

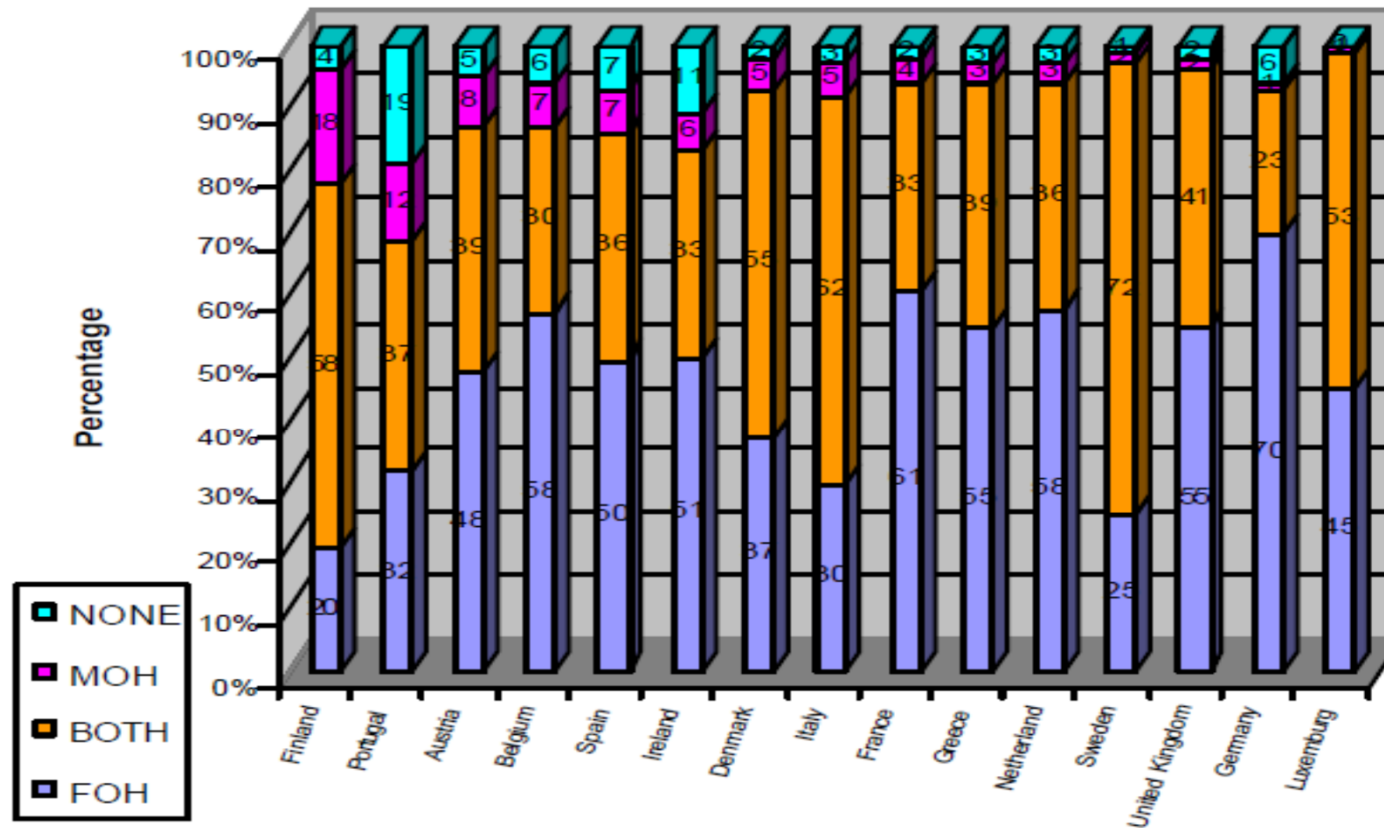
RDD Sampling Methods (Cont.)

Cell Phone Era

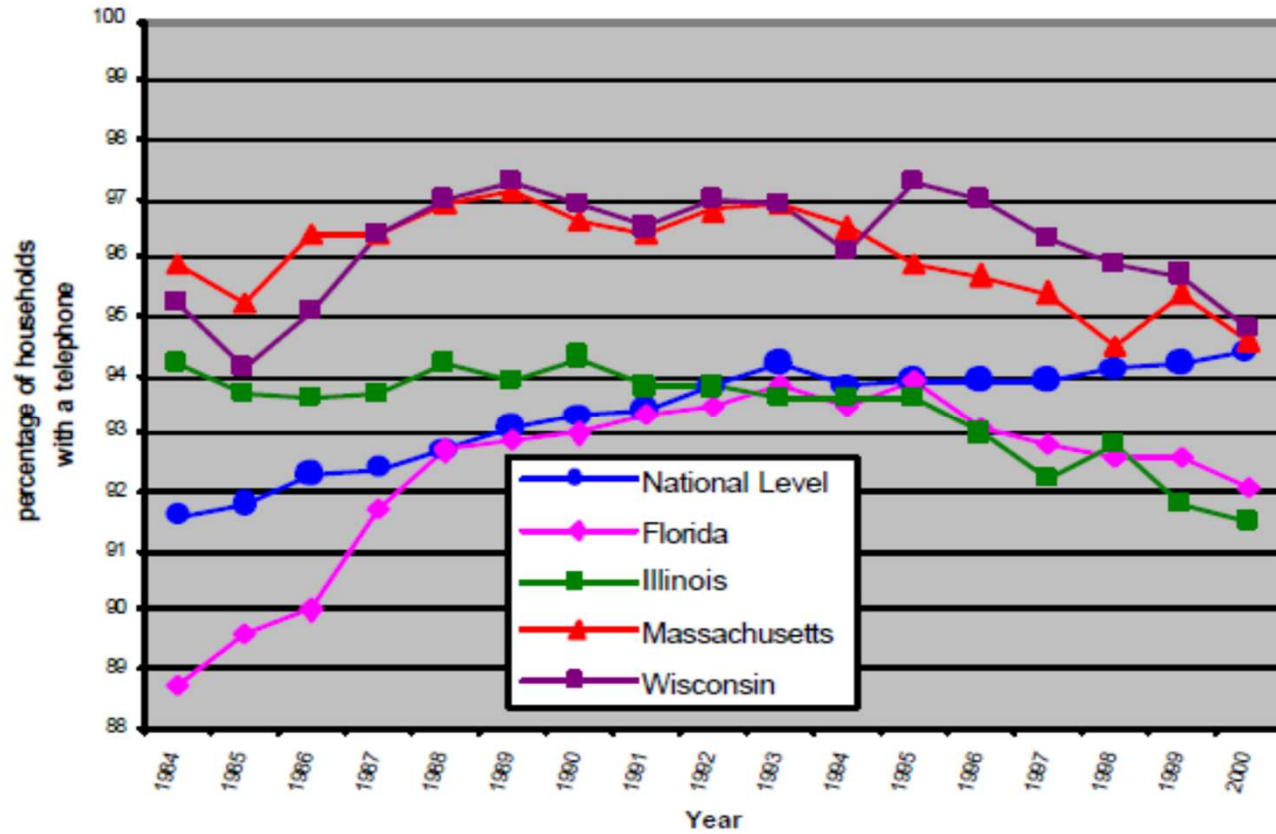


RDD Sampling Methods (Cont.)

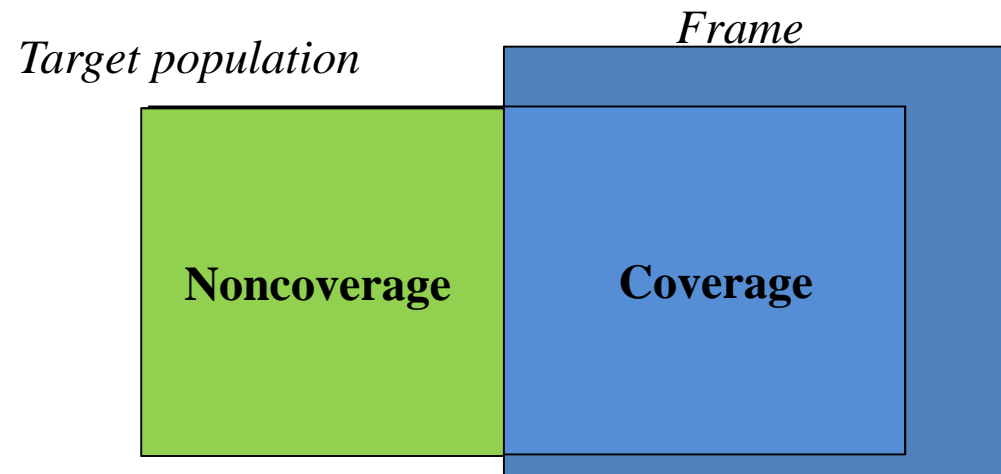
There was a trend globally of decreased coverage of fixed line (landline) telephone households due to an increase in mobile (cell) only households (Kim and Lepkowski, AAPOR, 2002).



RDD Sampling Methods (Cont.)

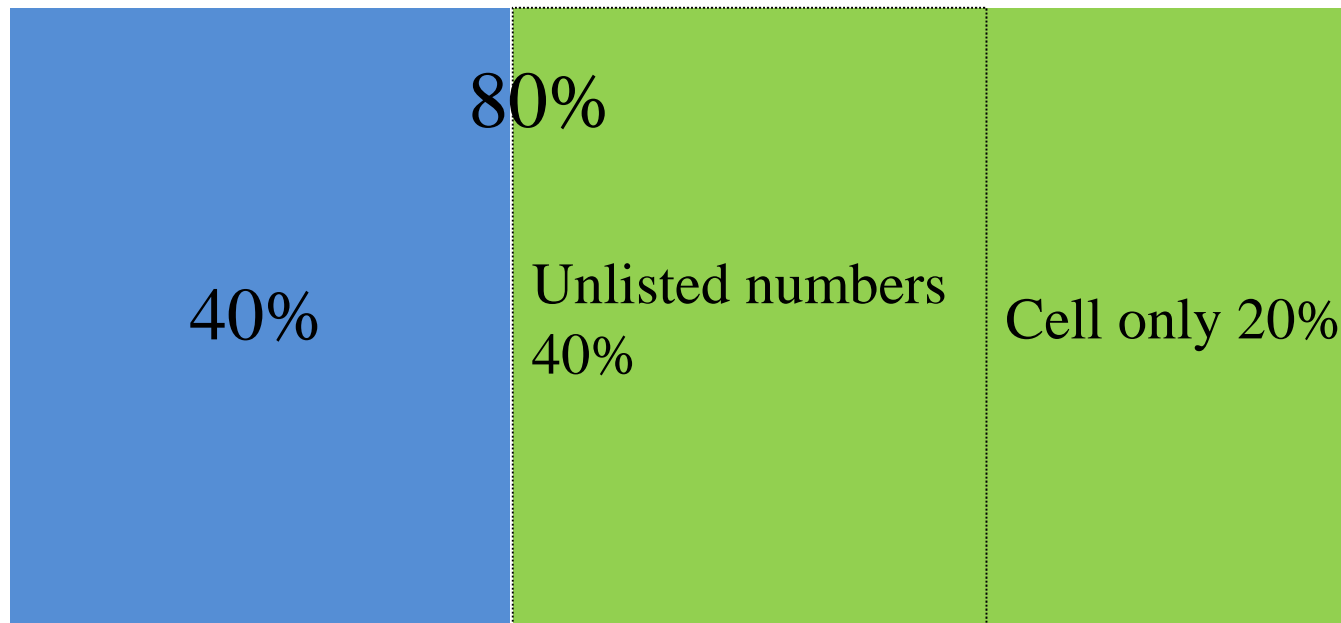


RDD Sampling Methods (Cont.)





Landline Coverage in Korea



Coverage Bias

$$P_C - P_T = (1 - R_C)(P_C - P_{NC})$$

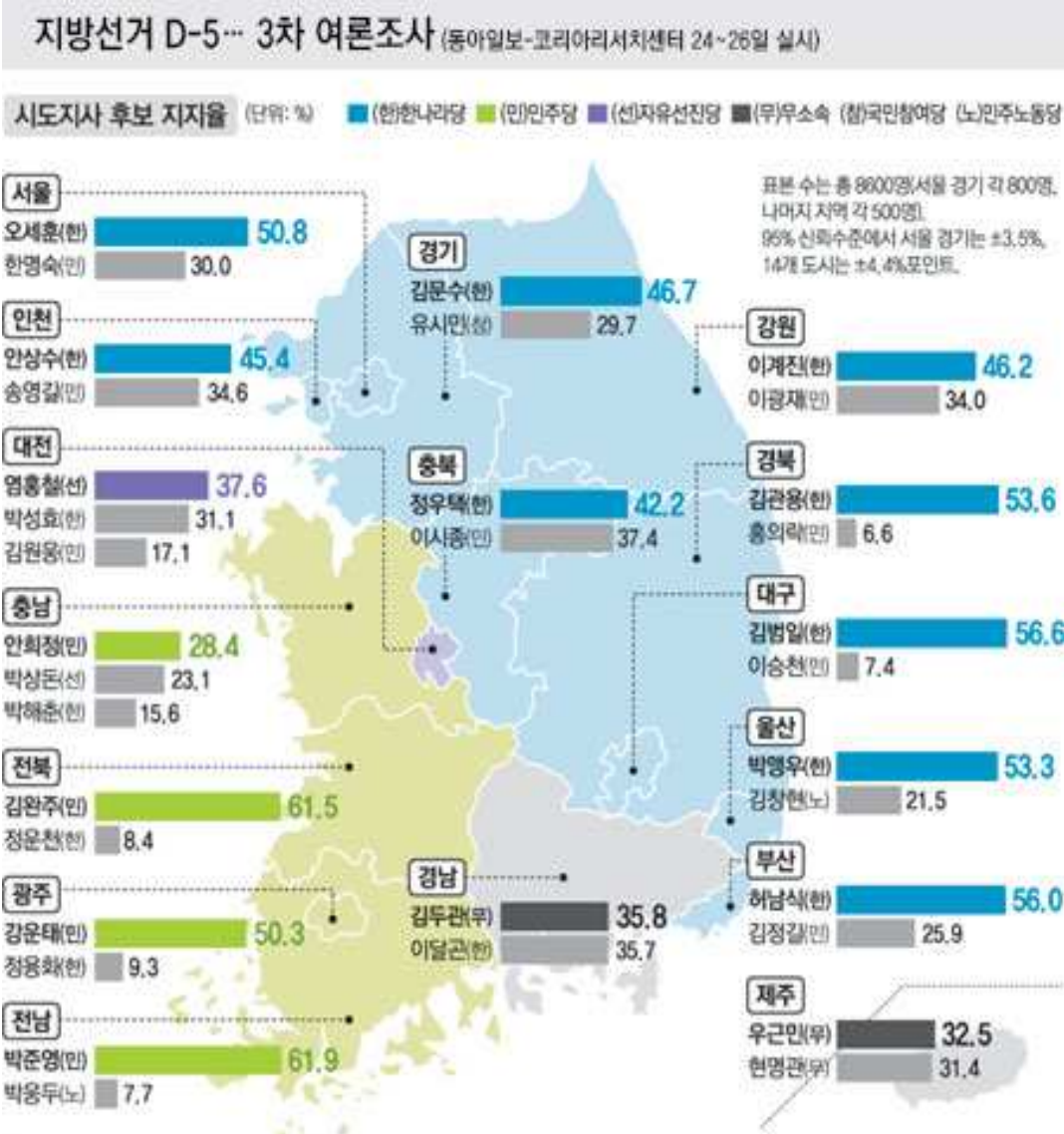
- P_T = Proportion characteristic for target population
- P_C = Proportion characteristic for units covered by the sampling frame
- P_{NC} = Proportion characteristic for units not covered by the sampling frame
- R_C = Coverage rate

*Source: Introduction to Survey Quality (2003)
Survey Methodology (2004)*

RDD Sampling Methods (Cont.)

R_C	$P_C - P_{NC}$	Coverage bias $P_C - P_T$
0.4(40%)	0.05(5%)	0.03(3%)
	0.10(10%)	0.06(6%)
	0.15(15%)	0.09(9%)
	0.20(20%)	0.12(12%)

RDD Sampling Methods (Cont.)



선거관리위원회 집계 선거 결과(최종)

서울 - 오세훈 47.4, 한명숙 46.8

경기 - 김문수 52.2, 유시민 47.8

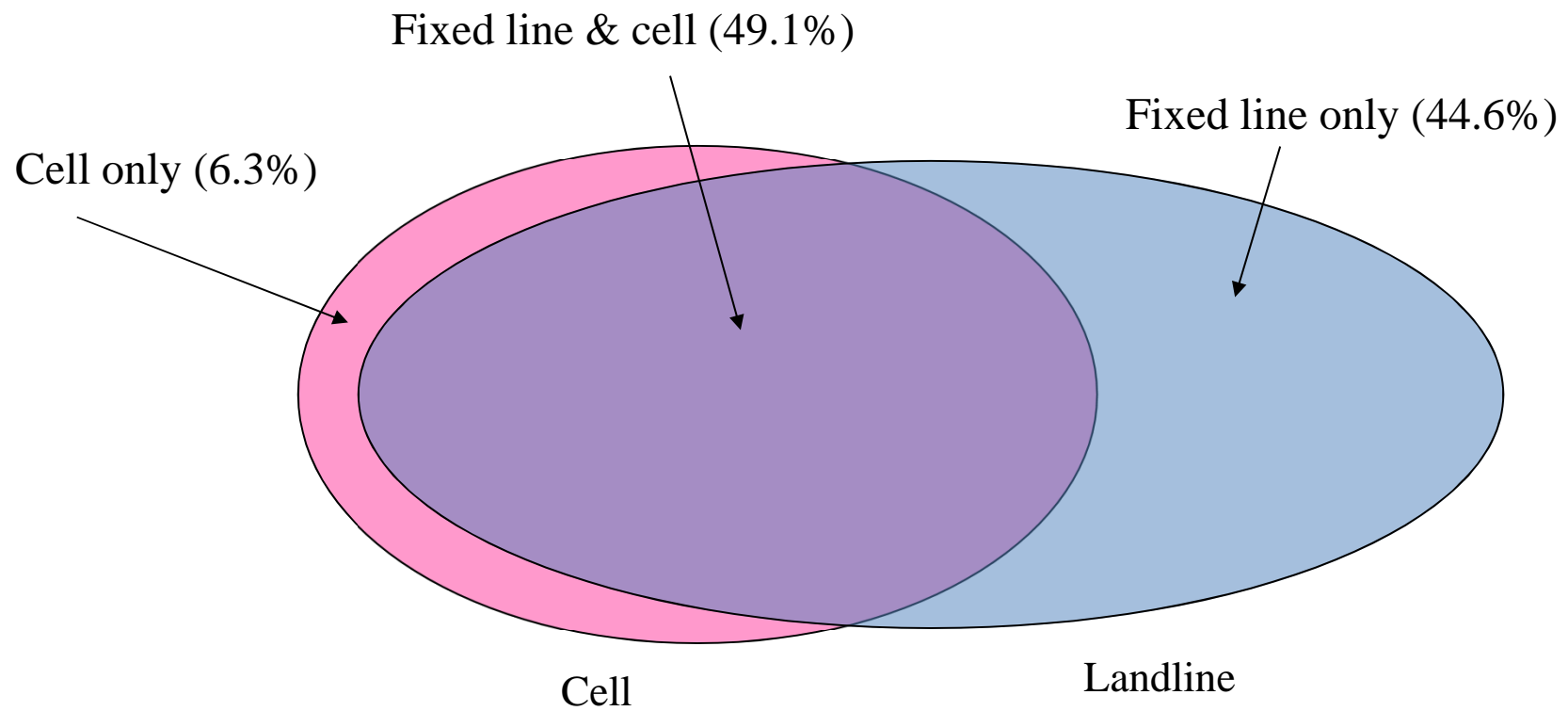
인천 - 안상수 44.4, 송영길 52.7

Dual-Frame Landline/Cellular Telephone Survey Design

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2005 Joint Statistical Meetings
Minneapolis, Minnesota

RDD Sampling Methods (Cont.)



(Example) Device and person array: 'use' indicator

	Person 1	Person 2	Person 3	Person 4	Person 5
Device 1	1	1	1	1	1
Device 2	0	1	0	0	0
Device 3	0	0	1	0	0
Device 4	0	0	0	1	1
Device 5	0	0	0	0	1

Indicator Variables and Weights

δ_{ij} : 'Use' of device i by person j

$\delta_i = \sum_{j=1}^{N_E} \delta_{ij}$: Number of eligibles using device i

$\frac{1}{\sum_{i=1}^{N_D} \frac{\delta_{ij} \pi_i}{\delta_i}}$: Weight for selected person j :

π_i : Probability of selection of device i

Application: GSU Survey (Steeh)

- National Science Foundation sponsored survey
- Investigated use of cell telephones and feasibility of ‘calling’ cell telephones by RDD
- Sample design
 - Fixed line (landline) phone sample: RDD with FHD
 - Cell phone samples: RDD of cell phone numbers
 - Treat all devices as CPD for respondent selection
 - Under certain assumptions, can determine CPD & CSD as well
- Completed interviews (1,564)
 - RDD: 743
 - Cell: 821

Distribution of Weight

