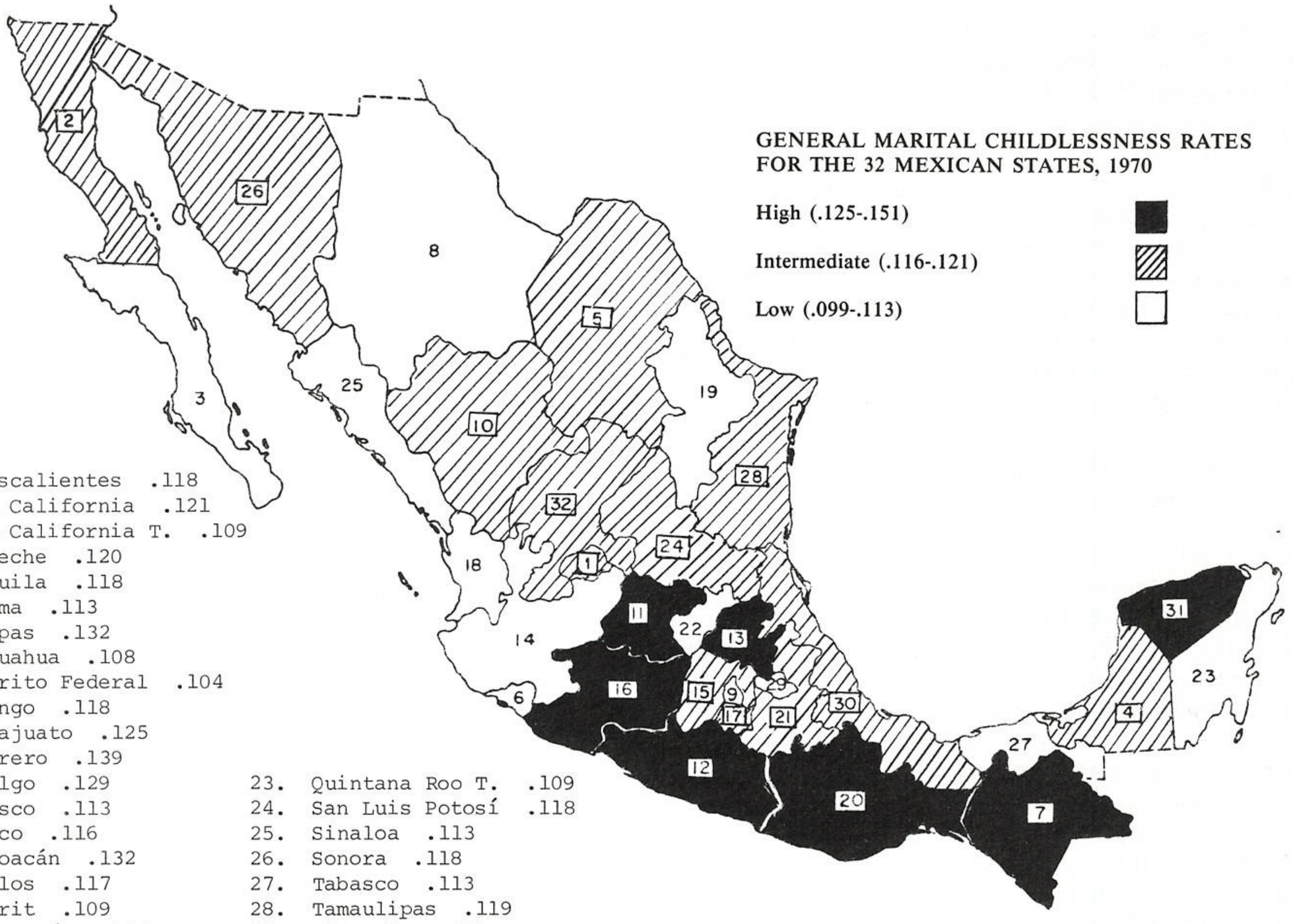
An examination of the relationships betwen the GMCR and indicators of health conditions also shows the importance of these factors and their effects. The mortality rate of infectious and parasitic diseases, as well as the general mortality rate, are positively related to childlessness ($r=.39$ and .21, respectively). Medical care, as indicated by doctors per ten thousand population, medical units per capita, and medical beds per capita, are all negatively related to childlessness.

Next, we decided to factor analyze the predictor variables so as to obtain a reduced number of factors, and then to employ these emerging factors as separate predictors in a regression equation with childlessness. Four factors or dimensions of modernization were obtained: structural economic development; health conditions, a composite factor defined in terms of health facilities; economic activity and railroads; and a final factor, transportation. The factor analysis makes apparent the multidimensionality of modernization.

Among the dimensions specified, we thought that the variables reflecting health conditions should be more highly correlated with childlessness than the structural-development indicators. This hypothesis was tested directly by regressing the marital childlessness rate on the four modernization factors. Of the four modernization dimensions, the health conditions factor has the highest negative association with childlessness, a standardized partial regression coefficient of $-.41$. Finally, the multiple correlation coefficient (R) of the overall relationship between the modernization dimensions and childlessness is sizeable and very significant ($R=.57$).

Discussion and Conclusions

Our analysis supports both the ideas that modernization is



1. Aguascalientes .118
2. Baja California .121
3. Baja California T. .109
4. Campeche .120
5. Coahuila .118
6. Colima .113
7. Chiapas .132
8. Chihuahua .108
9. Distrito Federal .104
10. Durango .118
11. Guanajuato .125
12. Guerrero .139
13. Hidalgo .129
14. Jalisco .113
15. México .116
16. Michoacán .132
17. Morelos .117
18. Nayarit .109
19. Nuevo León .104
20. Oaxaca .144
21. Puebla .117
22. Querétaro .105
23. Quintana Roo T. .109
24. San Luis Potosí .118
25. Sinaloa .113
26. Sonora .118
27. Tabasco .113
28. Tamaulipas .119
29. Tlaxcala .099
30. Veracruz .120
31. Yucatán .151
32. Zacatecas .119

Source: Dirección general de estadística. *IX Censo general de población, 1970, Resumen general.* México, D.F.: Secretaría de industria y comercio.

related inversely with childlessness among the states of Mexico, and that the health-conditions dimension of modernization is more influential than factors dealing with structural economic development.

What does all of this suggest with regard to future developments in Mexico? Regression results allow us to suggest that, as development increases in the Mexican states, those programs directed toward the enhancement of health, such as disease reduction and general nutritional improvements, should have a more substantial impact on childlessness than some of the more structurally oriented aspects of economic development. These kings of results should be most apparent in some of the least-developed Mexican states, such as Oaxaca, Chiapas, Yucatán, Campeche, Quintana Roo, and Guerrero. These states have the lowest levels of modernization as measured by twenty developmnent indicators.

Recent investigations in Zaire by Romaniuk and Tabutin have shown that not only does childlessness decline during the early stages of modernization, but more important, fertility increases. "The breakdown of fertility-inhibiting customs, and emergence of modern infant feeding practices, as well as the improvement of reproductive conditions through advances in medical care and nutrition, are among the most important aspects of modernization, which are expected to bring about a rise in fertility," reports Romaniuk. Since these aspects of modernization occur sooner than the more structurally based dimensions pertaining to socioeconomic transformations and their associated motivations for smaller family size, fertility levels should rise before they decline.

Although our data do not directly address the fertility rates of the Mexican states, we are able, nonetheless, to make inferences about the development—childlessness—fertility nexus. We know already about the modernization—childlessness relationship, and we know also of the prominence of the effects of the health-conditions dimension of modernization on childlessness over the effects of the other modernization components. If the results pertaining to modernization, childlessness, and fertility reported by Romaniuk and by Tabutin for Zaire obtain in the case of Mexico, then advances in modernization in some of the less-developed Mexican states should have as their immediate result an increase, not a decline, in fertility. Thereafter, as the other more structurally oriented aspects of development take hold (and this should occur after the advances in health conditions have been implanted), then, and only then, should the fertility decline normally associated with economic development occur.

The above inferences depend largely upon the degree to which the findings among the states of Zaire apply to the states of Mexico. But to the extent that they are generalizable, these inferences deserve the serious attention of policy practitioners

and analysts in Mexico generally, but particularly in the less-developed states where the health and economic development programs would be implemented.

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Notes on Mexico

➤During the first month of the administration of President Miguel de la Madrid, the Mexican Congress approved legislation reflecting the views of the new president. Laws passed and dates of presidential approval include the following: (1) in keeping with de la Madrid's promise to combat corruption in public service, the Federal Law of Public Service Accountability (30 December 1982) provides stiff penalties for public officials and those persons who manage or disburse public funds who are found to be involved in corrupt practices; (2) the revenue law of the federal government for 1983 (22 December 1982)delineates revenues to be derived from taxes on incomes, imports and exports, government properties, and from state-run enterprises as well as those in which the government is a minority shareholder. Significantly, this law prohibits the secretary of the treasury and public credit from exceeding limitations on internal and external debt; (3) under the Law on the Powers of the Federal Executive over Economic Matters (29 December 1982), the secretary of commerce is authorized to continue price controls on basic consumer goods as well as on raw materials necessary for Mexican industry; (4) a law regulating public-service banks and credit (30 December 1982) authorizes the secretary of the treasury to oversee and regulate the disbursement of credit and loans by public financial and banking institutions, which include Mexican private banking business nationalized by former President José López Portillo on 1 September 1982; and (5) in a matter of days following its proposal to Congress, the national government's budget of expenditures for 1983 was approved by that body and signed by the president (30 December 1982). Administered by the secretary of programming and budget, it specifies how money will be provided government departments, agencies, and public enterprises to enable them to carry out their work for the year.

➤In keeping with his brand of mixed economies, President de la Madrid recently presented to Congress a bill that would allow 34 percent of the ownership of the nationalized banks to be purchased by individuals, with a 1 percent limit per stockholder. Until the government settles the indemnification talks with the former bank owners, however, the stock will not be sold.

➤According to a report of the United States Department of Agriculture, Mexico will buy 80 percent of its cereal imports from the United States in 1982-83. The report indicates that Mexico apparently did not come to an agreement on buying cereals from Canada, mainly because of the peso devaluation, which has increased the cost of imports. Thus Mexico has been forced to put more emphasis on cheaper sources, thereby postponing its plans to obtain cereals from different areas of the world.

➤In December 1982, the Mexican government shut down the Mexico City offices of the Mexican Food System (SAM) indefinitely, presumably because of SAM's failure to meet its self-proclaimed goal of food self-sufficiency. The SAM was launched in 1980 by President José López Portillo in an effort to reduce the importation of basic foodstuffs, which reached 11 million tons that year. Economists point out that, while initially successful in raising domestic production, bad weather in 1982 and a current inflation rate of 90 percent, which is out-distancing the guaranteed prices on such staples as wheat, have dramatically undermined the SAM's ability to fulfill its goal.

➤The secretary of commerce recently announced reduced customs duties for almost two thousand products. The reductions involved intermediate and capital goods, especially those not produced by Mexican industry, or inadequately supplied, and basic foodstuffs, seed, and fertilizers. According to the secretary the reduced rates on these imports were made in an effort "to defend national industries and combat inflation, opportunely supplying indispensable raw materials and intermediate goods for industry."

➤The destruction of communal lands in Mexico, resulting from industrial development, urbanization, and demographic growth, is the subject of a study by Arturo Warman of the Institute of Social Research of the National Autonomous University of Mexico (UNAM). He reports that communal organizations have worked fairly efficiently to provide subsistence for their members, although evidence also suggests that bad management and overexploitation of communal lands have contributed to soil depletion. The chief problems of the communal system are the impossibility of increasing the size of the units through acquisition and the incorporation of new lands. These problems, in turn, intensify efforts to cultivate already overexploited lands. Other problems associated with the communal system are demographic growth, which puts pressure on available lands; the control by outside interests of technology and the financing of crop production, which makes the peasant dependent on these outside sources; and wage differentials between agricultural and nonagricultural enterprises resulting in the increase of unfair exchange values in which the peasant is forced to produce more in order to meet his subsistence needs.

➤According to a study by the National Council of Science and Technology (CONACYT), 80 to 85 percent of the Mexican population is malnourished and consumes only such products as tortillas, beans, some fruits and vegetables, and only occasionally meat products. The quality of this consumption is low in energy density and poor in iron and vitamins. Bad nutritional habits contribute to the spread of infectious diseases and to a high level of mortality, especially among the rural population. The origin of malnourishment, according to the CONACYT study, is multiple: insufficient buying power; ignorance of what constitutes good nutrition; and, in rural areas, the extreme dispersion of the population, which, because of its isolation, becomes totally