

## Extended Abstract:

### A Comparison of Contraceptive Use Trends in El Salvador, Guatemala, Honduras and Nicaragua

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This paper considers recent trends in contraceptive use in Central America, with an emphasis on determining the extent to which changes in prevalence can be attributed to changes in such factors as women's education, economic status and urbanization. Within the context of Latin America, Central America is one of the last regions to experience fertility decline with much of the decline being attributable to greater contraceptive use. This decline has taken place against a backdrop of improvements in women's educational attainment and household economic status. A primary goal of this paper is to determine whether the changes in contraceptive use can be largely attributed to these social changes. A secondary goal is to compare the four countries in terms of whether differences between the countries in contraceptive use can be explained by differences in these social and economic factors. We will also consider changes over time in contraceptive method mix and sources of contraception.

Data for the analysis will come from a series of 14 nationally representative, cross sectional surveys that were conducted between 1987 and 2006: El Salvador (1993, 1998, 2002/03), Guatemala (1987, 1995, 2002), Honduras (1991/92, 1996, 2001, 2006) and Nicaragua (1992/93, 1008, 2001, 2006/07). Preliminary tabulations produced for this abstract exclude the two most recent surveys (Honduras, 2006 and Nicaragua, 2006/07), but these will also be incorporated into the paper. The data sources are described in greater detail in a recent report on health equity trends in Central America (Stupp, Daniels and Ruiz, 2007).

For this extended abstract we have produced some preliminary tabulations which are described below.

Contraceptive prevalence is customarily tabulated with women in union in the denominator. Table 1 shows the percent distribution of women in union for each of 12 surveys, for a group of characteristics that have been changing over time in Central America. For most of the characteristics, a common definition was used for all of the surveys. For wealth quintiles, however, a wealth index has been calculated separately for each survey using principal components analysis to determine relative weights assigned to household characteristics (Rutstein and Johnson, 2004). The quintile cut points have been defined by dividing households into five equal-sized groups in each survey. Ultimately, we intend to create one economic index for each country using pooled observations across surveys which will allow us to capture improvements in economic status, but this redefined variable has not yet been incorporated into the data base. The

percent distributions shown in Table 1 are of women in union, not of households, which is the reason that there are not 20 percent in each quintile.

Table 2 shows contraceptive prevalence rates for each of the 12 surveys, for a variety of characteristics. It can be seen that contraceptive prevalence has increased appreciably across survey rounds for all four countries, and that it has increased for all categories of the characteristics shown. Generally, there has been a convergence in prevalence with groups having the lowest initial prevalence registering the largest increases between surveys. An exception is for the variable wealth quintile in Guatemala, where despite an overall increase in prevalence there has not been a convergence between the lowest and highest quintiles.

Table 3 presents results for four logistic regression models; one for each country with data for the 3 surveys in each country having been pooled. A new variable, survey round, has been included to identify if the data come from the first, second or third round in that country (e.g., in El Salvador round one is 1993, round two is 1998 and round 3 is 2002/03). The models in Table 3 just include the categorical variable survey round and basically confirm the increasing trend in contraceptive prevalence for all four countries already seen in Table 2.

Table 4 presents one logistic regression model for each country, again pooling data from multiple survey rounds in each country, where select socioeconomic characteristics have been included in the models as well as survey round. It can be seen that survey round is still significant, controlling for the added characteristics, and that the estimated coefficients for survey round in Table 4 are actually larger than in the bivariate models shown in Table 3. Similar patterns across countries are seen for the variables area, education and parity, but there is considerable variation across countries in the strength of the variables for wealth quintile. In particular, the wealth quintile differential is much greater for Guatemala than for the other three countries in spite of the fact that ethnicity has also been included in the model for Guatemala.

These tables have been included here for illustrative purposes. As has been indicated, the analysis being proposed for this paper will include two additional, more recent datasets for Honduras and Nicaragua. In addition the variable defining economic status of the household will be redefined to capture changes in economic status of households rather than giving a relative ranking at each point in time as was done in the tables presented here. The modeling will consider interactions between survey round and the other variables in the models. We also intend to pool data from all four countries at the same point in time to consider whether differences in characteristics of the country account for differences in contraceptive use. Finally, we intend to look more closely at changes over time in source of contraception and contraceptive method mix.

#### References:

Rutstein, Shea O. and Kiersten Johnson. 2004. *The DHS Wealth Index*. DHS Comparative Reports No. 6, Calverton, MD: ORC Macro

Stupp, Paul W., Danni Daniels and Alicia Ruiz. 2007. *Reproductive, Maternal and Child Health in Central America: Health Equity Trends*. Atlanta, GA: Centers for Disease Control and Prevention.



Table 2: Estimated contraceptive prevalence rates for women in union, by selected socio-demographic characteristics

	Survey												
	El Salvador			Guatemala			Honduras			Nicaragua			
	1993	1998	2002/2003	1987	1995	2002	1991/1992	1996	2001	1992/1993	1998	2001	
TOTAL	0.532	0.600	0.669	0.232	0.314	0.433	0.458	0.492	0.616	0.487	0.603	0.686	
Wealth Quintile													
1	0.331	0.401	0.519	0.036	0.077	0.181	0.232	0.256	0.430	0.261	0.456	0.553	
2	0.452	0.517	0.657	0.069	0.138	0.302	0.330	0.408	0.569	0.357	0.565	0.692	
3	0.570	0.641	0.703	0.157	0.269	0.461	0.494	0.504	0.674	0.509	0.640	0.712	
4	0.626	0.702	0.758	0.365	0.472	0.615	0.616	0.626	0.699	0.604	0.685	0.741	
5	0.732	0.752	0.719	0.575	0.680	0.740	0.698	0.690	0.739	0.715	0.689	0.752	
Area													
Urban	0.618	0.678	0.735	0.430	0.489	0.568	0.601	0.609	0.702	0.612	0.663	0.733	
Rural	0.425	0.518	0.592	0.138	0.198	0.347	0.349	0.398	0.544	0.332	0.514	0.623	
Education													
0-5	0.461	0.532	0.615	0.160	0.212	0.328	0.364	0.414	0.548	0.376	0.531	0.632	
6	0.614	0.664	0.732	0.474	0.471	0.576	0.532	0.549	0.631	0.572	0.641	0.756	
7-11	0.603	0.639	0.716	0.631	0.594	0.636	0.653	0.629	0.683	0.612	0.681	0.731	
12	0.683	0.704	0.696	0.561	0.655	0.743	0.696	0.666	0.778	0.631	0.761	0.770	
13+	0.711	0.749	0.719	0.548	0.720	0.700	0.670	0.605	0.751	0.753	0.700	0.719	
Parity													
0-2	0.437	0.520	0.601	0.168	0.279	0.409	0.390	0.418	0.552	0.434	0.542	0.634	
3-4	0.711	0.749	0.816	0.325	0.448	0.551	0.584	0.630	0.720	0.604	0.718	0.779	
5-6	0.571	0.636	0.705	0.245	0.330	0.457	0.501	0.575	0.660	0.529	0.661	0.742	
7+	0.386	0.387	0.421	0.169	0.162	0.243	0.361	0.372	0.538	0.381	0.507	0.607	
Ethnicity													
Indigenous				0.055	0.096	0.238							
Not indigenous				0.340	0.433	0.529							

Table 3: Relative odds of use of contraception by women in union, including just survey round in the logistic regression (Data pooled for all three surveys in each country, with variable survey round identifying the surveys)

Unweighted N Survey Round	El Salvador		Guatemala		Honduras		Nicaragua	
	Odds Ratio*	p-value	Odds Ratio*	p-value	Odds Ratio*	p-value	Odds Ratio*	p-value
1	1.00	.	1.00	.	1.00	.	1.00	.
2	1.32	< 0.0001	1.52	0.0002	1.15	0.0370	1.61	< 0.0001
3	1.77	< 0.0001	2.54	< 0.0001	1.90	< 0.0001	2.31	< 0.0001

Table 4: Relative odds of use of contraception by women in union, including survey round and socioeconomic characteristics in the logistic regression. (Data pooled for all three surveys in each country, with variable survey round identifying the surveys)

	El Salvador		Guatemala		Honduras		Nicaragua	
	Odds Ratio*	p-value	Odds Ratio*	p-value	Odds Ratio*	p-value	Odds Ratio*	p-value
<i>Survey Round</i>								
1	1.00		1.00		1.00		1.00	
2	1.28	< 0.0001	1.64	< 0.0001	1.14	0.0153	1.65	< 0.0001
3	1.83	< 0.0001	3.36	< 0.0001	2.06	< 0.0001	2.46	< 0.0001
<i>Wealth Quintile</i>								
1	1.00		1.00		1.00		1.00	
2	1.67	< 0.0001	1.69	< 0.0001	1.75	< 0.0001	1.52	< 0.0001
3	2.37	< 0.0001	3.07	< 0.0001	2.73	< 0.0001	1.85	< 0.0001
4	2.93	< 0.0001	5.41	< 0.0001	3.76	< 0.0001	2.17	< 0.0001
5	3.31	< 0.0001	9.48	< 0.0001	4.46	< 0.0001	2.56	< 0.0001
<i>Area</i>								
Urban	1.00		1.00		1.00		1.00	
Rural	0.88	0.0442	0.78	0.0009	0.93	0.2174	0.81	0.0002
<i>Education</i>								
0-5	1.00		1.00		1.00		1.00	
6	1.50	< 0.0001	1.45	< 0.0001	1.33	< 0.0001	1.58	< 0.0001
7-11	1.34	< 0.0001	1.76	< 0.0001	1.63	< 0.0001	1.62	< 0.0001
12	1.38	0.0006	1.93	0.0001	1.87	< 0.0001	2.01	0.0001
13+	1.60	0.0012	1.94	0.0013	1.49	0.0001	1.89	< 0.0001
<i>Parity</i>								
0-2	1.00		1.00		1.00		1.00	
3-4	3.65	< 0.0001	3.02	< 0.0001	2.66	< 0.0001	2.46	< 0.0001
5-6	2.69	< 0.0001	3.00	< 0.0001	2.71	< 0.0001	2.37	< 0.0001
7+	1.18	0.0517	1.80	< 0.0001	1.74	< 0.0001	1.56	< 0.0001
<i>Ethnicity</i>								
Indigenous	N/A	N/A	1.00		N/A	N/A	N/A	N/A
Not indigenous	N/A	N/A	2.59	< 0.0001	N/A	N/A	N/A	N/A

