

Disclosure Avoidance and the American Community Survey

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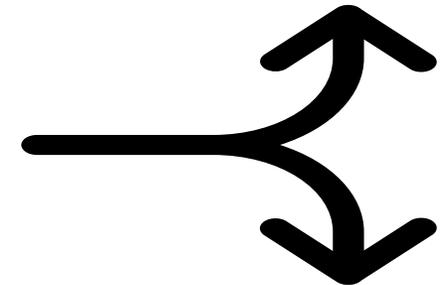
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Respondents make hard choices

- Respondents weigh risks and rewards of survey participation
- Benefits of participation may not be obvious
- No public disclosures from Census products does not equate to no privacy concerns... or risks

41%

It matters a moderate amount or less if I'm personally counted[†]

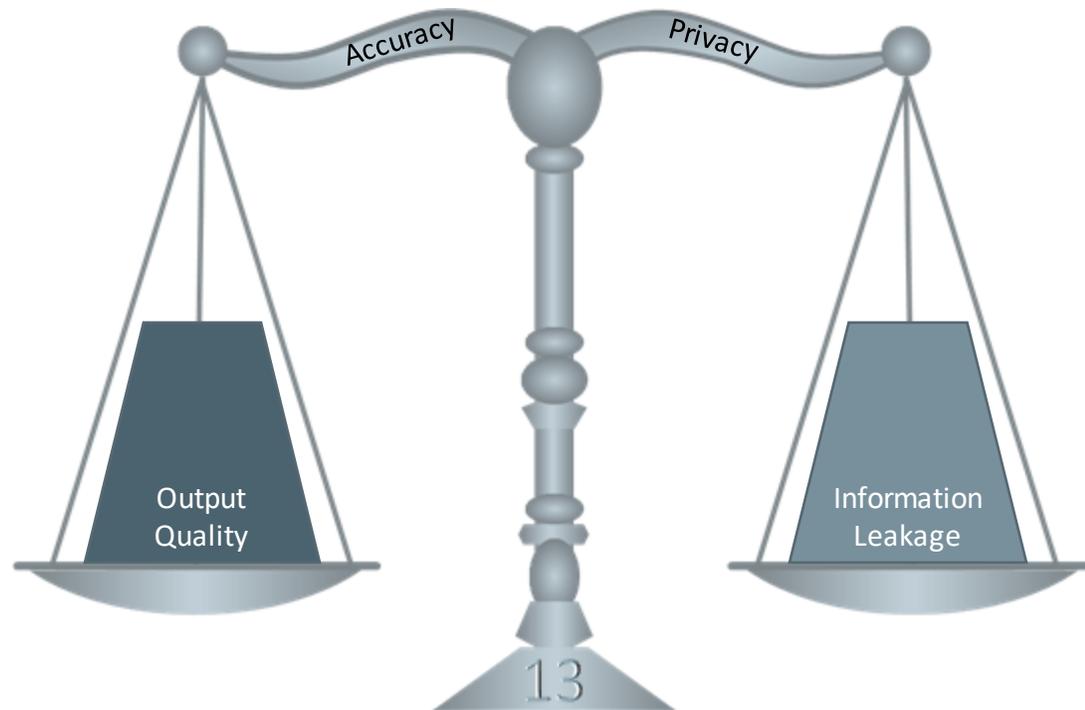


28%

I'm very or extremely concerned my answers won't be kept confidential[†]

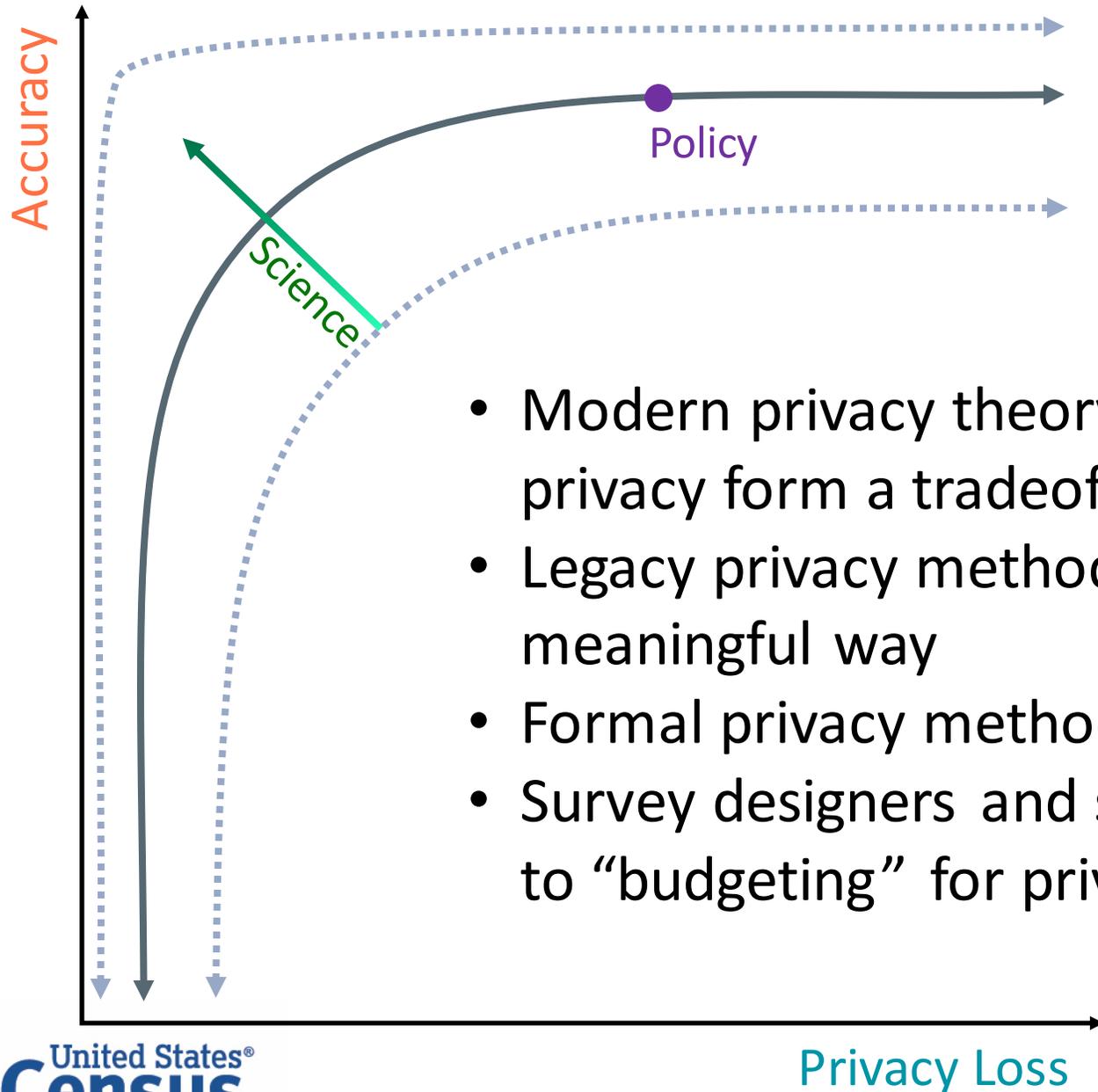


Balancing data release under Title 13



- Census Bureau surveys have competing requirements
 - Release statistics
 - Protect privacy
- Quality of ACS releases are supported by numerous metrics
- Privacy of ACS releases is not currently meaningfully quantified

There is no free lunch



- Modern privacy theory makes clear that accuracy and privacy form a tradeoff
- Legacy privacy methods could not quantify privacy loss in a meaningful way
- Formal privacy methods **can**
- Survey designers and stewards are not accustomed to “budgeting” for privacy

Moving away from illusions of privacy

- Legacy privacy methods tied privacy to arguments made using data available at the time
- But data stewards control little about data sources and uses:
 - Whether a respondent responds
 - What external data is held on respondents
 - Resources of would-be attackers (chance of disclosure)
 - Socio-economic forces that drive data sensitivity (impact of disclosure)
- No control of chance or impact means no control of privacy risk!



Privacy and sampling: It's complicated

- Sampling has been called a privacy technique
- But those in the sample have an increased effect upon survey outputs
- Adjustments to weights can increase this individual impact
- Surveys also tend to collect more sensitive data than censuses
- Interaction between formal privacy methods and surveys is an active research area^{†‡}



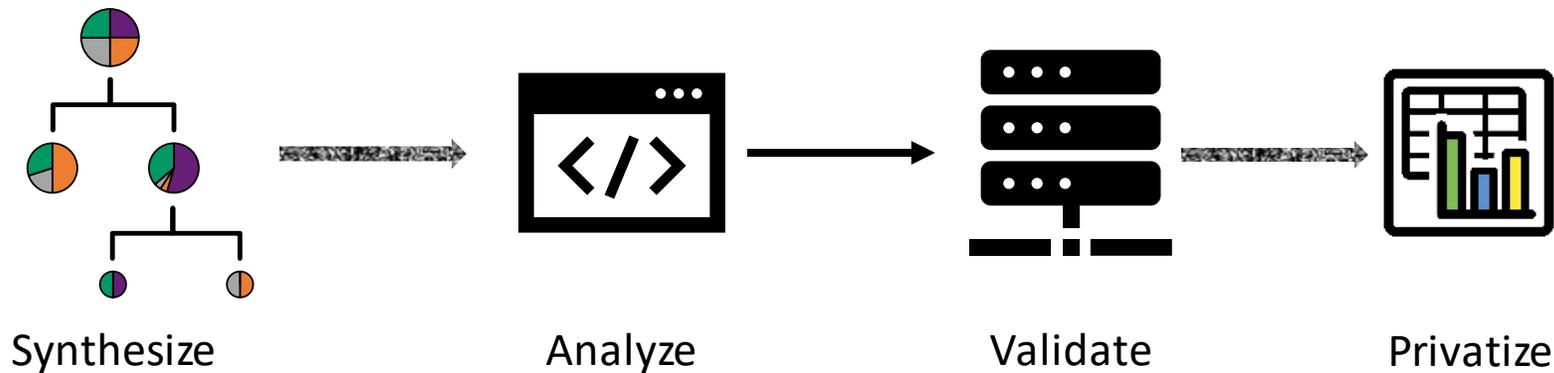
When privacy needs lead privacy science

- Re-identification of respondent information is a Census Bureau issue[†]
- Respondents deserve better protection across products now
- Other paradigms, such as synthetic data, can help fill the gap between swapping and formal privacy



Trust but verify

- Making synthetic data to satisfy all use cases is impossible
- Current research uses classification trees to create synthetic data
- Results of trees are assessed on a generalized marginal metric
- Users will be able to validate synthetic output against internal data

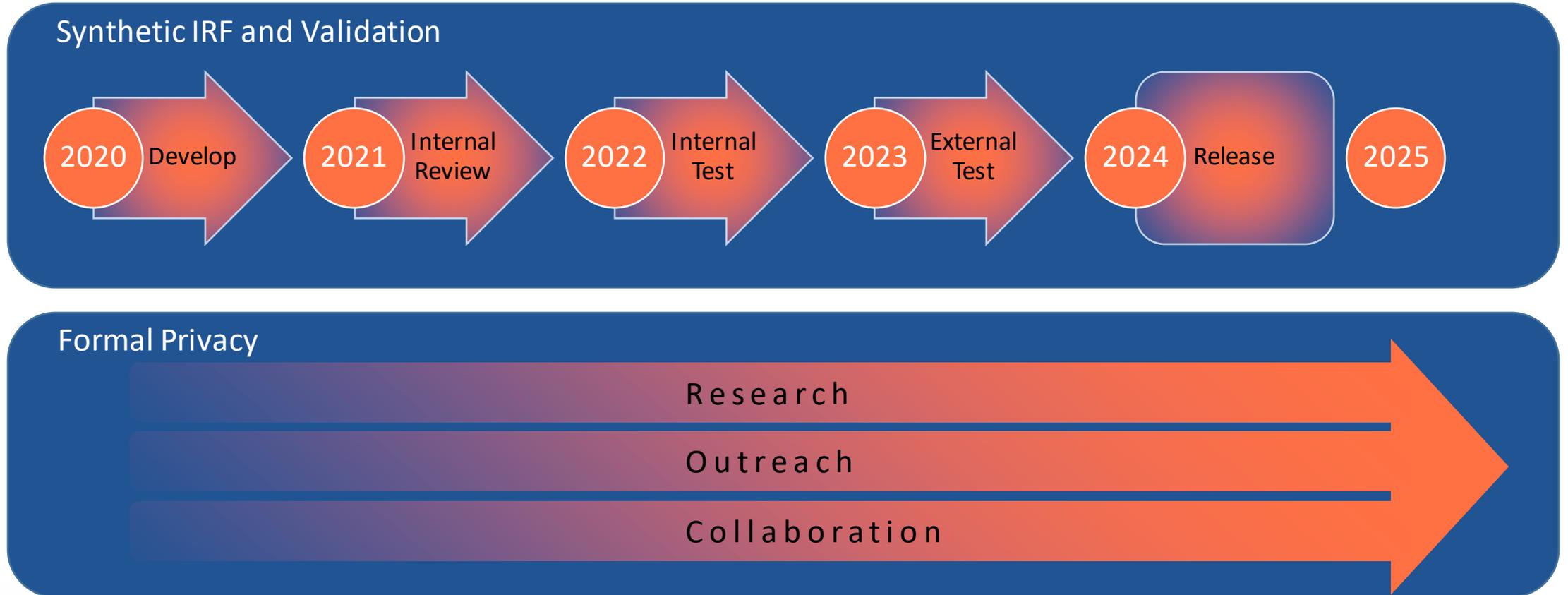


Making public microdata synthetically

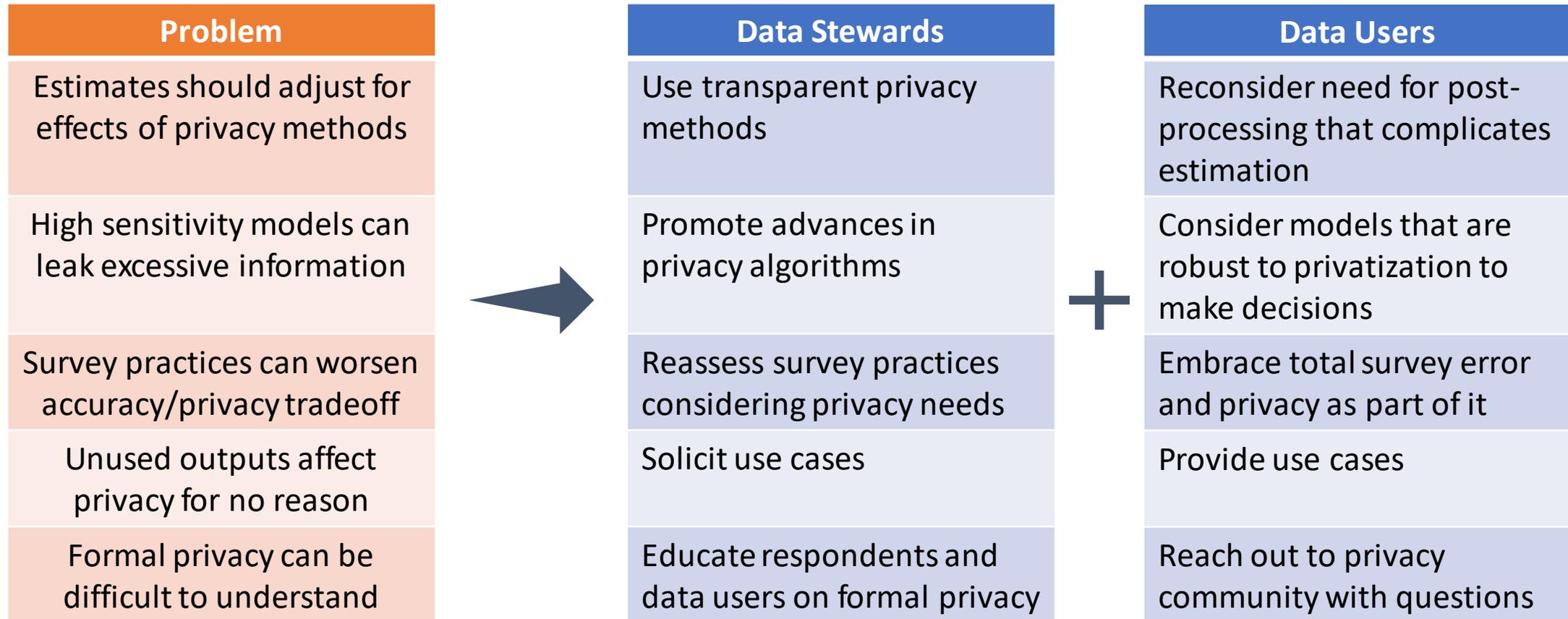
- Synthetic data methods are well-known to stats community
 - In use for certain surveys (SIPP[†], ACS)
 - Software packages already available (e.g., synthpop in R)
- ACS will research a new fully-synthetic data product
- Data will be based on an Internal Reference File (IRF), with no other privacy methods applied



ACS Privacy Modernization Timeline



Working together for responsible data



Contact us

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