

12 Months CSES 2003/05 Results Demography by Has Bunton

Background

- The National Institute of Statistics (NIS) has conducted four Cambodia Socio-Economic Survey-CSES-in 1993/94, 1996, 1997 and 1999. This new 2003/05 CSES has completed its final round recently
- The 1998 Population Census of Cambodia provided a much more complete demographic picture and has introduced a new era of sampling
- The 2004 Cambodian Intercensal Population Survey (2004 CIPS) suggested that fertility and mortality components are declining more rapidly than expected in earlier projections (1993-04 FSP)
- The affect on the size of the infant and child population are quite important for the purposes of re-weighting the CSES samples and updating the 1993-04 FSP

— 26

Major Findings of Dr. Ricardo (1)



- According to the 2004 CIPS data, fertility has declined substantially during the past two decades. The total fertility rate declined from more than 6 children per woman in the early 1980s to 4.0 children in 1998 and to 3.3 in 2003.
- Infant and child mortality have experienced a substantial decline. According to the 2004 CIPS, from a rate of 93 deaths per 1,000 births in 1998, infant mortality declined to 66 in 2003. Child mortality declined from 31 deaths per 1,000 children 1 to 4 years old in 1998 to 17 in 2003

→

Major Findings of Dr. Ricardo (2)



- Mainly as a result of early-age mortality decline, Cambodians have gained several years of life expectancy. From 1998 to 2003 it increased from 52 to 60 years among males and from 56 to 65 among females. In other words, life expectancy at birth has increased by 9 years in a period of only 5 years
- According to the population projection conducted with the variables estimated from the 2004 CIPS, the population of Cambodia will surpass the 13 millions during the present year. By the end of the decade, it will reach 15 millions.

Major Findings of Dr. Ricardo (3)



- In spite of fertility decline, the rate of population growth during the second half of the present decade will be high: and average annual rate of 1.9%. The reason is the so called *population momentum*, which results when the large cohorts of women that were born during the period of high fertility rates (1980-1995) are reaching reproductive age.
- The age pattern of mortality of the Cambodian population identified in the construction of a life table using the 2004 CIPS data is different from the patterns corresponding to the life table models available. This fact makes it necessary to have a reliable life tables based on empirical data.

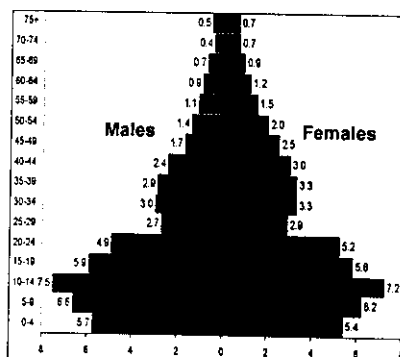
from what?

CIPS of what?

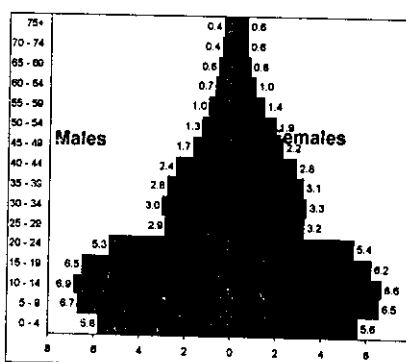
Population Shape (1): CIPS-04 & CSES-03/05



Population pyramid, Cambodia, CIPS 2004

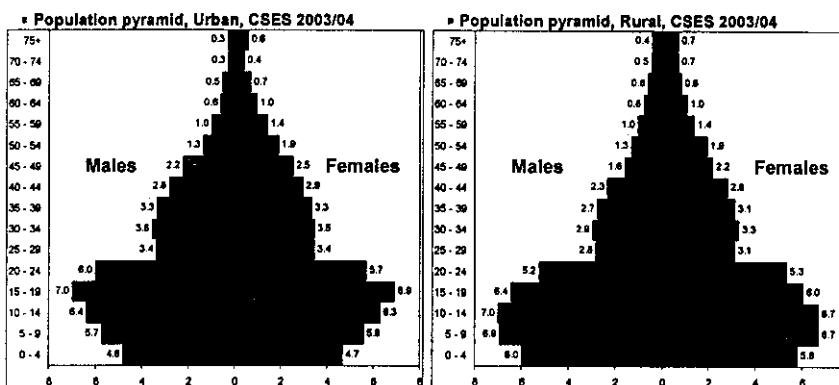


Population pyramid, Cambodia, CSES 2003/04

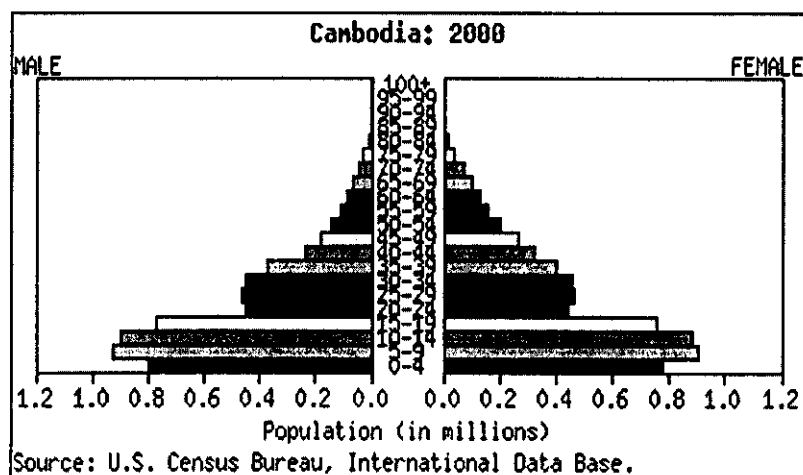


which is better?

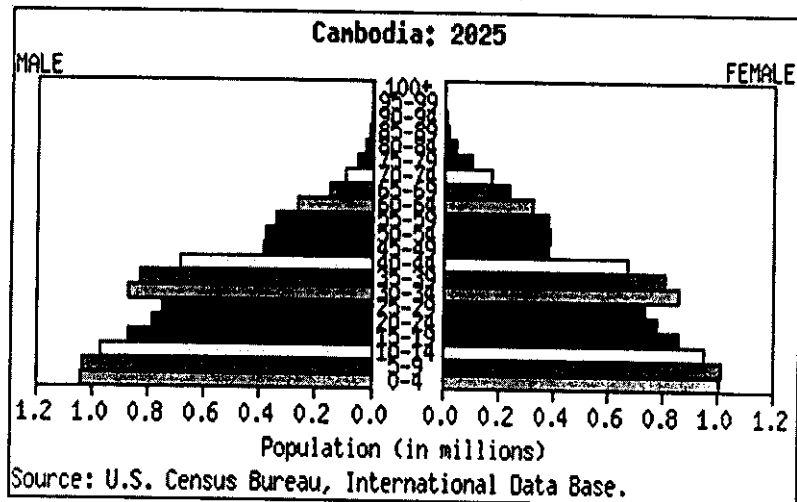
Population Shape (2): CSES, Urban and Rural



Population Shape (3): USCB Estimate, 2000

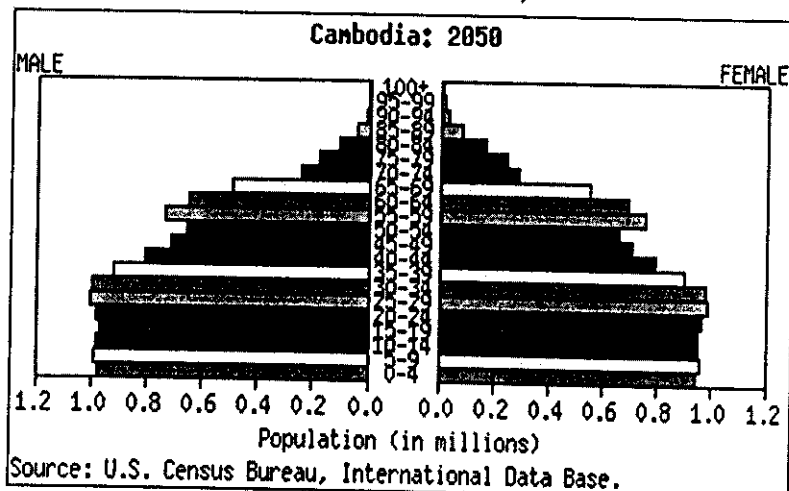


Population Shape (4): USCB Estimate, 2025



what assumptions?

Population Shape (5): USCB Estimate, 2050



Abridged Life Table, 2003 by Dr. Ricardo (1)



Males

Age	M(X,N)	Q(X,N)	I(X)	D(X,N)	L(X,N)	S(X,N)	T(X)	E(X)	A(X,N)
0	0,07721	0,07300	100000	7300	94542	0.92117 /A/	5988923	59,89	0,25
1	0,00507	0,02000	92700	1854	366041	0.97856 /B/	5894380	63,59	1,43
5	0,00313	0,01551	90846	1409	450707	0,98611	5528340	60,85	2,50
10	0,00246	0,01224	89437	1095	444448	0,98829	5077632	56,77	2,50
15	0,00226	0,01123	88342	992	439241	0,98802	4633184	52,45	2,51
20	0,00265	0,01316	87350	1150	433979	0,98476	4193943	48,01	2,59
25	0,00355	0,01762	86201	1519	427368	0,9799	3759963	43,62	2,61
30	0,00457	0,02261	84682	1915	418778	0,97508	3332596	39,35	2,58
35	0,00550	0,02714	82767	2246	408341	0,97104	2913817	35,21	2,55
40	0,00625	0,03080	80521	2480	396516	0,96697	2505476	31,12	2,55
45	0,00727	0,03571	78041	2787	383417	0,96018	2108961	27,02	2,57
50	0,00917	0,04486	75254	3376	368148	0,94802	1725544	22,93	2,59
55	0,01252	0,06079	71878	4369	349010	0,92598	1357396	18,89	2,62
60	0,01888	0,09038	67509	6101	323177	0,88851	1008386	14,94	2,65
65	0,03040	0,14217	61407	8730	287146	0,78014	685208	11,16	2,72
70	0,07418	0,31544	52677	16616	224013	0.43724 /C/	398062	7,56	2,63
75	0,20719		36061	36061	174049		174049	4,83	4,83

Abridged Life Table, 2003 by Dr. Ricardo (2)



Females

Age	M(X,N)	Q(X,N)	I(X)	D(X,N)	L(X,N)	S(X,N)	T(X)	E(X)	A(X,N)
0	0,06182	0,05900	100000	5900	95439	0.93690 /A/	6483470	64,84	0,23
1	0,00353	0,01400	94100	1317	373012	0.98531 /B/	6388031	67,89	1,43
5	0,00203	0,01010	92783	937	461570	0,99099	6015019	64,83	2,50
10	0,00159	0,00791	91846	726	457411	0,99227	5553449	60,47	2,50
15	0,00154	0,00769	91119	701	453873	0,99138	5096037	55,93	2,54
20	0,00198	0,00986	90418	892	449962	0,98848	4642164	51,34	2,61
25	0,00269	0,01336	89527	1196	444778	0,98469	4192202	46,83	2,61
30	0,00349	0,01728	88331	1526	437970	0,98087	3747424	42,43	2,59
35	0,00422	0,02088	86804	1812	429591	0,97777	3309455	38,13	2,56
40	0,00474	0,02343	84992	1991	420041	0,9757	2879864	33,88	2,53
45	0,00511	0,02524	83001	2095	409835	0,97325	2459823	29,64	2,53
50	0,00585	0,02886	80906	2335	398871	0,96695	2049988	25,34	2,58
55	0,00786	0,03857	78571	3030	385688	0,95227	1651117	21,01	2,64
60	0,01213	0,05899	75540	4456	367278	0,92786	1265429	16,75	2,66
65	0,01921	0,09210	71084	6547	340781	0,84522	898151	12,64	2,76
70	0,05220	0,23297	64537	15035	288034	0.48323 /C/	557370	8,64	2,70
75	0,18379		49502	49502	269336		269336	5,44	5,44

Abridged Life Table, 2003 by Dr. Ricardo (3)



Where:

$M(X,N)$ = Age-specific central death rate.

$A(X,N)$ = Average person-years lived by those who die between X and $X+N$.

$Q(X,N)$ = Probability of dying between exact ages x and $X+N$

$I(X)$ = Number of survivors at age X

$D(X,N)$ = Number of deaths occurring between ages X and $X+N$.

$L(X,N)$ = Number of person-years lived between ages X and $X+N$.

$S(X,N)$ = Survival ratio for persons aged X to $X+5$

$T(X)$ = Number of person-years lived after age X

$E(X)$ = Life expectancy at age X .

/A/ VALUE GIVEN IS FOR SURVIVORSHIP OF 5 COHORTS OF BIRTH TO AGE GROUP 0-4 = $L(0,5)/500000$

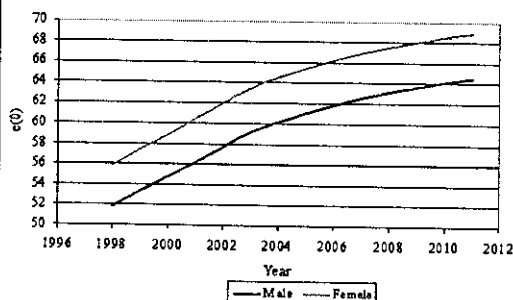
/B/ VALUE GIVEN IS FOR $S(0,5) = L(5,5)/L(0,5)$

/C/ VALUE GIVEN IS $S(70+,5) = T(75)/T(70)$

Projection of Life Expectancy at Birth, Adjusted Abridged, by Dr. Ricardo



Year	Male	Female
1998	51.82	55.79
1999	53.28	57.33
2000	54.74	58.87
2001	56.19	60.40
2002	57.65	61.94
2003	59.11	63.48
2004	60.11	64.48
2005	61.01	65.38
2006	61.81	66.18
2007	62.51	66.88
2008	63.11	67.48
2009	63.61	67.98
2010	64.11	68.48
2011	64.51	68.88



!!

close to 70 years
by 2010?

Sten:

1749 civil registration data & Sweden

The New Special Population to 2011 Projection, Re-weighted for 1993-2004 by Dr. Ricardo (1)



Age	1993			1994			1996			1997		
	Male	Female	Total	Male	Female	Total	Male	Female	Total	Male	Female	Total
0 to 4	939 319	919 165	1 878 484	977 204	938 222	1 915 426	1 029 558	989 078	2 018 636	1 034 872	994 513	2 029 385
5 to 9	890 253	842 119	1 732 373	906 425	855 907	1 762 331	916 814	872 633	1 789 447	919 909	880 472	1 800 381
10 to 14	696 284	708 323	1 404 607	749 276	750 228	1 499 504	826 021	799 608	1 625 628	852 795	814 840	1 667 635
15 to 19	373 799	409 026	782 825	410 238	444 613	854 871	544 158	573 382	1 117 540	618 182	642 135	1 260 318
20 to 24	452 936	483 772	936 708	433 454	465 678	899 132	372 196	408 798	780 994	355 928	394 061	749 990
25 to 29	393 319	433 705	827 024	405 322	443 187	850 508	433 961	472 647	908 608	443 073	478 626	921 699
30 to 34	346 902	390 803	737 705	360 110	399 387	759 497	370 096	410 404	780 500	373 644	416 232	789 876
35 to 39	214 298	315 025	529 323	233 624	327 952	561 576	287 965	356 395	644 360	314 063	369 558	683 621
40 to 44	189 633	256 519	446 152	191 335	266 631	457 966	190 381	284 822	475 203	194 436	294 499	488 935
45 to 49	145 545	193 420	338 965	151 846	202 646	354 492	168 100	225 067	393 167	175 103	236 623	411 726
50 to 54	123 755	160 079	283 834	125 800	164 049	289 849	129 233	172 364	301 598	131 949	177 891	309 840
55 to 59	100 653	132 640	233 293	102 561	135 559	238 120	108 009	142 879	250 887	110 785	146 830	257 615
60 to 64	87 000	113 164	200 165	87 481	114 980	202 461	87 594	117 860	205 455	87 974	119 510	207 484
65 to 69	63 130	83 192	146 322	63 909	87 557	151 466	70 304	94 374	164 678	71 721	96 891	168 612
70 to 74	38 035	50 003	88 037	39 636	52 771	92 407	43 672	59 802	103 475	45 887	63 579	109 467
75+	39 218	54 430	93 648	40 870	57 444	98 314	44 385	63 980	108 365	46 254	67 522	113 776
Total	5 114 080	5 545 386	10 659 466	5 281 112	5 708 811	10 989 922	5 624 447	6 044 182	11 668 629	5 776 575	6 193 783	11 970 358

The New Special Population to 2011 Projection, Re-weighted for 1993-2004 by Dr. Ricardo (2)



Age	1998			1999			2004			2005		
	Male	Female	Total	Male	Female	Total	Male	Female	Total	Male	Female	Total
0 to 4	981 450	944 949	1 926 399	929 291	897 763	1 827 054	777 315	754 097	1 531 412	779 372	754 765	1 534 137
5 to 9	928 657	892 566	1 821 223	943 391	909 207	1 852 598	902 340	877 141	1 779 481	846 380	825 073	1 671 453
10 to 14	874 377	829 092	1 703 469	889 967	841 748	1 731 715	924 885	892 978	1 817 863	950 144	918 581	1 868 725
15 to 19	682 318	698 642	1 380 960	734 090	738 965	1 473 055	875 578	829 673	1 705 251	883 592	839 251	1 722 843
20 to 24	363 768	402 278	766 046	399 096	436 562	835 658	717 496	725 826	1 443 322	759 951	754 903	1 514 854
25 to 29	438 625	474 174	912 799	419 492	455 570	875 062	388 058	427 260	815 318	445 722	483 531	929 253
30 to 34	380 194	423 837	804 031	391 537	434 260	825 797	407 256	444 526	851 782	379 264	417 711	796 975
35 to 39	334 213	380 654	714 867	346 745	388 326	735 071	379 097	422 514	801 611	394 703	436 530	831 233
40 to 44	205 175	305 463	510 638	223 633	317 446	541 079	334 068	376 238	710 306	341 129	382 337	723 466
45 to 49	179 831	247 456	427 287	181 406	256 777	438 183	213 834	306 020	519 854	238 098	319 499	557 597
50 to 54	136 028	184 966	320 994	141 903	193 412	335 315	171 069	245 420	416 489	170 949	254 175	425 124
55 to 59	113 197	150 747	263 944	115 096	154 136	269 232	131 309	182 098	313 407	138 683	192 063	330 746
60 to 64	88 966	121 624	210 590	90 713	123 951	214 664	103 307	141 395	244 702	105 103	145 051	250 154
65 to 69	72 589	98 896	171 485	73 024	100 097	173 121	77 262	108 454	185 716	79 680	111 550	191 230
70 to 74	48 046	67 231	115 277	50 223	70 364	120 587	57 089	80 920	138 009	57 587	82 260	139 847
75+	48 202	71 260	119 462	50 566	74 600	124 966	65 661	98 950	164 611	69 204	104 534	173 738
Total	5 875 636	6 293 855	12 169 491	5 979 973	6 393 184	12 373 157	6 525 624	6 913 510	13 439 134	6 639 561	7 021 814	13 661 375

The New Special Population to 2011 Projection, Re-weighted for 1993-2004 by Dr. Ricardo (3)



Age	2006			2007			2008			2009		
	Male	Female	Total	Male	Female	Total	Male	Female	Total	Male	Female	Total
0 to 4	838.477	810.168	1.648.645	897.078	865.543	1.762.621	901.302	868.996	1.770.298	908.282	874.994	1.783.276
5 to 9	790.936	772.838	1.563.794	751.479	734.839	1.486.318	760.326	742.169	1.502.495	761.822	741.938	1.503.760
10 to 14	975.833	944.049	1.919.902	983.414	952.432	1.935.846	937.078	909.671	1.846.749	890.334	866.638	1.756.992
15 to 19	886.343	846.275	1.732.618	889.226	853.973	1.743.199	897.280	865.743	1.763.023	913.602	883.961	1.797.563
20 to 24	793.828	774.887	1.568.715	821.141	790.491	1.611.632	843.558	805.253	1.648.811	860.316	819.308	1.679.624
25 to 29	516.896	552.019	1.068.915	588.560	618.884	1.207.444	651.185	674.140	1.325.325	702.432	714.914	1.417.346
30 to 34	351.093	390.882	741.975	336.519	377.254	713.773	344.777	385.658	730.435	379.482	419.886	799.368
35 to 39	409.497	449.408	858.905	417.167	455.614	872.781	414.006	451.935	865.941	397.208	435.588	832.796
40 to 44	344.911	387.471	732.382	349.123	393.387	742.510	356.202	401.152	757.354	368.111	412.396	780.507
45 to 49	265.010	333.274	598.284	289.830	346.047	635.877	309.304	356.967	666.271	322.010	365.385	687.395
50 to 54	171.323	262.792	434.115	175.640	272.127	447.767	186.091	282.715	468.806	203.702	294.828	498.530
55 to 59	146.463	202.894	349.357	153.162	213.716	366.878	157.917	223.937	381.874	159.962	233.275	393.237
60 to 64	107.100	149.203	256.303	109.905	154.404	264.309	113.892	161.004	274.896	119.467	169.198	288.665
65 to 69	82.399	115.040	197.439	85.063	118.674	203.737	87.479	122.334	209.813	89.500	125.884	215.384
70 to 74	58.122	83.676	141.798	58.933	85.340	144.273	60.184	87.392	147.576	61.934	89.899	151.833
75+	72.793	110.276	183.069	76.291	116.012	192.303	79.613	121.650	201.263	82.789	127.228	210.017
Total	6.811.044	7.185.172	13.996.216	6.982.531	7.348.737	14.331.268	7.100.194	7.460.736	14.560.930	7.220.953	7.575.340	14.796.293

The New Special Population to 2011 Projection, Re-weighted for 1993-2004 by Dr. Ricardo (4)



Age	2006			2007			2008			2009		
	Male	Female	Total	Male	Female	Total	Male	Female	Total	Male	Female	Total
0 to 4	838.477	810.168	1.648.645	897.078	865.543	1.762.621	901.302	868.996	1.770.298	908.282	874.994	1.783.276
5 to 9	790.936	772.838	1.563.794	751.479	734.839	1.486.318	760.326	742.169	1.502.495	761.822	741.938	1.503.760
10 to 14	975.833	944.049	1.919.902	983.414	952.432	1.935.846	937.078	909.671	1.846.749	890.334	866.638	1.756.992
15 to 19	886.343	846.275	1.732.618	889.226	853.973	1.743.199	897.280	865.743	1.763.023	913.602	883.961	1.797.563
20 to 24	793.828	774.887	1.568.715	821.141	790.491	1.611.632	843.558	805.253	1.648.811	860.316	819.308	1.679.624
25 to 29	516.896	552.019	1.068.915	588.560	618.884	1.207.444	651.185	674.140	1.325.325	702.432	714.914	1.417.346
30 to 34	351.093	390.882	741.975	336.519	377.254	713.773	344.777	385.658	730.435	379.482	419.886	799.368
35 to 39	409.497	449.408	858.905	417.167	455.614	872.781	414.006	451.935	865.941	397.208	435.588	832.796
40 to 44	344.911	387.471	732.382	349.123	393.387	742.510	356.202	401.152	757.354	368.111	412.396	780.507
45 to 49	265.010	333.274	598.284	289.830	346.047	635.877	309.304	356.967	666.271	322.010	365.385	687.395
50 to 54	171.323	262.792	434.115	175.640	272.127	447.767	186.091	282.715	468.806	203.702	294.828	498.530
55 to 59	146.463	202.894	349.357	153.162	213.716	366.878	157.917	223.937	381.874	159.962	233.275	393.237
60 to 64	107.100	149.203	256.303	109.905	154.404	264.309	113.892	161.004	274.896	119.467	169.198	288.665
65 to 69	82.399	115.040	197.439	85.063	118.674	203.737	87.479	122.334	209.813	89.500	125.884	215.384
70 to 74	58.122	83.676	141.798	58.933	85.340	144.273	60.184	87.392	147.576	61.934	89.899	151.833
75+	72.793	110.276	183.069	76.291	116.012	192.303	79.613	121.650	201.263	82.789	127.228	210.017
Total	6.811.044	7.185.172	13.996.216	6.982.531	7.348.737	14.331.268	7.100.194	7.460.736	14.560.930	7.220.953	7.575.340	14.796.293

The New Special Population to 2011 Projection, Re-weighted for 1993-2004 by Dr. Ricardo (5)



Age	2010			2011		
	Male	Female	Total	Male	Female	Total
0 to 4	916.555	882.291	1.798.846	870.380	837.315	1.707.695
5 to 9	764.635	743.133	1.507.768	823.141	798.037	1.621.178
10 to 14	835.863	815.810	1.651.673	781.576	764.554	1.546.130
15 to 19	938.981	909.741	1.848.722	964.726	935.308	1.900.034
20 to 24	868.680	829.228	1.697.908	871.789	836.534	1.708.323
25 to 29	744.546	744.037	1.488.583	778.207	764.128	1.542.335
30 to 34	436.234	475.538	911.772	506.221	543.203	1.049.424
35 to 39	370.199	409.605	779.804	342.935	383.525	726.460
40 to 44	383.600	426.414	810.014	398.251	439.262	837.513
45 to 49	329.100	371.605	700.705	332.992	376.836	709.828
50 to 54	227.062	308.087	535.149	252.917	321.593	574.510
55 to 59	160.035	241.858	401.893	160.563	250.282	410.845
60 to 64	126.389	178.738	305.127	133.651	189.052	322.703
65 to 69	91.261	129.444	220.705	93.180	133.421	226.601
70 to 74	64.101	92.824	156.925	66.479	96.026	162.505
75+	85.912	132.848	218.760	89.057	138.556	227.613
Total	7.343.153	7.691.201	15.034.354	7.466.065	7.807.632	15.273.697

Demographic Measures in the 2003/05 CSES (1)



- The 2003-04 CSES is not especially designed to measure demographic characteristics of the population, but it contains several questions that can be used for that purpose (Dr. Ricardo)
- According to the 2003-04 CSES the GFR in 2002 is 79.1 births per 1,000 women in reproductive age. According to the 2004 CIPS, the GFR is 96.3 in 2003. The two values are different, but it is possible to consider both values as indicating a relatively low fertility level.

Demographic Measures in the 2003/05 CSES (2)



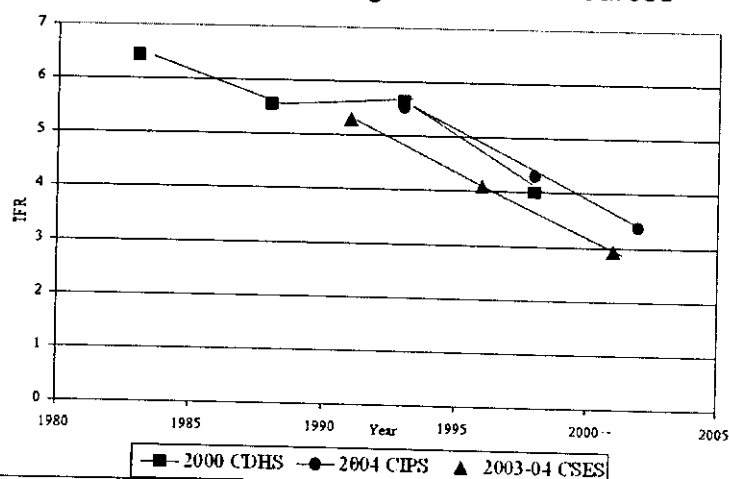
Total fertility rates according to the CSES 2004-05, 1990-94 to 2000-2004

Quinquennium	TFR
1999-2003	2,93
1994-1998	4,07
1989-1993	5,29

Demographic Measures in the 2003/05 CSES (3)



- Total fertility rate according to the three sources



Demographic Measures in the 2003/05 CSES (4)



Estimates of infant and child mortality based
on the CSES 2004-05 data

Date	Infant Mortality	Child Mortality
Male		
Aug-02	0.066	0.016
May-01	0.072	0.019
Jul-99	0.075	0.020
Female		
Aug-02	0.062	0.015
May-01	0.070	0.018
Jul-99	0.071	0.019

Thanks for Kind Attention



- Sten: yes, this is a bit of a (+ve) bombshell - like 2000 DHS was a (-ve) bombshell, implying IMR was increasing
- Zia: higher pop^s will imply lower p.c. GDP, w. ^{narrower} implier for national accounts etc. will they be used officially?
- De SST: Natl. Accounts ready for public this week (so won't be updated?); but this will go into S. gov planning