



Rutgers Center for
State Health Policy

*Institute for Health, Health Care Policy
and Aging Research*

Results from the 2007 New Jersey Health Care Opinion Poll

Do we need to worry about wireless substitution in public opinion polls about health reform?

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Project Team

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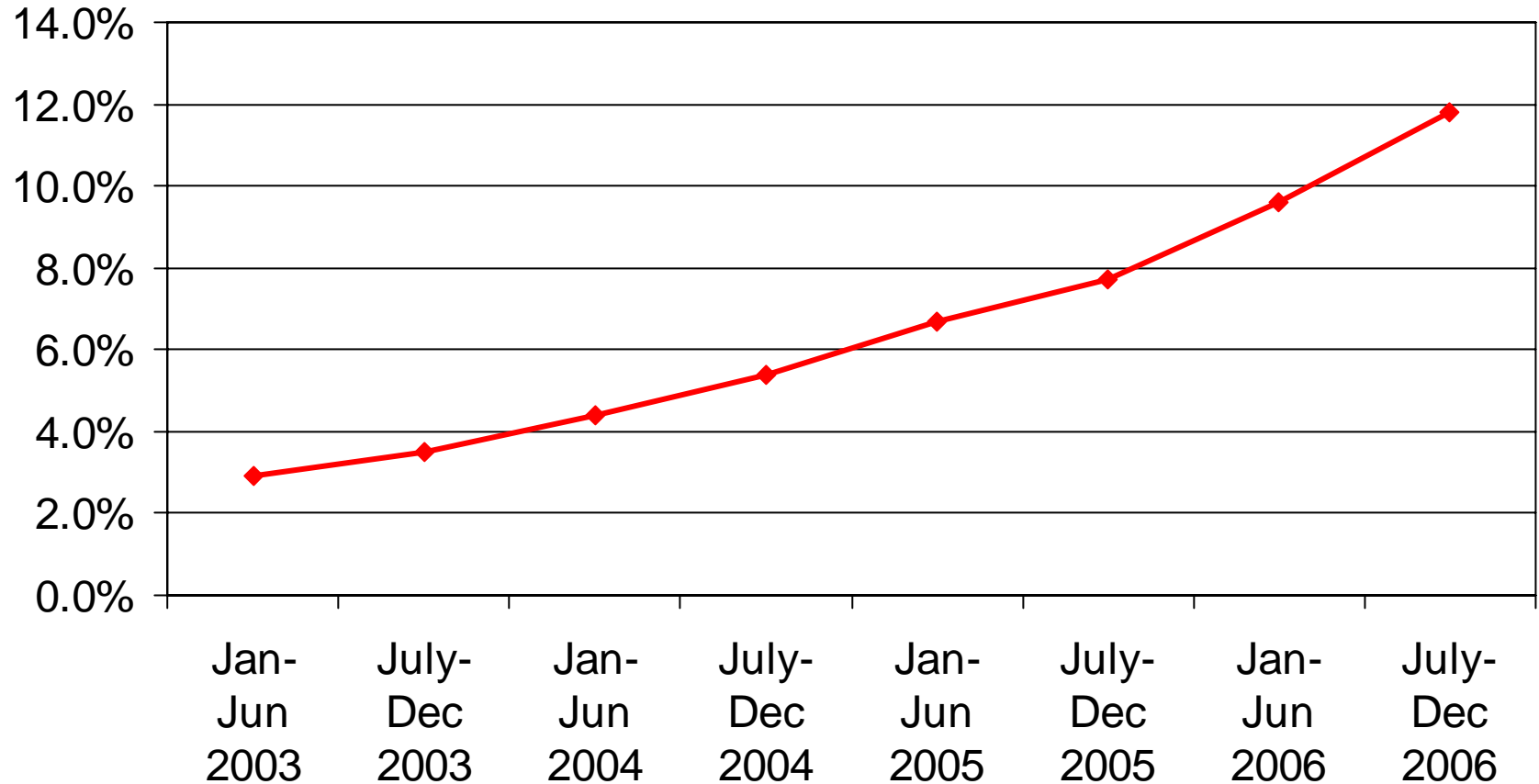
Thanks to the Robert Wood
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Potential for Sample Frame Coverage Bias in Health Opinion Polls

- Opinion polls are traditionally based on Random Digit Dial (RDD) samples using landlines
- A growing number of households rely on wireless phones and do not have landlines
- Potential for sample frame coverage bias varies by:
 - Prevalence of wireless substitution
 - Magnitude of wireless - landline differences

Percentage of Adults Living in Wireless-Only Households

WARNING: STEPHEN SCREWED US TOO



Source: Blumberg and Luke, Wireless Substitution: Preliminary Data from the January-June 2006 National Health Interview Survey. NCHS E-Health Stats.

NJ Health Care Opinion Poll

- Designed to gauge concerns about health care issues and support for reform in NJ (release date Oct. 3)
- 22 minute interview, June 1 to July 9, 2007
- English and Spanish
- 1,104 adults total...
 - 804 by traditional RDD landline sample
 - 300 by wireless phone – wireless only (197) and wireless “mainly” (103)
- Response rate 32%
- Weighted
 - Adjust for probability of selection
 - Post-hoc adjustment to Census distributions (age, sex, education)

Analysis Goals

- Identify patterns of significant differences for all survey questions by topical domain
 - What patterns are observed in landline compared to wireless estimates?
- Illustrate differences for selected poll questions
 - How do landline compare to wireless estimates (total, wireless-only, and wireless-mainly)?
- Compare demographically adjusted landline estimates to pooled landline-wireless estimates
 - Can demographic weight adjustment reduce or eliminate bias?

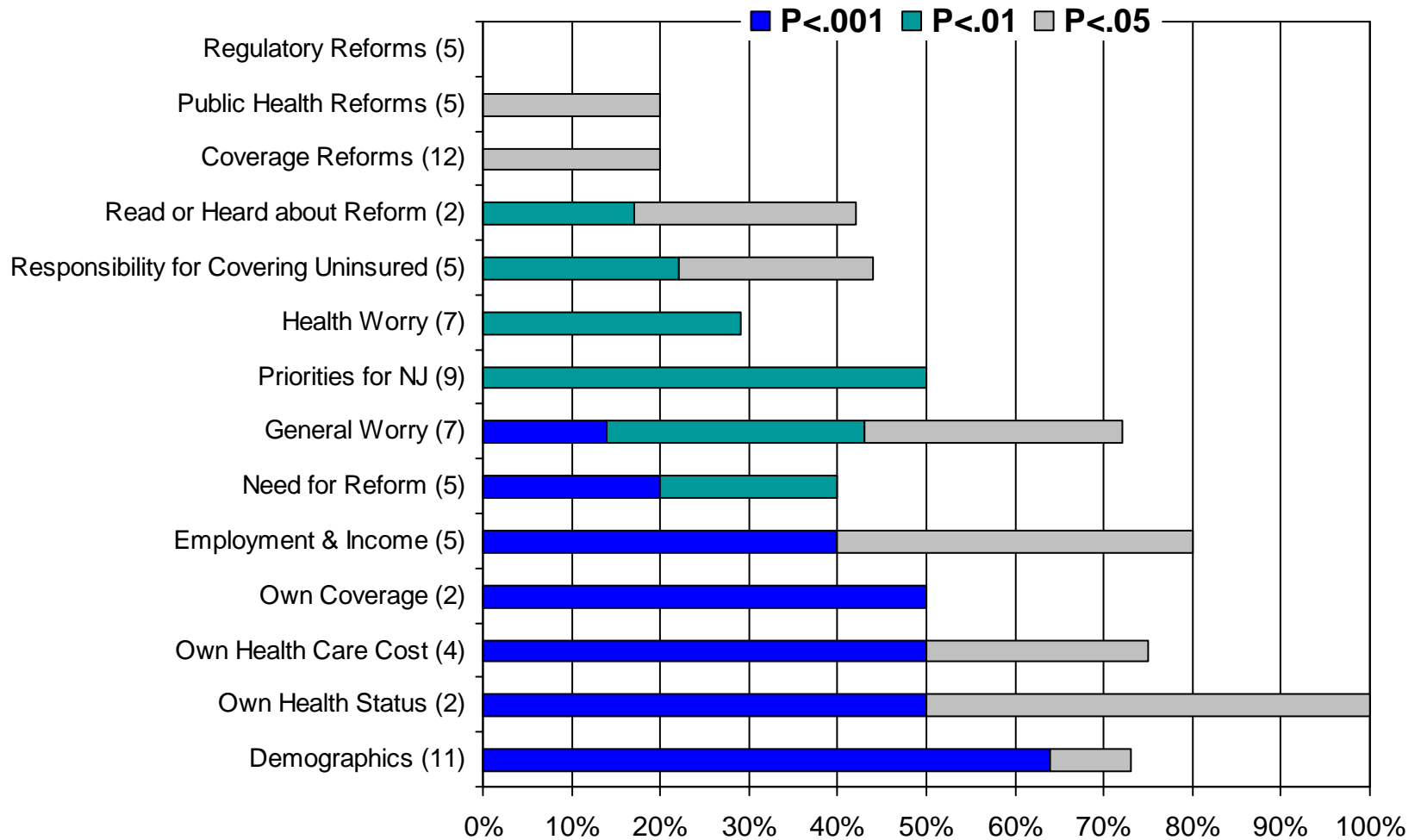
Survey Questions: 81 items

- Demographics & Health Care status (24)
- General Concerns & Need for reform (28)
- Health Policy Options (29)

- Chi square test of the null hypothesis
- Unweighted data

Significance of Differences Between Landline and Wireless Responses by Survey Domain

(Number of Questions Per Domain)



Note: Data unweighted

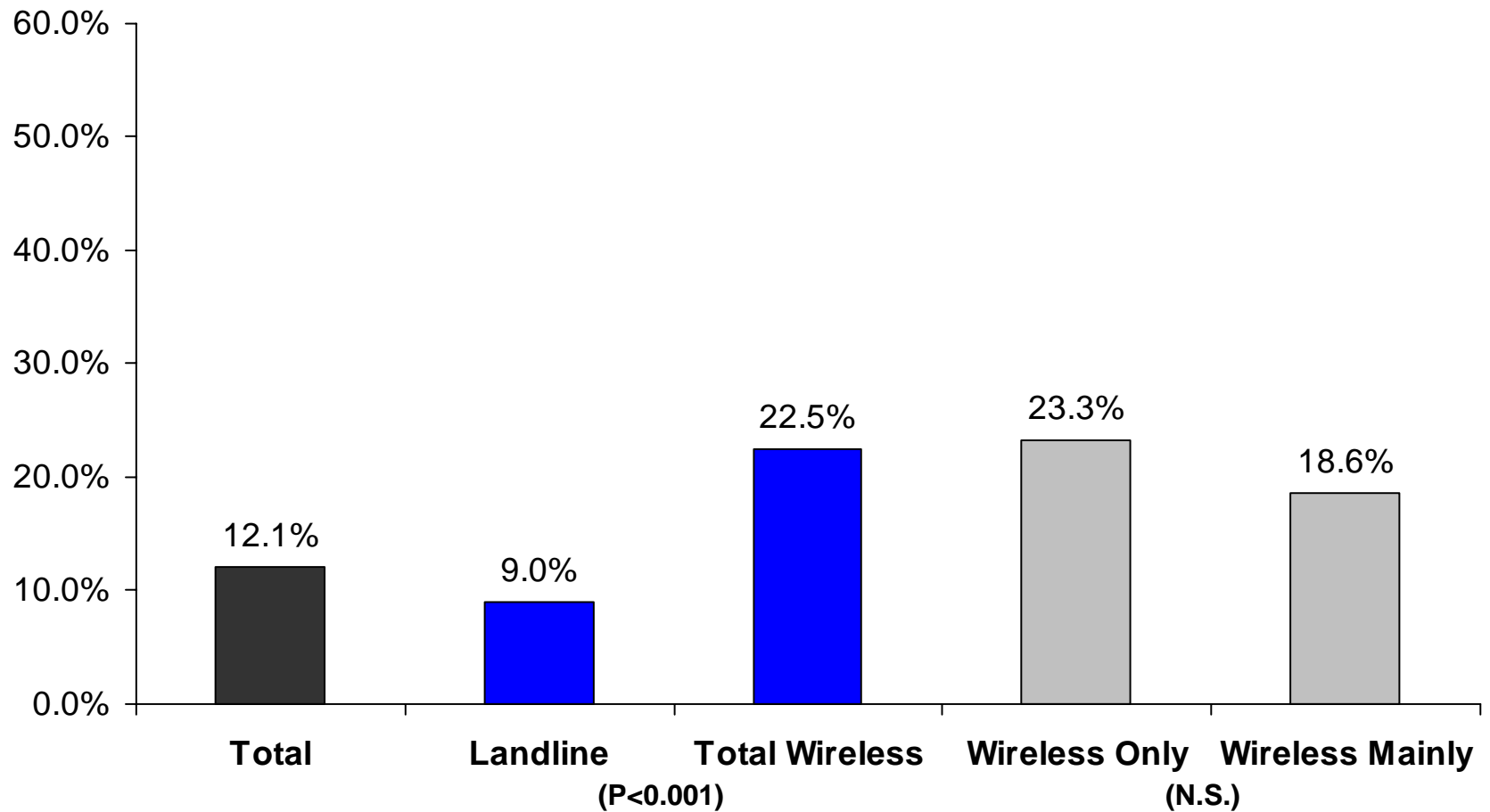
Source: Rutgers Center for State Health Policy, New Jersey Health Care Opinion Poll, 2007

Rev. 4-24-08

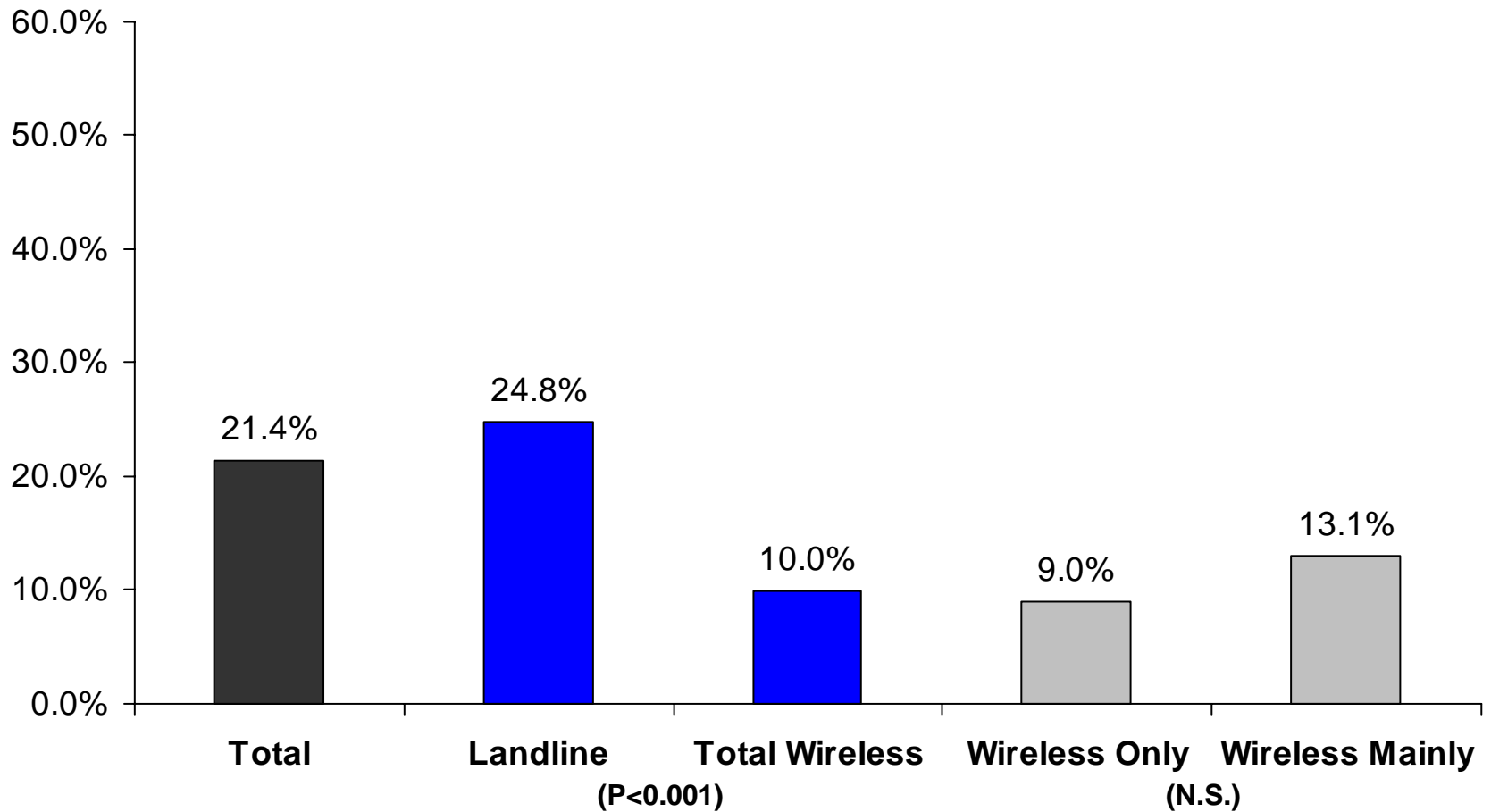
Aggregated Domains Significant Differences

Item Domain	# of items	p < .05
Demographpics	24	75%
General Concern	28	53%
Health Policy	29	21%

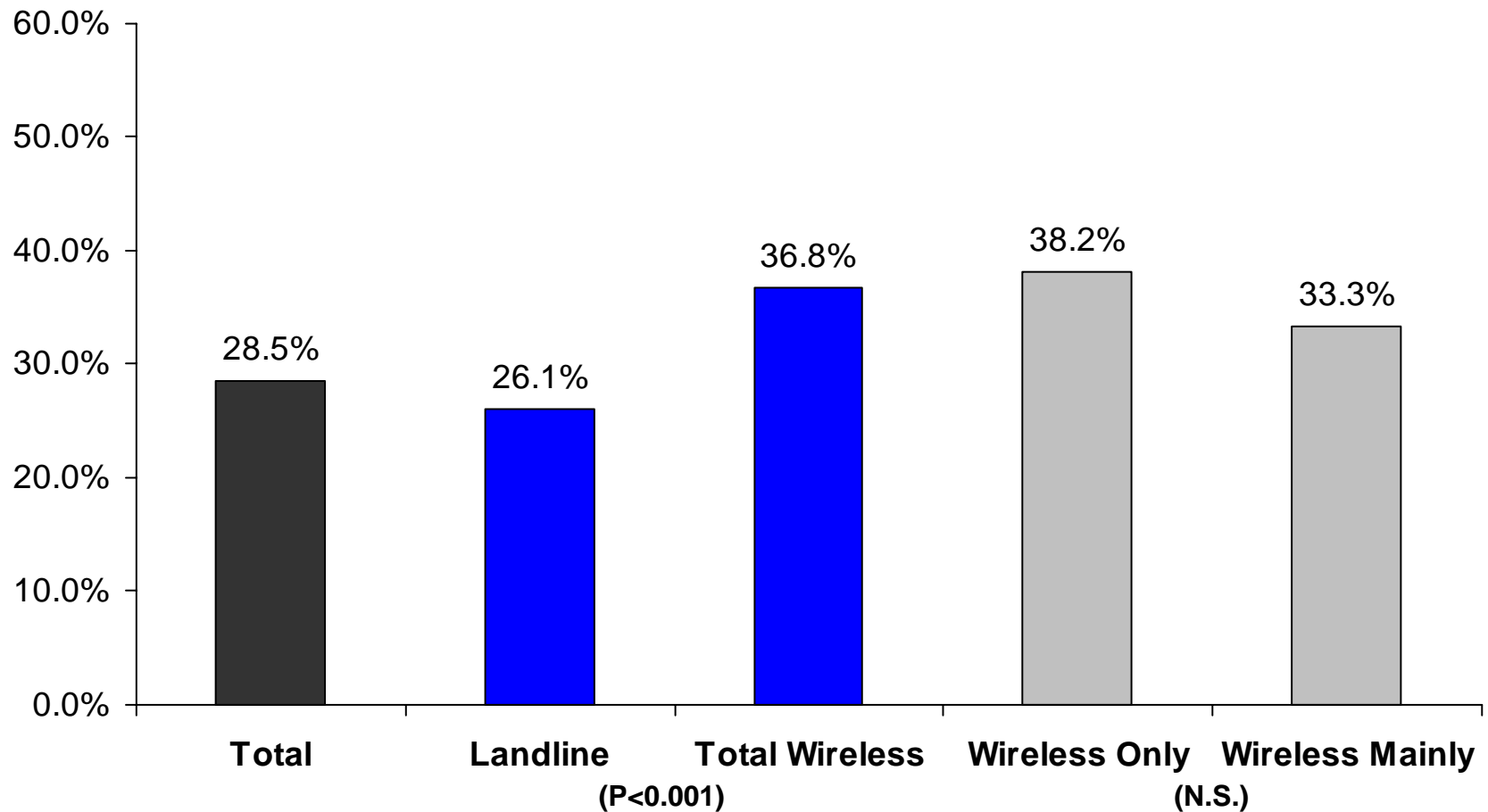
Demographics: Non-Citizen in Household



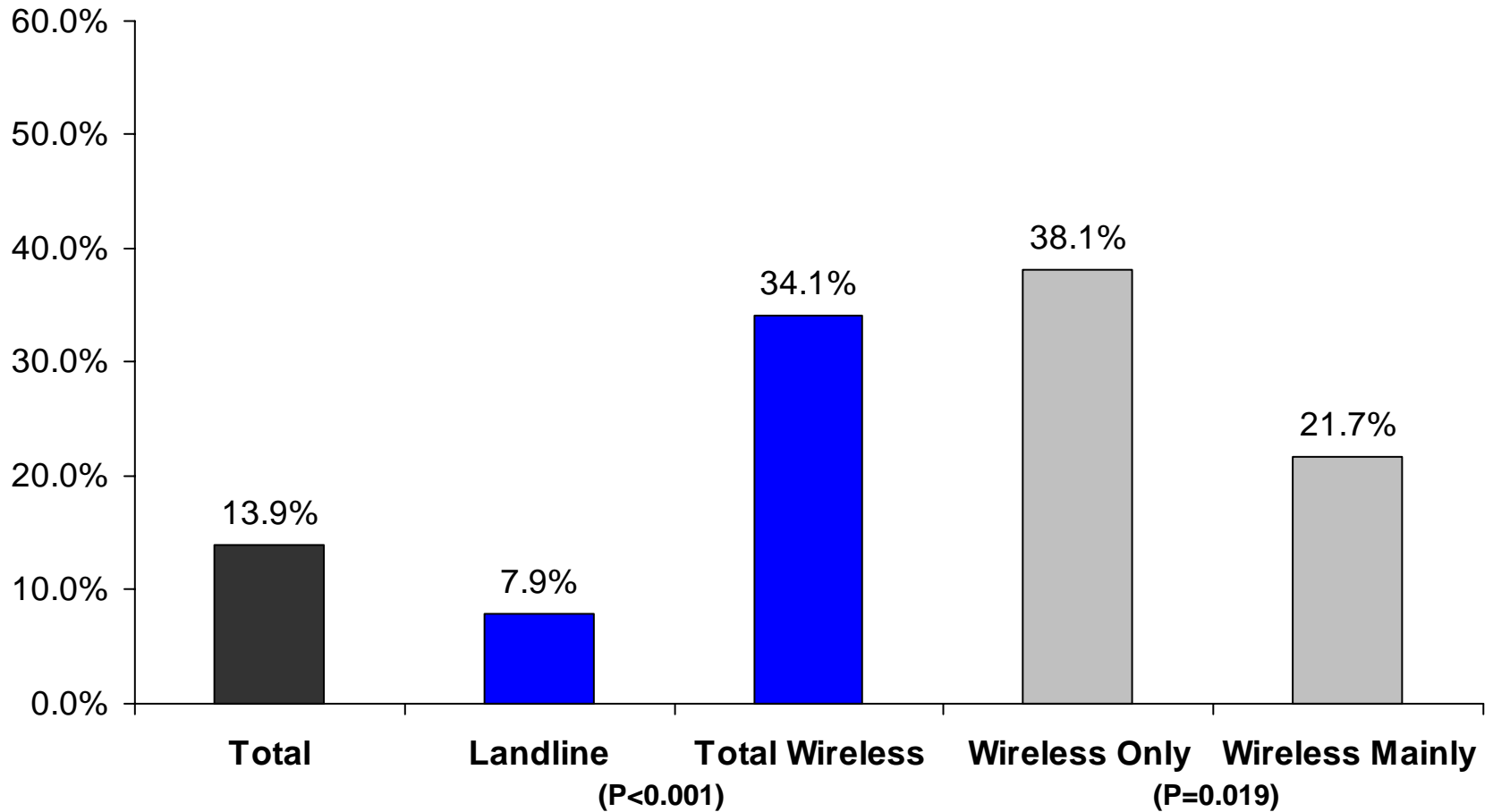
Own Health Status: Three or More Prescription Drugs



Own Health Care Cost: Great Difficulty Affording the Cost of Hospitals, Doctors, or Other Health Care

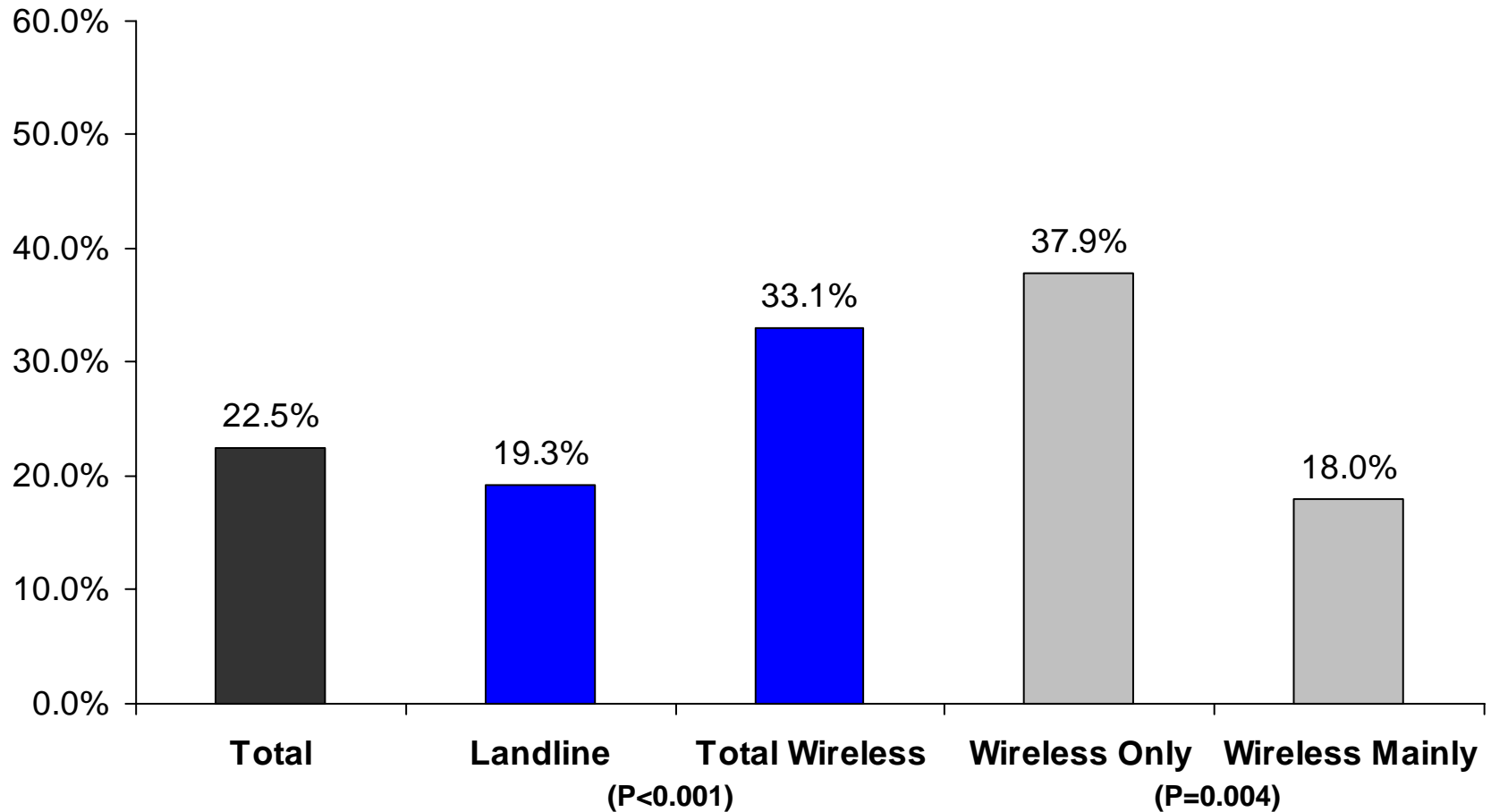


Own Coverage: Uninsured



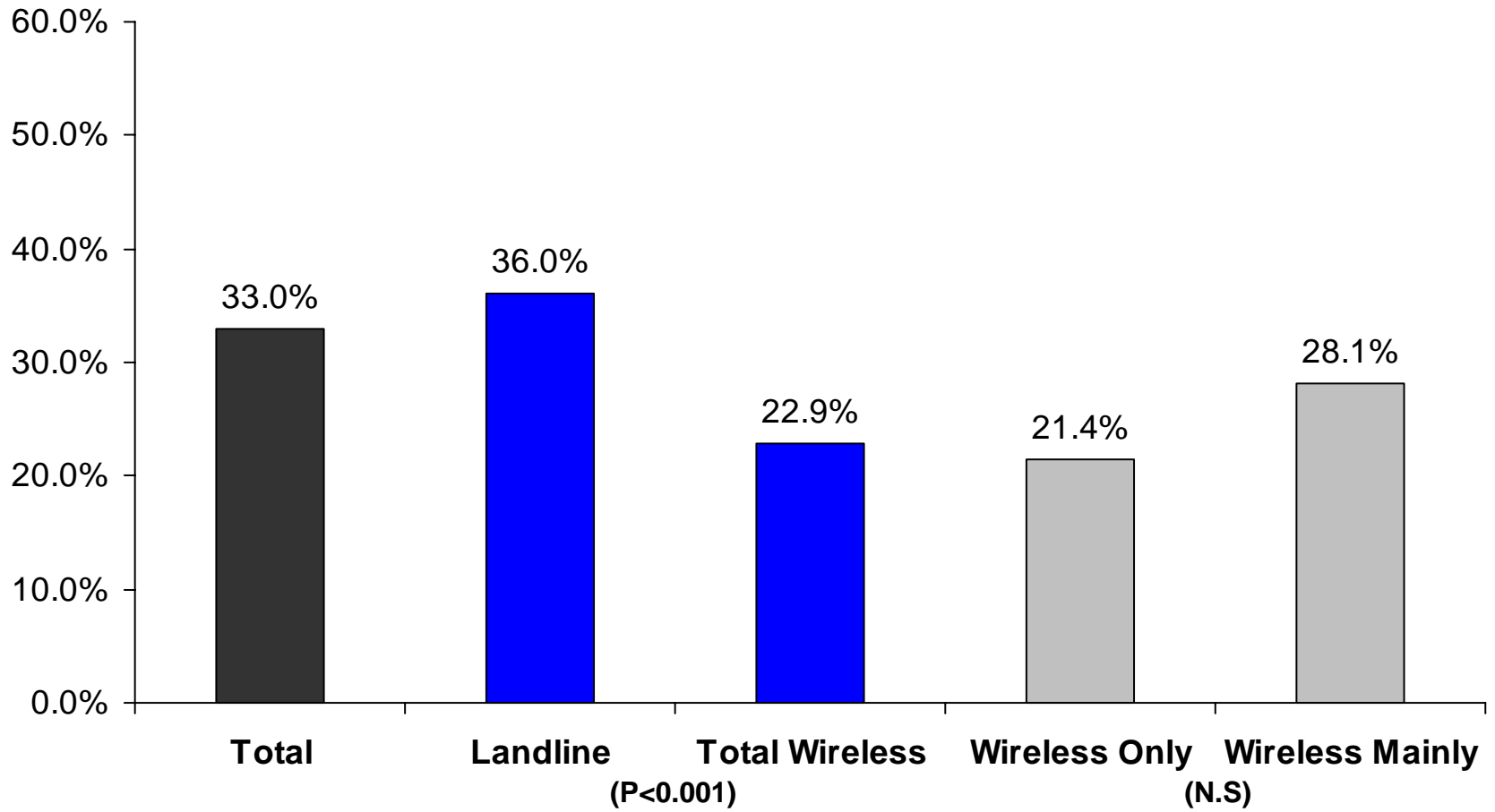
Employment & Income:

Income Below \$35,000

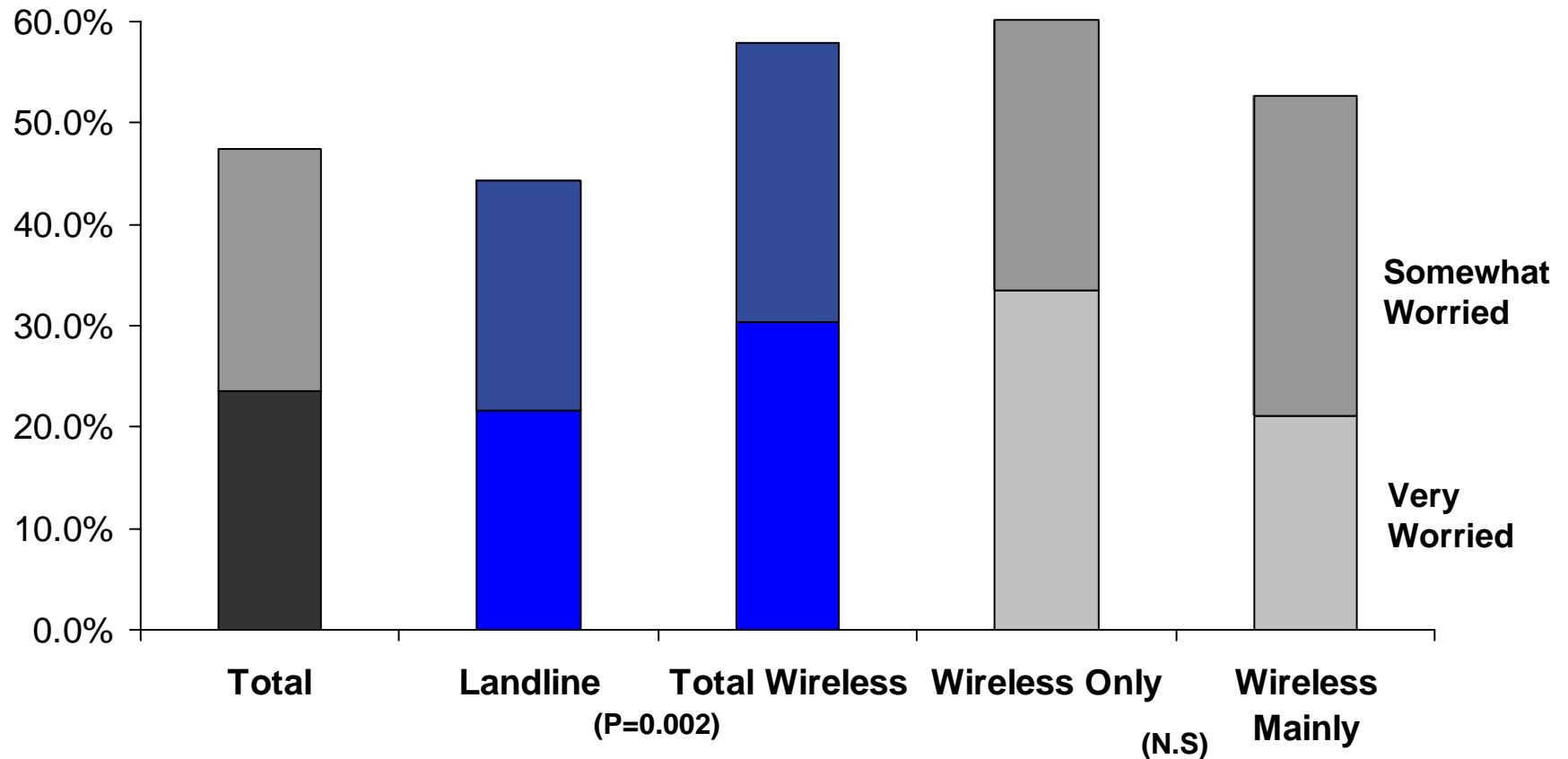


Need for Reform:

Prefer Current Health Insurance System versus Universal Insurance Program



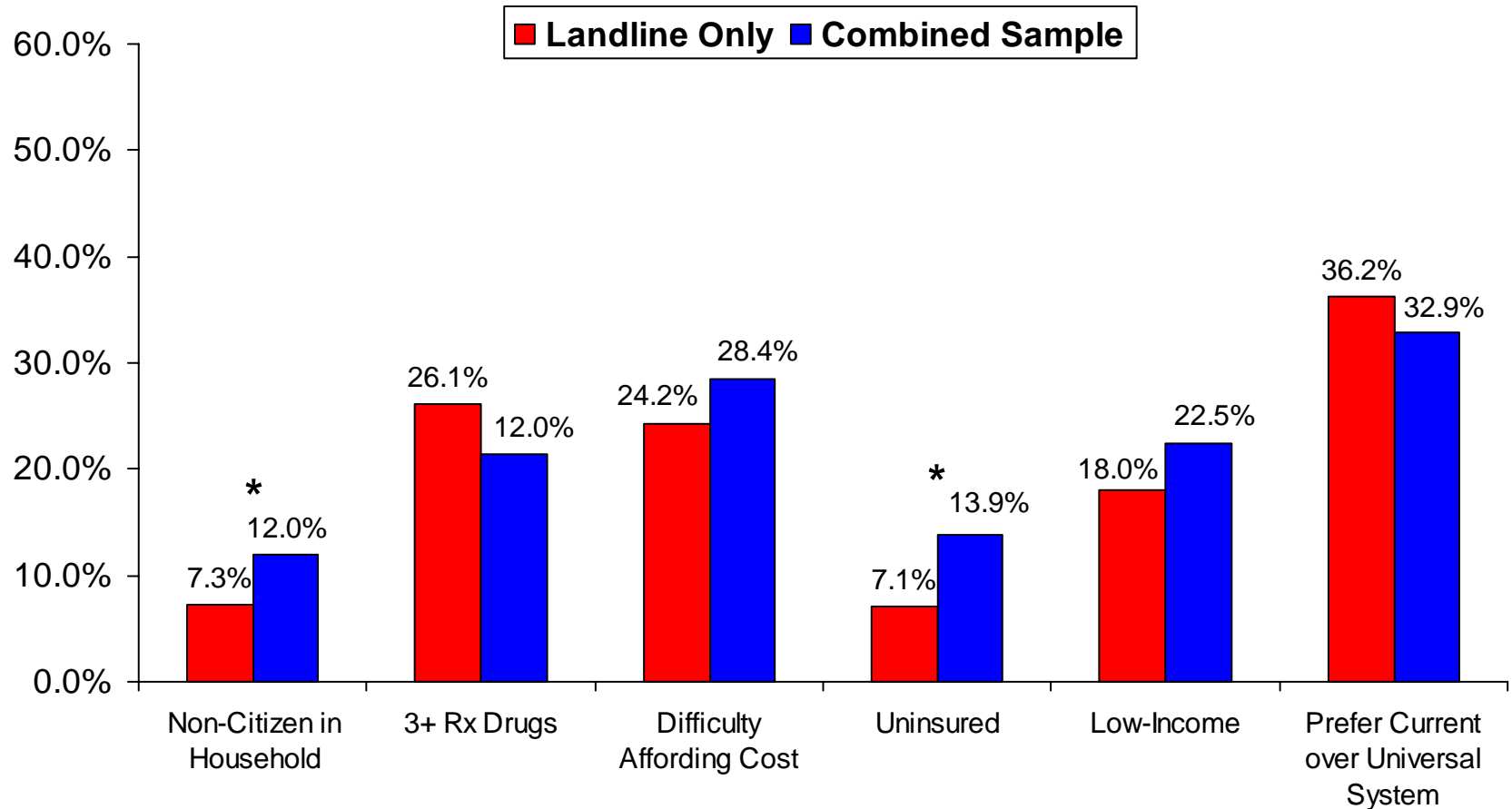
General Worry: Being Able to Pay Rent or Mortgage



Note: "not too worried" and "not at all worried" categories included in calculating significance, but not shown.
Sources: Rutgers Center for State Health Policy, New Jersey Health Care Opinion Poll, 2007

Effect of Weighting to Population Distributions

Landline-Only Compared to Combined Sample



*Statistically significant difference at $p < 0.05$ level

Note: DK and REF treated as missing.

Sources: Rutgers Center for State Health Policy, New Jersey Health Care Opinion Poll, 2007

Empirical Observations

- Landline-Wireless response differences vary by survey domain
 - Most significant differences are in demographics, health status indicators, health care cost burden, and employment & income
 - Very few differences in key measures of support for specific policy reforms
 - Post-hoc demographic (age, sex, education) weight adjustments generally reduce but do not eliminate differences
- Wireless-only and wireless-mainly responses generally similar
 - Estimate of percent uninsured among ‘mainly’ respondents falls between ‘only’ and landline respondents
 - Estimate of percent low-income among ‘mainly’ respondents similar to landline respondents

Reservations

- Only one state
- Potential non-response bias (32% response rate for both landline and wireless samples)
- Including wireless 'mainly' population in both sample frames, weighting this group is complex, especially non a sub-national level



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**AAPOR draft 051508
Cantor, Brownlee, Zukin & Boyle**

Dual Frame Sample Design

- Statewide RDD landline sample
- Statewide Cell Phone sample

Landline Sample

- Statewide RDD sample
- Stratified by county
- English and Spanish
- 18 contact attempts
- Youngest male/youngest female selection
- N=804
- Average length 20.2 minutes
- No incentive
- AAPOR RR 3 34.4%

Sampling for Cell Phone Survey

Sampling Frame: Telecordia TPM Data File

- Selection of wireless prefixes and blocks
 - NXXTYPE is cellular or ported
 - Dialable indicator is yes
 - Point code is New Jersey
 - Change code is not deleted
- Mixed or shared blocks
 - Compared to list assisted RDD sampling frame
 - 100 blocks with list numbers in RDD frame are removed
- Geographic: State and county codes are appended based on coordinates of billing center
- File of 100 blocks is sorted by FIPS code, Carrier and 100-block to provide stratification
- Systematic selection of 100-blocks for replicate samples

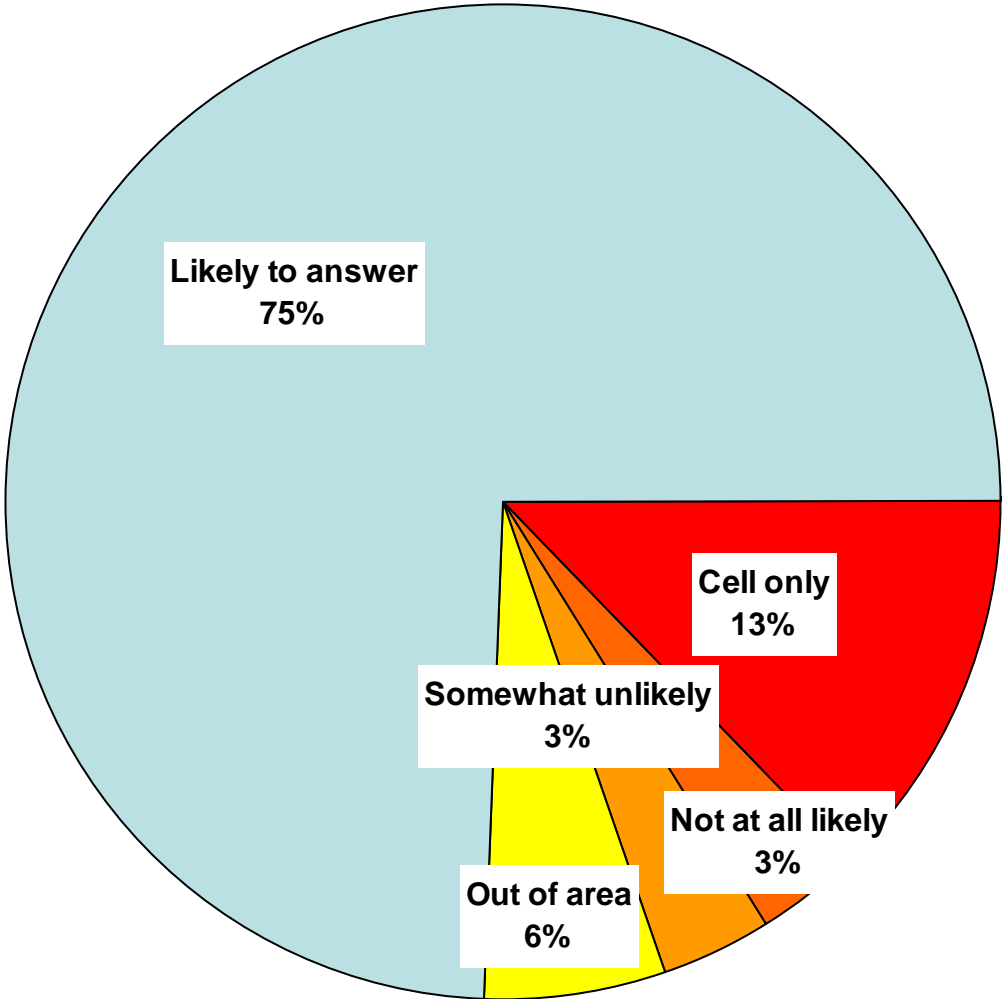
Cell Phone Sample

- Statewide RDD sample
- Stratified by county
- English and Spanish
- 18 contact attempts
- Person answering is screened for eligibility
- Eligible: adults who are cell phone only or cell phone mainly living in specified counties
- N=300
- Average length 22.8 minutes
- **Incentive: Ten dollars**
- AAPOR RR 3 36.2%

Cell Phone Questions

- CS3. In addition to having a cell phone, do you also have at least one land line phone in your house at which you or anyone else in the household NORMALLY receive in-coming phone calls?
- IF YES: Please do not include modem only lines, fax only lines, lines used just for a home security system, beepers, pagers, or the cell phone.
-
- 1 = Cell phone is only phone **(GO TO Intro 2)**
- 2 = Has land line phone in home **(GO TO CS4)**
- 3 = (VOL) Refused **(dispo as "soft Refusal")**
-
- CS4. Thinking just about the land line home phone, NOT your cell phone, if that telephone rang, and someone was home, under normal circumstances how likely would it be answered. Would you say:
-
- 1 = Extremely likely, **(S/O – "CS4 - NOT CELL PHONE ONLY")**
- 2 = Very likely, **(S/O – "CS4 - NOT CELL PHONE ONLY")**
- 3 = Somewhat likely, **(S/O – "CS4 - NOT CELL PHONE ONLY")**
- 4 = Somewhat unlikely, or **(GO TO Intro 2)**
- 5 = Not at all likely? **(GO TO Intro 2)**
- 6 = (VOL) Don't Know **(S/O – "CS4 – DK/REF)**
- 7 = (VOL) Refused **(S/O – "CS4 – DK/REF)**
-

Use of Landlines in Cell Phone Sample

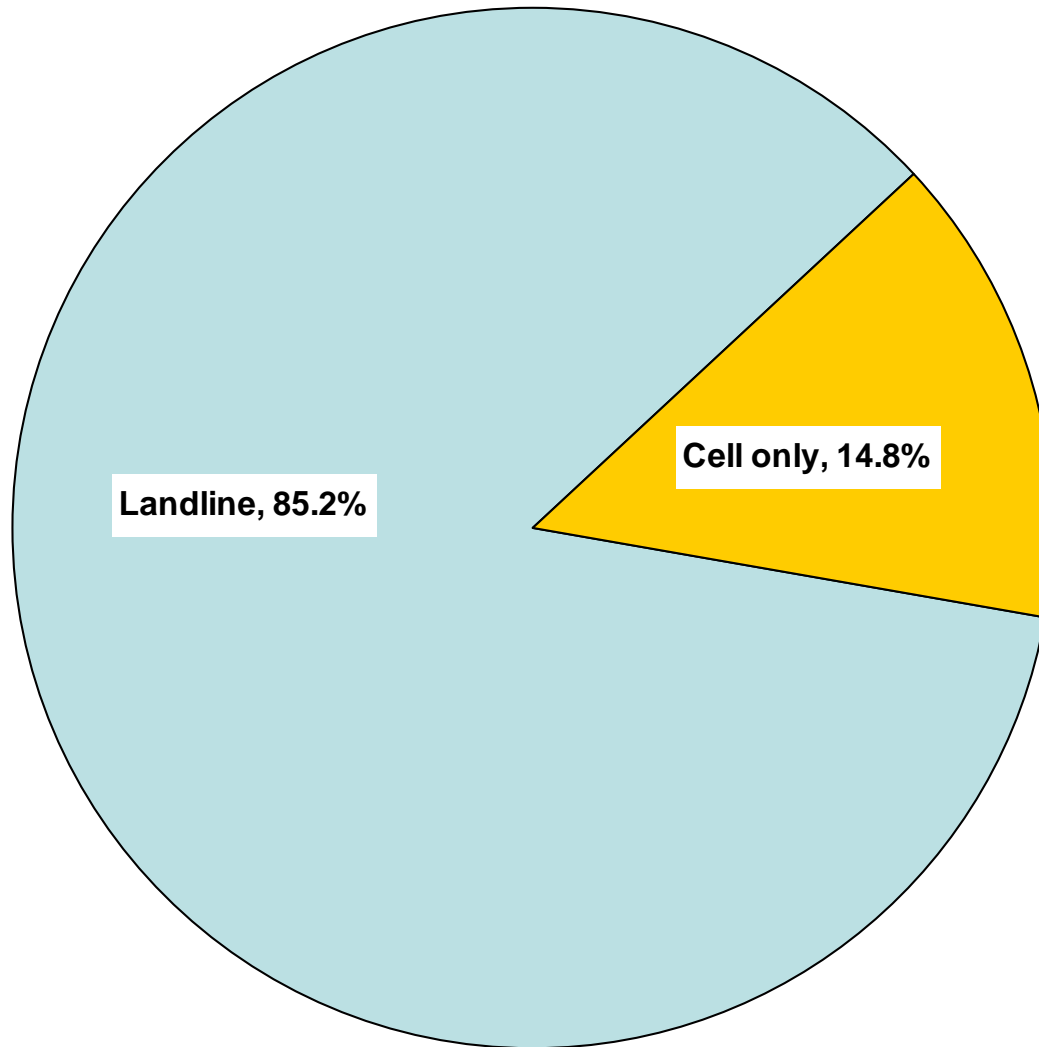


CS3. In addition to having a cell phone, do you also have at least one land line phone in your house at which you or anyone else in the household NORMALLY receive in-coming phone calls? CS4. Thinking just about the land line home phone, NOT your cell phone, if that telephone rang, and someone was home, under normal circumstances how likely would it be answered.

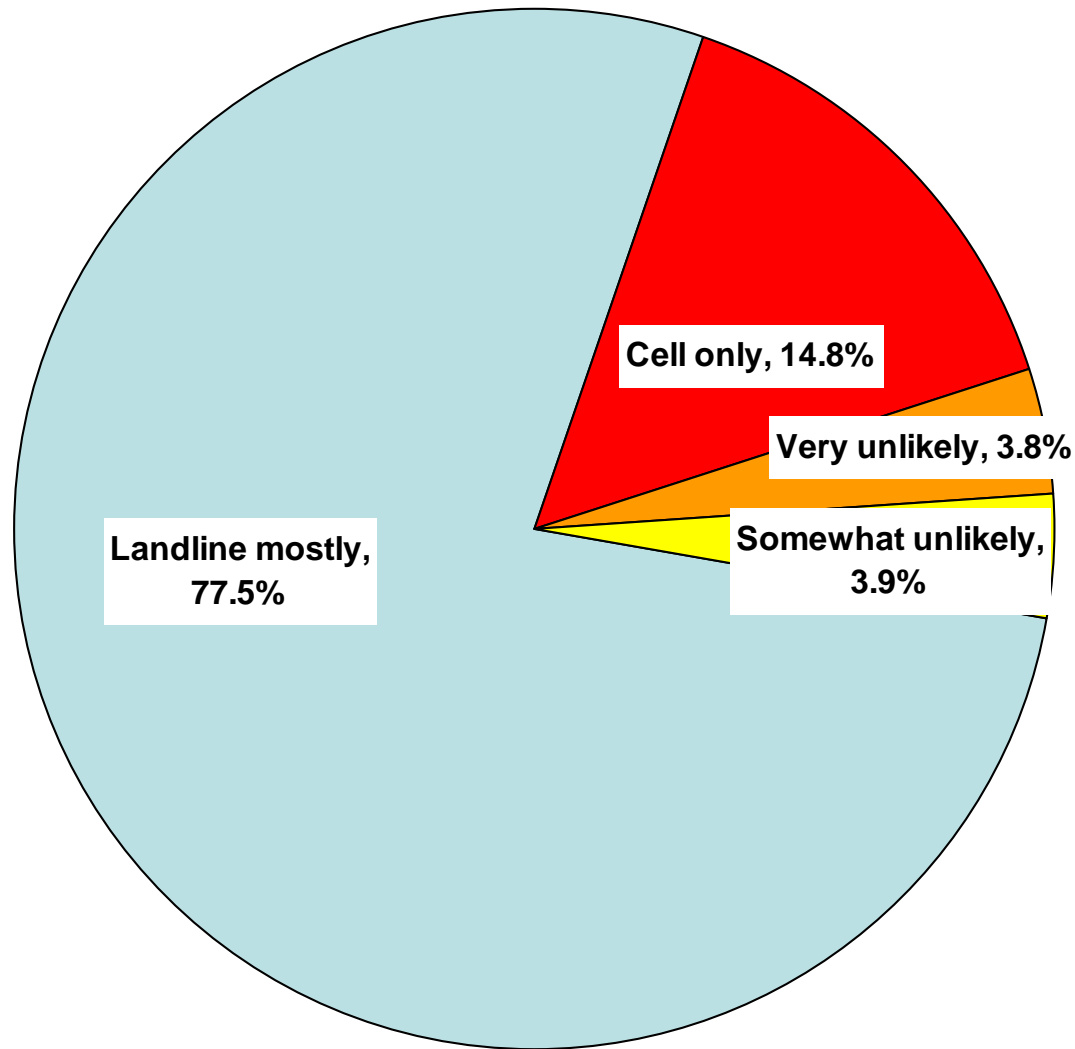
Segments of Cell Phone Sample

- **Cell phone only** population is covered by only one frame and sample is weighted to estimated population size from NHIS estimates for Northeast United States.
- Landline and **cell who are very unlikely to answer** their landline are in both frames with a near zero probability of inclusion in landline sample. Population size unknown but could be estimated relative to cell phone only sample and applied to landline population.
- Landline and **cell who were somewhat unlikely** to answer landline phone are in both frame with a low probability of inclusion in landline sample. Population size unknown but could be estimated relative to cell phone only sample and applied to landline population.
- Cell and landline who **were likely to answer landline** phone in cell phone sample were excluded as already represented in landline sample.

Population Distribution by Frame: New Jersey



Estimated Population Size: Cell Phone Only and Cell Phone Mainly in New Jersey



Findings

- Response rate for cell phone sample was equivalent for landline with equal effort and incentives for cell phone
- If cell phone mainly population size is measured by reported likelihood of answering landline, then cell phone mainly as a proportion of cell phone sample is $\frac{1}{4}$ to $\frac{1}{2}$ cell phone only population
- But NHIS estimates cell phone mainly to be about 90% of cell phone only

Implications

- Likelihood of answering (CSHP) and number of calls received (NHIS) by frame are fundamentally different measures of cell phone mainly populations.

AND/OR

- Cell phone mainly adults may be less likely to answer cell phone calls/surveys than cell phone only adults so that ratio estimates based on achieved sample sizes would be biased

Where does that leave us?

At the intersection of
Coverage and Propensity to
Respond.

Thank You.