An investment in Goodwill or Encouraging Delays? Examining the Effects of Incentives in a Longitudinal Study

FCSM

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Disclaimer

This paper reports the general results of research undertaken by staff at the NORC at the University of Chicago and at the National Center for Science and Engineering Statistics at the National Science Foundation (NSF). The views expressed are attributable to the authors and do not necessarily reflect those of NORC or those of the sponsors: the NSF and the National Institutes of Health.

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Background

- OMB standards for federal statistical surveys require high response rates
- One strategy to increase response rates is to offer an incentive
- Project funds are limited
- Longitudinal surveys require a long-term view

Key Question

What impact do incentives offered in one survey round have on subsequent rounds?

1. Negative – incentives in a previous round cause delayed response in the subsequent round and/or no response without an incentive
2. Neutral – no impact on the final response rate of subsequent rounds
3. Positive – the response rate in subsequent rounds increases, regardless of whether incentives are offered again

Analysis Overview

To answer the key question, the analysis compares groups of cases that were and were not offered an incentive in a prior round on the following dimensions:

- Timely vs. Slow Response – where timely is defined as providing a final response before a late-stage incentive is offered
- Survey Response – as measured by the percent completing the survey
- Effort and Quality
  - Level of Effort – defined as the number of contacts made by mail, phone, or email
  - Data Quality – measured by imputation score and verbatim response length
  - Incentive Cost – average cost of the incentive checks cashed

Survey of Doctorate Recipients (SDR)

- Sponsors: NSF and NIH
- Design: Longitudinal survey
- Target population: U.S. residents under age 76 with U.S.-granted doctoral degrees in science, engineering, and health fields
- Periodicity: Conducted every 2 years
- Question topics: Demographic, education, and career history information

SDR Sample Design

- SDR is a panel survey
- Sample size is approximately 40,000
- Each survey cycle
  - Some panel members become permanently ineligible
  - Some panel members are randomly cut
  - New doctorate earners are added to ensure population coverage

SDR Data Collection Protocol

- Multi-mode: mail, telephone, and Web
- All start modes follow a parallel contacting protocol
- Eventually all nonrespondents become eligible for the late-stage contacting protocol
- In the 2003, 2006, and 2008 SDRs, the late-stage protocol included monetary incentives

2008 SDR Analysis Opportunity

To evaluate the effect of…

- Past incentives (2003/2006) only
- Incentives both in the past and in 2008
- No incentives ever

…on 2008 SDR behavior, including…

- Time to respond (timely vs. slow)
- Response rate
- Data quality
- Incentive check cashing

2003 SDR Incentive Experiment

- Late-stage incentive offered after 7 months of data collection
- Limited size random controlled experiment
  - $30 pre-paid incentive (n=323)
  - $50 post-paid incentive (n=329)
  - Informational brochure
  - Control group
- Results: $30 pre-paid incentive was most effective with regard to cooperation, data quality, and cost

2006 SDR Incentive Experiment

- Late-stage incentive random controlled experiment offered in two stages
  - First stage: after 5.5 months of data collection (n=4,581)
  - Second stage: after 6.5 months of data collection (n=2,390)
- $25 pre-paid incentive mailing
- Results
  - Earlier was more cost-effective for new cohort cases
  - Later yielded a higher response rate for past refusers

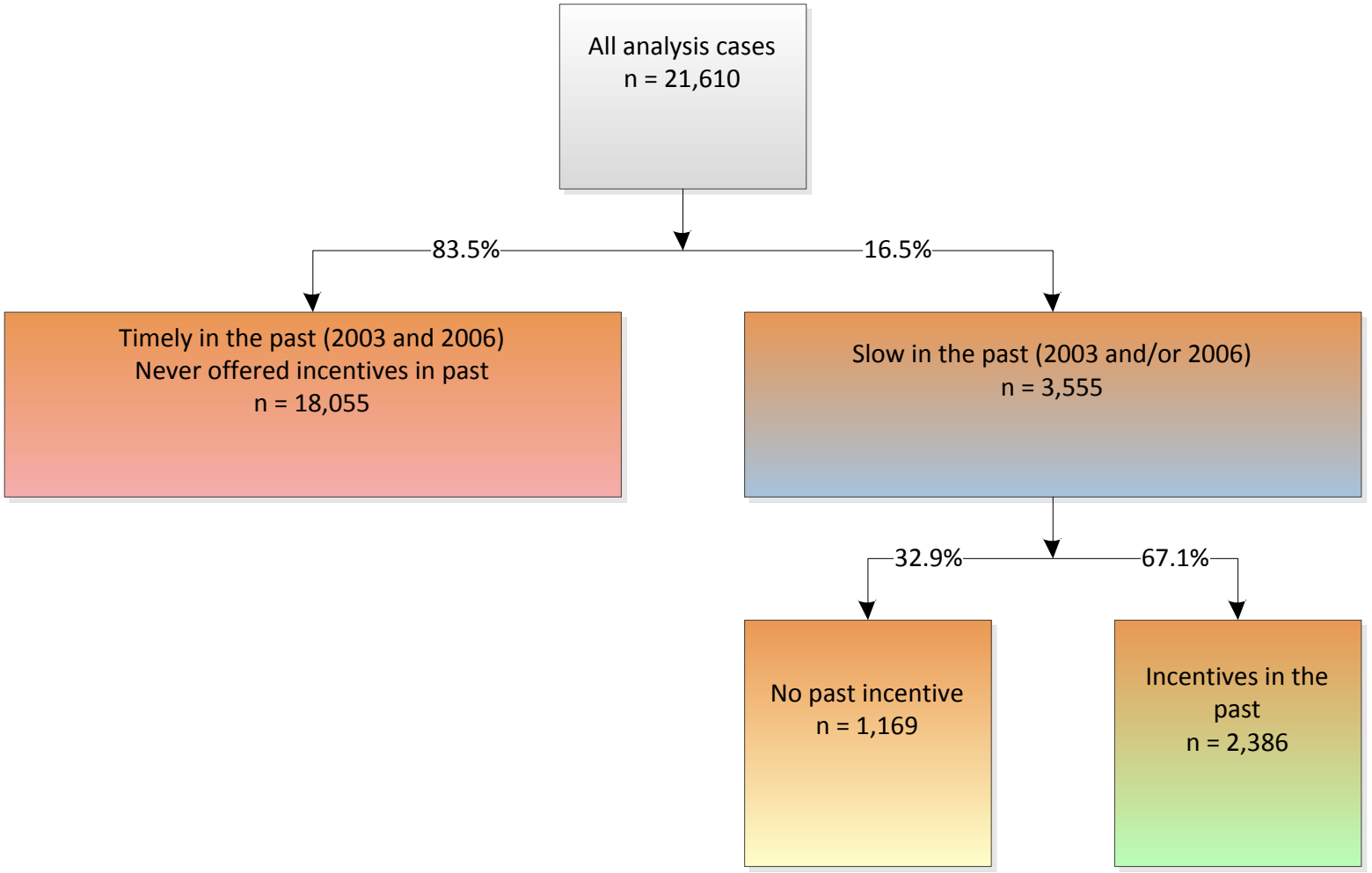
2008 SDR Late-stage Incentive

- 11,163 nonrespondents after 5.5 months of data collection
- $30 pre-paid incentive; not an experiment
  - Offered to all in low-responding strata (≤ 72.1% response rate)
  - Offered to at least 20% in higher responding strata
- 7,499 selected for an incentive (4,717 not in locating)

2008 SDR Analysis Sample

- Included in the 2003, 2006, and 2008 SDRs
- Not a locating problem and not part of an early incentive experiment in 2008
- 21,610 sample members
  - No prior incentive (n=19,224)
    - Not late-stage eligible in 2003 or 2006 (n=18,055)
    - Late-stage eligible in 2003 or 2006 (n=1,169)
  - Prior incentive in 2003, 2006, or both (n=2,386)

2008 SDR Analysis Sample

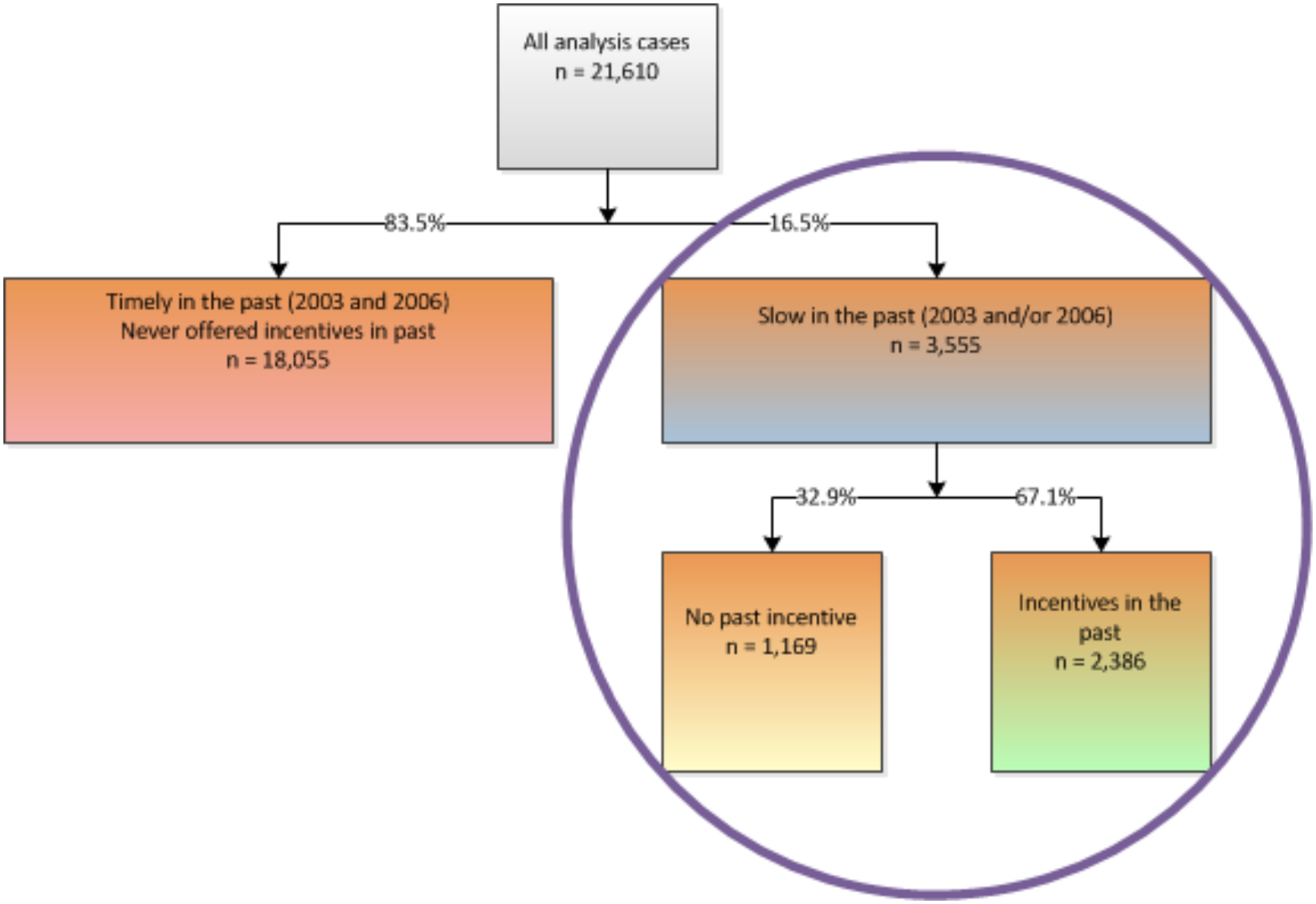


2008 SDR Results - Overall

Analysis group	Sample	Complete surveys	Percent completing survey
Overall	21,610	20,488	94.8
Timely response	19,239	18,837	97.9
Slow response	2,371	1,651	69.6
No incentive	956	559	58.5
Incentive	1,415	1,092	77.2

2008 SDR Analysis – Time to Respond

2008 SDR Analysis Sample



2008 SDR Results – Time to Respond

- Focus – "Slow" in the Past (2003/2006)

Analysis group	Sample	Timely in '08	Slow in '08	Percent slow in '08
Overall	3,555	2,338	1,217	34.2
No $ in past	1,169	830	339	29.0
$ in past***	2,386	1,508	878	36.8

- Results – Those offered $ in past were 43 percent more likely to be slow to respond in 2008, significant at $p<0.001$

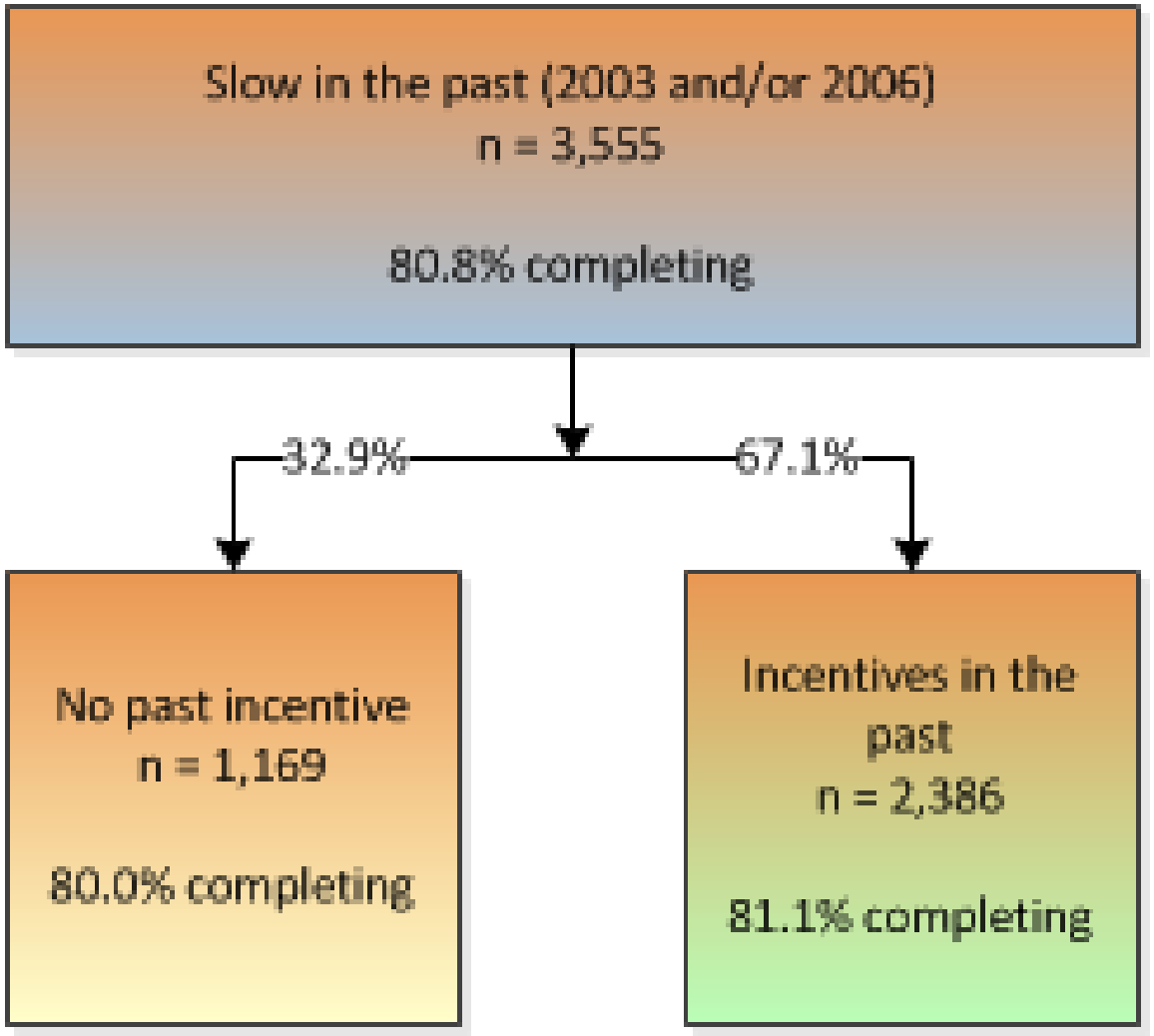
Key Question: Time to Respond

What impact do incentives offered in one survey round have on subsequent rounds?

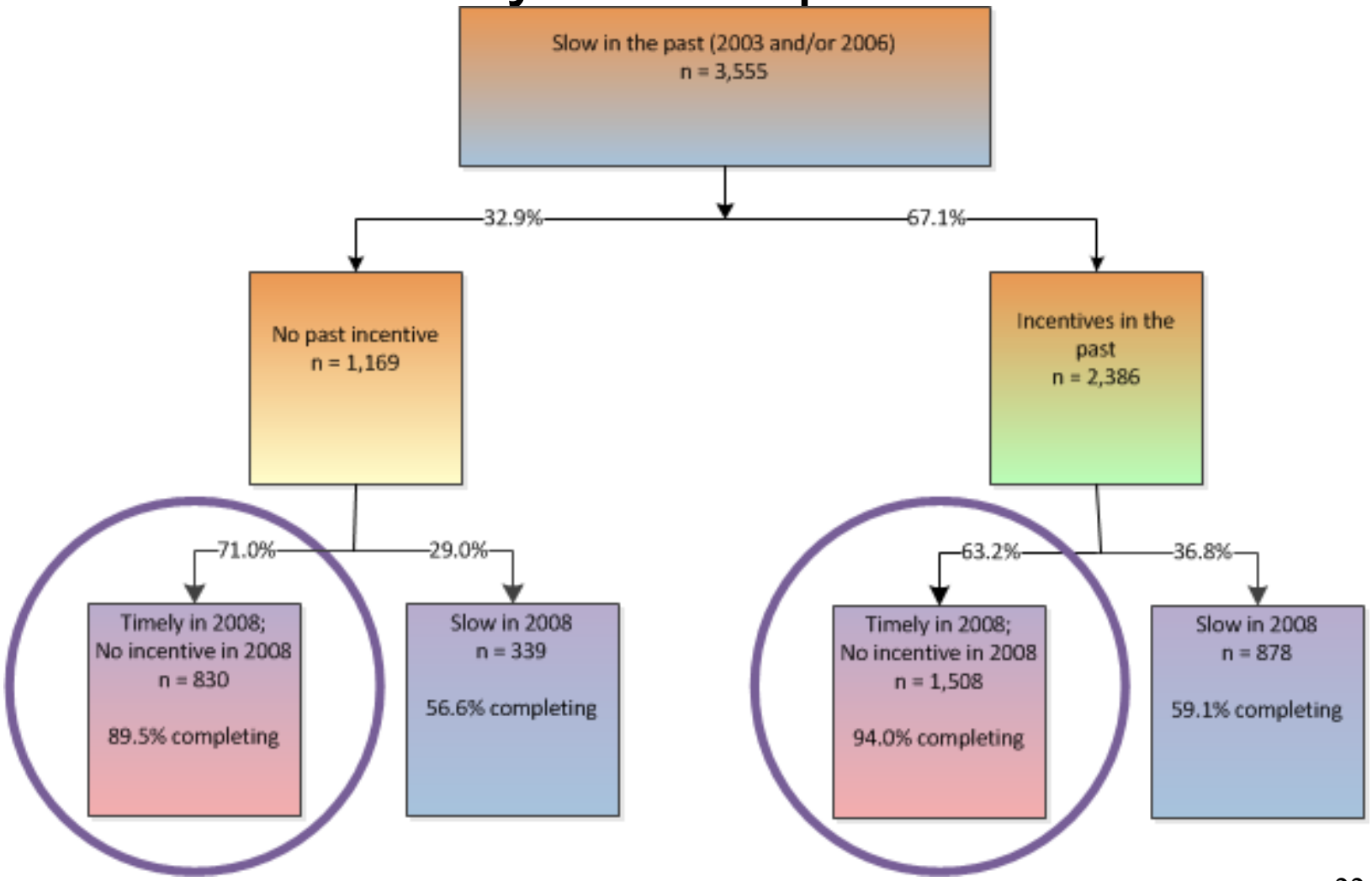
1. Negative – incentives in a previous round cause delayed response in the subsequent round and/or no response without an incentive
2. Neutral – no impact on the final response rate of subsequent rounds
3. Positive – the response rate in subsequent rounds increases, regardless of whether incentives are offered again

2008 SDR Analysis – Survey Response

2008 SDR Analysis Sample – Slow in Past



2008 SDR Analysis Sample – Slow in Past



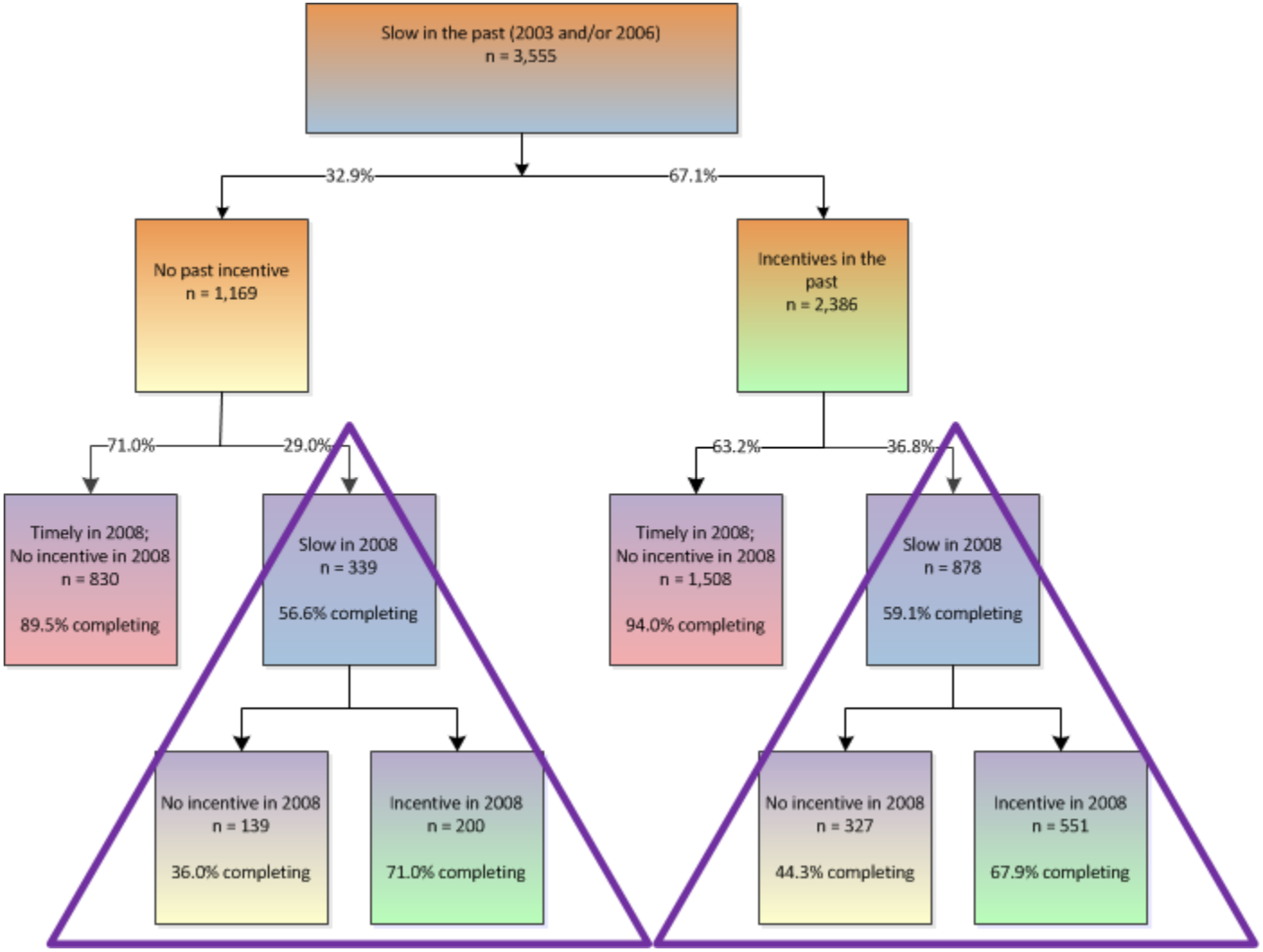
2008 SDR Results – Survey Response

- Focus – "Slow" in the Past (2003/2006); "Timely" in 2008

Analysis group	Timely in '08	Complete surveys	Percent completing survey
Overall	2,338	2,160	92.4
No $ in past	830	743	89.5
$ in past	1,508	1,417	94.0

- Results – Those offered $ in past and responding in a timely way in 2008 were more likely to respond with a complete survey (versus a refusal) in 2008, significant at $p<0.01$

2008 SDR Analysis Sample – Slow in Past



2008 SDR Results – Survey Response

- Focus – "Slow" in the Past (2003/2006); "Slow" in 2008

Analysis group	Slow in '08	Complete surveys	Percent completing survey
Overall	1217	711	58.4
No $ in '08	466	195	41.8
$ in '08	751	516	68.7
No $ in past	339	192	56.6
No $ in '08	139	50	36.0
$ in '08	200	142	71.0
$ in past	878	519	59.1
No $ in '08	327	145	44.3
$ in '08	551	374	67.9

- Results – Seems to be a "good will" effect for "slow" cases offered past incentive only, but it is not significant

Key Question: Survey Response

What impact do incentives offered in one survey round have on subsequent rounds?

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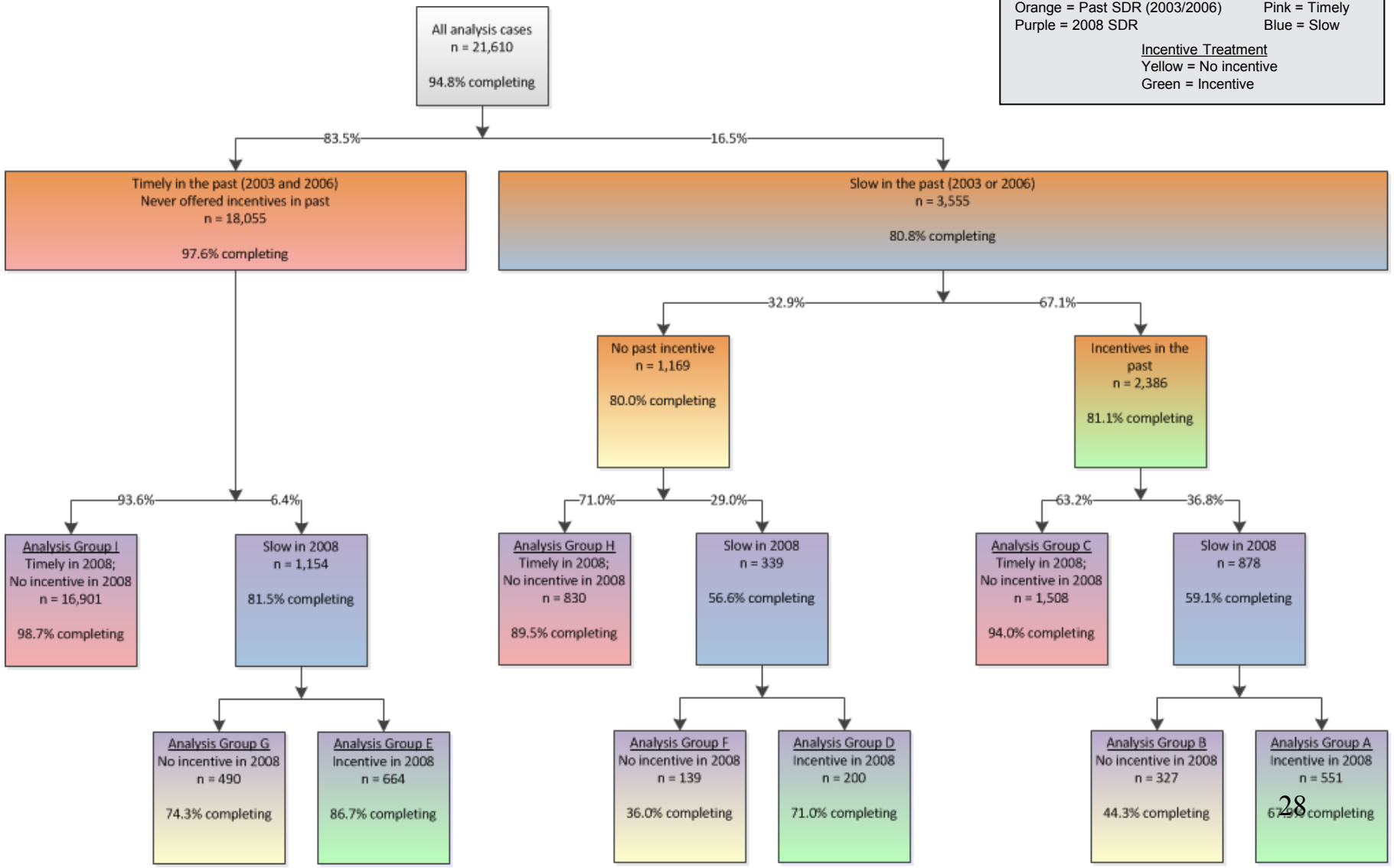
2008 SDR Analysis – Effort and Quality

2008 SDR Analysis Sample



2008 SDR Analysis Sample

Past		2008			
Response	Incentive offered?	Response	Incentive offered?	Analysis group	Cases
Timely	NA	Timely	NA	I	16,901
Timely	NA	Slow	No	G	490
Timely	NA	Slow	Yes	E	664
Slow	No	Timely	NA	H	830
Slow	No	Slow	No	F	139
Slow	No	Slow	Yes	D	200
Slow	Yes	Timely	NA	C	1,508
Slow	Yes	Slow	No	B	327
Slow	Yes	Slow	Yes	A	551

NA = Not applicable; sample members who responded in a timely way did not have a chance to receive an incentive offer.

2008 SDR Results – Effort and Quality

Past		2008		
Response	Incentive offered?	Response	Incentive offered?	Analysis group
Timely	NA	Timely	NA	I

Metric	I
Percent of Analysis Sample	78.2
Percent Completing the Survey	98.7
Level of Effort	4.5
Data Quality	
Imputation Score	0.5
Occupation Verbatim Length	103.4

Results – The majority of the analysis sample (78.2%) is highly cooperative

2008 SDR Results – Effort and Quality

Past		2008		
Response	Incentive offered?	Response	Incentive offered?	Analysis group
Timely	NA	Slow	No	G
Timely	NA	Slow	Yes	E

Metric	G	E
Percent of Analysis Sample	2.3	3.1
Percent Completing the Survey	74.3	86.7
Level of Effort	25.5	24.3
Data Quality		
Imputation Score	3.8	3.5
Occupation Verbatim Length	77.0	89.0
Average Incentive $ per Survey	NA	$19

Results – Group E trends in the desired direction for all metrics, but at an average incentive cost of $19 per complete survey

2008 SDR Results – Effort and Quality

Past		2008		
Response	Incentive offered?	Response	Incentive offered?	Analysis group
Slow	No	Slow	No	F
Slow	No	Slow	Yes	D

Metric	F	D
Percent of Analysis Sample	0.6	0.9
Percent Completing the Survey	36.0	71.0
Level of Effort	23.4	23.4
Data Quality		
Imputation Score	5.4	4.0
Occupation Verbatim Length	75.5	92.3
Average Incentive $ per Survey	NA	$21

Results – Group D nearly doubles % completing the survey while improving data quality at an average incentive cost of $21 per complete survey

2008 SDR Results – Effort and Quality

Past		2008		
Response	Incentive offered?	Response	Incentive offered?	Analysis group
Slow	No	Timely	NA	H
Slow	Yes	Timely	NA	C

Metric	H	C
Percent of Analysis Sample	3.8	7.0
Percent Completing the Survey	89.5	94.0
Level of Effort	6.3	7.0
Data Quality		
Imputation Score	0.7	1.0
Occupation Verbatim Length	87.6	92.1

Results – Group C shows a greater likelihood to respond with a complete survey; but all other differences are nominal in 2008

2008 SDR Results – Effort and Quality

Past		2008		
Response	Incentive offered?	Response	Incentive offered?	Analysis group
Slow	No	Slow	No	F
Slow	Yes	Slow	No	B

Metric	F	B
Percent of Analysis Sample	0.6	1.5
Percent Completing the Survey	36.0	44.3
Level of Effort	23.4	24.0
Data Quality		
Imputation Score	5.4	5.9
Occupation Verbatim Length	75.5	88.4

Results – Group B shows a greater likelihood to respond with a complete survey

2008 SDR Results – Effort and Quality

Past		2008		
Response	Incentive offered?	Response	Incentive offered?	Analysis group
Slow	Yes	Slow	No	B
Slow	Yes	Slow	Yes	A

Metric	B	A
Percent of Analysis Sample	1.5	2.5
Percent Completing the Survey	44.3	67.9
Level of Effort	24.0	21.6
Data Quality		
Imputation Score	5.9	3.5
Occupation Verbatim Length	88.4	87.6
Average Incentive $ per Survey	NA	$22

Results – Repeatedly offering an incentive to the slow sample shows a greater likelihood to respond with a complete survey of higher data quality at an average incentive cost of $22 per survey

2008 SDR Results – Effort and Quality

Past		2008		
Response	Incentive offered?	Response	Incentive offered?	Analysis group
Slow	No	Slow	Yes	D
Slow	Yes	Slow	Yes	A

Metric	D	A
Percent of Analysis Sample	0.9	2.5
Percent Completing the Survey	71.0	67.9
Level of Effort	23.4	21.6
Data Quality		
Imputation Score	4.0	3.5
Occupation Verbatim Length	92.3	87.6
Average Incentive $ per Survey	$21	$22

Results – For the consistently slow sample, repeat offers of the incentive appear to have the same effect as an initial incentive offer

Answers to Key Question

What impact do incentives offered in one survey round have on subsequent rounds?

1. Negative – incentives in a previous round cause delayed response in the subsequent round
2. Neutral – for consistently slow cases the percent of cases completing the survey is the same for those offered the incentive repeatedly or for the first time
3. Positive – some "good will" effect of a past incentive can be seen with a higher percent of cases completing the current survey when no incentive is offered; some data quality metrics improve for some incentivized groups regardless of whether incentives are offered again

2010 SDR Incentive Decision

- After 5 months of data collection, overall response rate was 65.4%
- Three options for continuing the data collection
  1. Offer an incentive to attempt to achieve an 80% response rate and finish data collection on time
  2. Do not offer an incentive, finish on time with a response rate less than 80%, and conduct a nonresponse bias study
  3. Do not offer an incentive and continue data collection until an 80% response rate is reached, potentially delaying delivery of the resulting data

2010 SDR Incentive Design

- Late-stage incentive plan implemented similar to that used for the 2008 SDR
- $30 pre-paid incentive offered after 6 months of data collection; not an experiment
  - Offered to all in low-responding strata
  - Offered to at least 20% in higher responding strata

Please direct questions and comments to:

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Thank you!