

The 2011 Census: What's in it for the Research Industry?

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MRS Census & Geodemographics Group Seminar
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Agenda

- Some key Census developments
- Applications for Market Researchers
- Samples of Anonymised Records (SAR's)
- Social Grade Approximation
- Integration of Census data with other sources

The Census – A Unique Research Tool

- Valuable source data for all researchers and marketers
- Level of geographic detail is far greater than any other government or commercial source
- 2011 will be used to refresh a multitude of resources
 - Population estimates and projections, area profiles, forecasts
 - Neighbourhood Statistics
 - Geodemographic segmentations
 - ACORN, MOSAIC, OAC etc

New Questions

- Batch of new questions added
 - Second address (including reason)*
 - Passports held (citizenship)
 - Month/year of entry into UK (for the non-UK born)
 - Intended length of stay in UK (for non-UK born)
 - National identity
 - Main language & proficiency in English
 - Number of bedrooms*
 - Visitor information
- One major area missing from Census is income
 - High demand from Census users
 - Deemed inappropriate by Census Offices

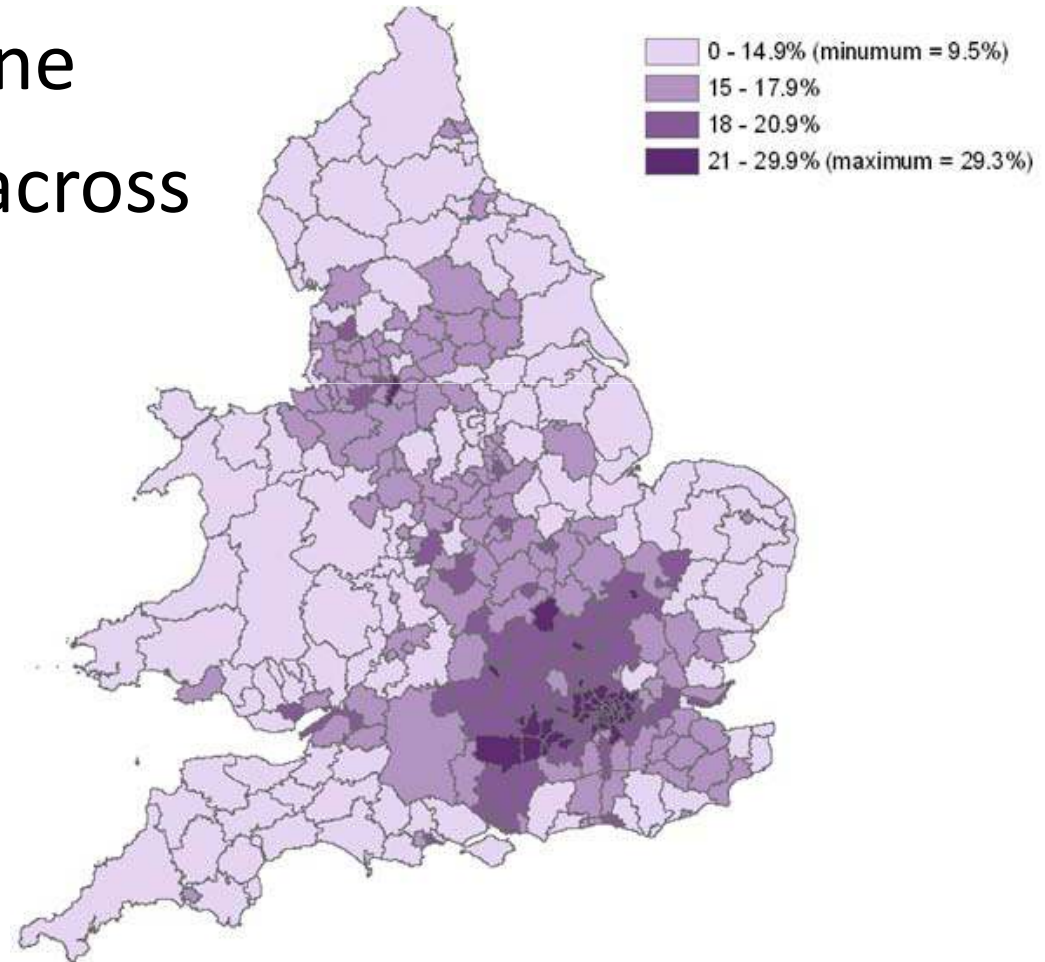
* England & Wales

Census Response Rates

- ONS achieved response rate targets of 94% overall, and over 80% in every local authority
- Response rates were improved through:
 - Intense publicity
 - Better address lists agreed with local authorities
 - Focusing enumerators on 'difficult' areas
 - Providing online completion as an alternative to filling in census form

The first UK Census that allowed online completion

- 16% average online completion rate across England & Wales
- Possible spin-off benefits for researchers?



Output Geography

- Results will be output for a variety of geographies, e.g...
 - UK – set of harmonised tables
 - Country within UK
 - Region
 - County
 - Local authority / Unitary authority
 - Constituency
 - Ward
 - Postcode sector
 - MSOA / LSOA
 - Output Area

Output Area Geography (OA's)

- Output Area geography was created for 2001 Census
 - Linked to postcode geography
- Stability in OA's for 2011 – wherever possible
 - Target of limiting OA changes to less than 5%
- Opportunity for 2001-2011 time series analysis on stable OA's – but no time series products are planned

Methods of Access

- Standard tables
 - From ONS website or bulk supply
- ONS Data Explorer
 - Online tool for exploring and interrogating data
- Application Programming Interface (API)
 - Enables third party systems to retrieve data from ONS Content Repository

Applications for Market Researchers

- How can the Census be used to aid and enhance Market Research?
 - ⇒ Sample design & execution
 - ⇒ Custom analysis
 - ⇒ Modelling/integrating Census data into research and customer data

Sample Design & Execution

- A unique benefit is the availability of information at small area level
- Allows analysis/understanding of areas *before* we research them
- Researchers use OA data for
 - Estimating penetration rates
 - Profiling areas
 - Stratification for sampling
 - Setting quotas
 - Post-hoc survey weighting

Profiling areas

- Important to understand the make-up of an area before sending interviewers to it
- Can use Census data to profile the population
- Can then anticipate interviewing needs
 - Languages
 - Optimal time for interviewing etc
- Flexible geography - can combine OA's into the areas of interest

Penetration Rates

- For surveys of minority populations, researchers often need to identify areas where high concentrations exist
 - Chinese within Scotland
 - Jewish people in the North East
 - Wealthy households within Portsmouth
- Using OA level data, can pinpoint areas where it is relatively easy to find such people

Area Stratification

- One of the key stages of sample design is stratification of areas
- We can use the richness of Census demographics as the basis for stratification
 - Socio-economic profile
 - Pensioner households
 - Population density
 - Working status etc....
- These demographics can be produced for any area type – standard or custom
- Detailed population counts facilitate sampling with probability proportional to size (PPS)

Setting Quotas

- Quota sampling is a staple of market research
- Good quota sample design requires accurate information on demographic profiles
- Need flexibility of geography to construct quotas for custom areas
- e.g. quotas for Isle of Wight

Age	%	Gender	%	Working Status	%
15-34	27.8	Male	46.8	Working FT	35.6
35-54	28.5	Female	53.2	Working PT	9.4
55+	43.7			Not working	55.0

Random Location Sampling

- This approach to sample design has been made possible by the availability of accurate small area Census data
- It has enhanced quota sampling – providing a more acceptable alternative to probability (random) sampling
- Ability to profile and stratify small areas is crucial
- Different quotas are generated for each area
- Address listings are produced by linking area boundaries to Postal Address File (PAF)

Random Location – quotas and address listings

QUOTA SHEET		
Constituency	BEDFORDSHIRE MID	
OA number	2152A47	
Sample code	100	
	SET	ACHIEVED
15-34	5	
35-54	4	
55+	2	
Men full-time	4	
Men not full-time	1	
Women working	3	
Women not working	3	

Postcode	Thoroughfare	Addresses
Sample Point	146	
Wave	1	
SG16 6DR	BEDFORD ROAD,HENLOW,BEDS	1*3*5*7*9*11*13*15*17*21*23*25*27*29*31*33*35
SG16 6DR	BEDFORD ROAD,HENLOW,BEDS	FLAT 2 1*FLAT 1 1*POLICE HOUSE *27A *25A *23A *21A
SG16 6DS	HENLOW INDUSTRIAL ESTATE,HENLOW,BEDS	3*4*6*9*11*13*20*23
SG16 6EL	ASTRAL CLOSE,LOWER STONDON,HENLOW,BEDS	1*2*3*4*5*6*7*8*9*10*11*12*13*14*15*16*17*18*19
SG16 6EL	ASTRAL CLOSE,LOWER STONDON,HENLOW,BEDS	20*21*22*23*24*25*26*27*28*29*30*31*32*33*34*35*36
SG16 6EL	ASTRAL CLOSE,LOWER STONDON,HENLOW,BEDS	37*38*39*40*41*42*43*44*45*46*47*48*49*50*51*52*53
SG16 6EL	ASTRAL CLOSE,LOWER STONDON,HENLOW,BEDS	54*55*56*57*58*59*60*61*62*63
SG16 6EN	BURNETT AVENUE,HENLOW,BEDS	12*13*14*15
SG16 6EP	THE CRESCENT,HENLOW,BEDS	1
SG16 6ER	CHESTNUT AVENUE,HENLOW,BEDS	35*40*41*42*43*44*45
SG16 6ES	NORTHERN AVENUE,HENLOW,BEDS	18*20*21*23*25*27*29*31
SG16 6ET	NORTHERN AVENUE,HENLOW,BEDS	1*2*3*4*5*6*7*8*9*10*11*12*13*14*15*16*17*19
SG16 6EW	BURNETT AVENUE,HENLOW,BEDS	1*2*3*4*5*6*7*8*9*10*11
SG16 6EZ	CENTRAL AVENUE,HENLOW,BEDS	1*2*3*4*5*6*7*8*9*11
SG16 6HA	WESTERN AVENUE,HENLOW,BEDS	2*4*6*8*10*12*14*16
SG16 6HB	BORTON AVENUE,HENLOW,BEDS	1*3*5*7*9*11*13*15*17*19*21*23*25*27*29*31
SG16 6HD	OLYMPUS ROAD,HENLOW,BEDS	1*2*3*4*5*6*7*8*10*12*14*16*18*20*22*24*26*28*30
SG16 6HD	OLYMPUS ROAD,HENLOW,BEDS	32*34*36*38*40*42*44*46*48
SG16 6HE	DERWENT ROAD,HENLOW,BEDS	1*3*4*5*6*7*8*9*10*11*12*13*14*15*16*17*18*19*20
SG16 6HE	DERWENT ROAD,HENLOW,BEDS	21*22*23*25*27*29*31*33*35*37*39*41*43
SG16 6HF	AVON ROAD,HENLOW,BEDS	1*2*3*4*6*8*10*12*14
SG16 6HG	AVON CHASE,HENLOW,BEDS	1*2*3*4*5*6*7*8*9*10
SG16 6HQ	NENE ROAD,HENLOW,BEDS	1*2*3*4*5*6*7*8

Weighting

- Demographic profiles are used to weight sample surveys
- They allow researchers to account for
 - Sample bias, e.g. essential for online surveys
 - Disproportionate sampling
- Typically, demographics used are
 - age
 - sex
 - region
 - socio-economic profile

Sample of Anonymised Records (SARs)

- Census microdata was an invaluable innovation in 1991, and continued in 2001
- Allows detailed profiling of sub-populations
- Information used in survey research for
 - Estimating penetration rates
 - Setting quotas
 - Weighting profiles
- Can be analysed in variety of software packages
- Valuable additional derived variables

Benefits of SAR's for Researchers

- **Best of both worlds**
 - **>Census Data:** Relates to individual records rather than aggregates; therefore more flexible and allows multivariate analysis
 - **>Survey Data:** Much larger sample size; allowing localised geographic analyses
- **Benefits**
 - Coverage: Whole Census population
 - Size: Much greater than for surveys. Can include local geographies or special populations (e.g. 85+)
 - Ethnicity & Religion: Can allow analysis at detailed level. Increased interest in analysis of groups

Proposed 2011 SAR Products

File	Detail	Geography	Licence	Availability
Public Use SAR	3%	Region and less detail or no geography and more detail	Open Government Licence	Download
Individual SAR	5%	LA - same level of detail as 2001 Individual SAR	Safeguarded	Special User Agreement Download
Household SAR	1%	Region or none	As for Individual SAR	As for Individual SAR
Individual CAMS	More detail than 2001? Possibility for increased sample size	At least the same level of detail as in 2001	Approved Researcher	ONS VML (Secure environment)
Household CAMS	As for Individual CAMS	As for Individual CAMS	As for Individual CAMS	As for Individual CAMS

Source: ONS

CAMS = Controlled Access Microdata Sample

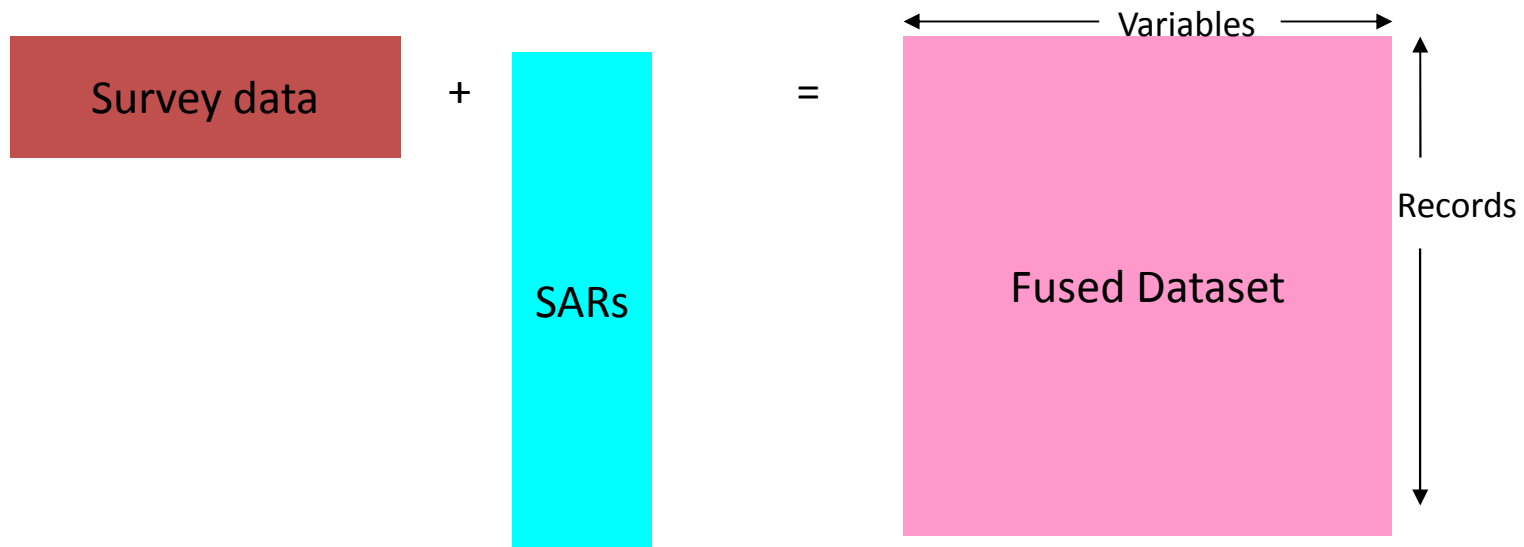
VML = Virtual Microdata Laboratory

Example Uses of SARs

- Penetration of households with children aged under 5, in the North East
- Profile of single parent households in Inner London
 - Age and gender of parent
 - Working status parent
 - Number of children
 - Age of children
 - Tenure
- Penetration and profile of Indians born in UK
 - Working status
 - Qualifications
 - Housing tenure

Analytical Uses of SARS

- Opportunities for Market Research
 - Multivariate Analysis e.g. Factor, Cluster, CHAID, creating segmentations
 - Applying demographic models based on research data
 - Data fusion, merged with survey data

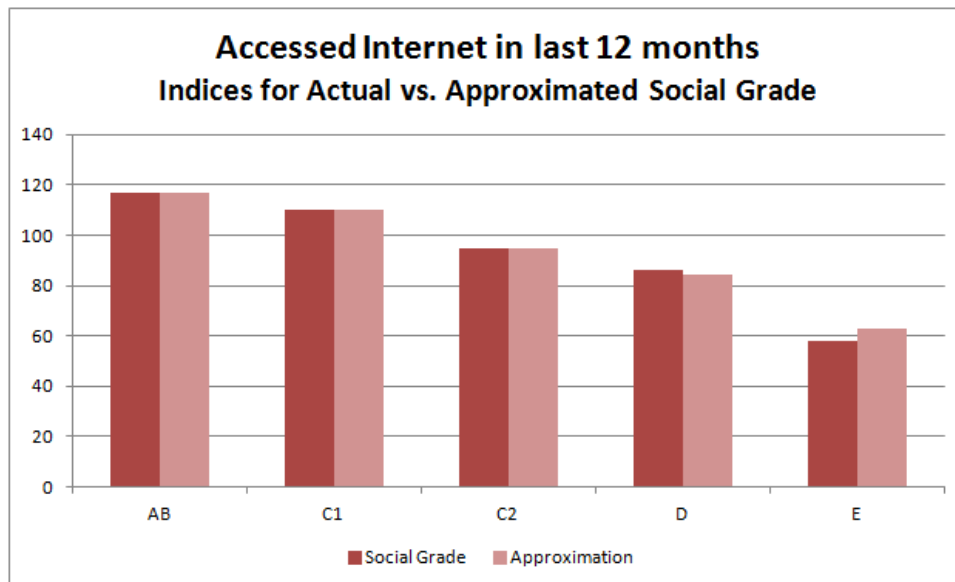
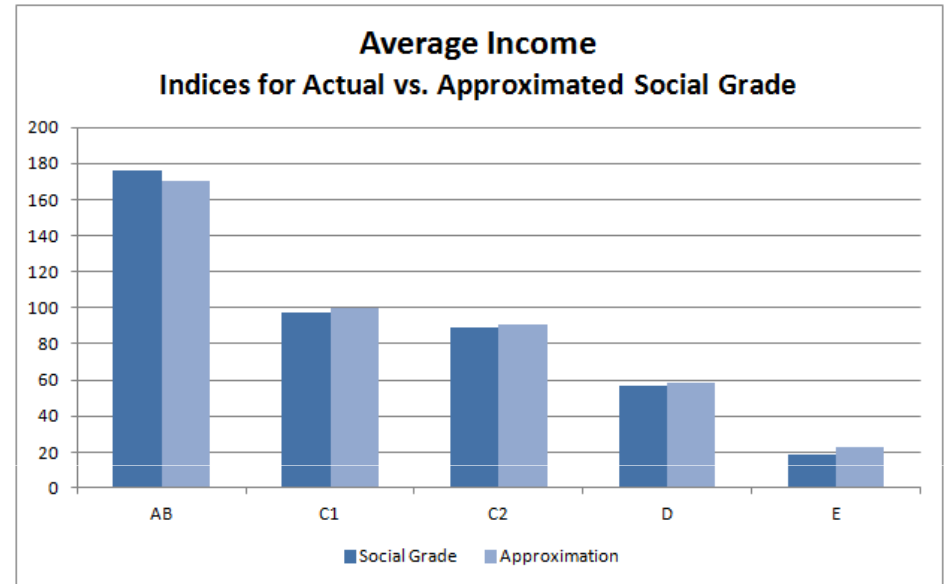


Social Grade Approximation

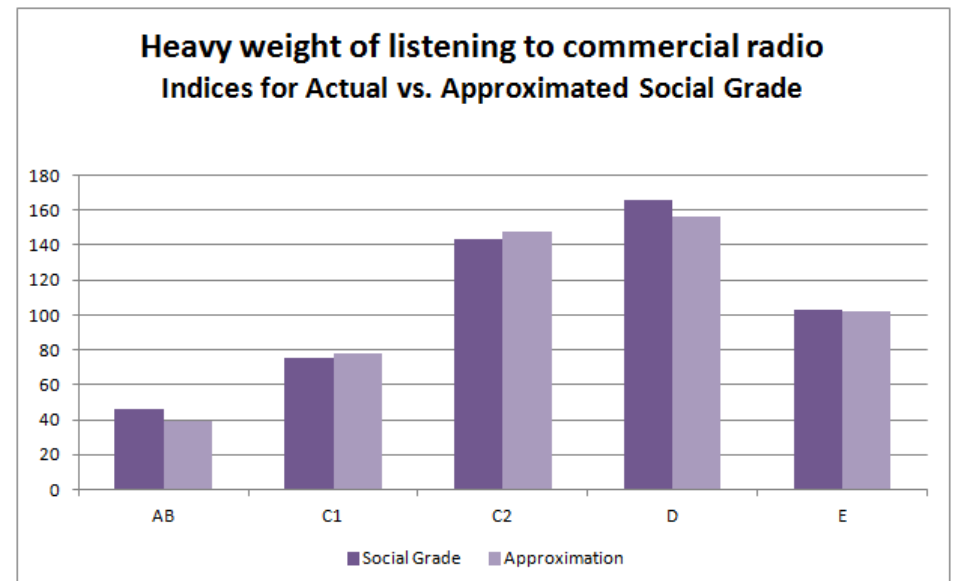
- MRS Census & Geodemographics Group has developed an algorithm to derive “ABC1” social grade based on Census variables
 - built for 2001 Census, redeveloped for 2011
- Social Grade is a key omission for market researchers and business community – unable to profile population by discriminator of choice
- Government classifications such as NS-SEC have not been not adequate substitutes
- Algorithm has been implemented by ONS and is being tested
- Tables on Approximated Social Grade are included in outputs from Release 2 onwards

2011 Social Grade Approximation has been tested on research data

- Original and Approximation profiles match well for all markets examined
- Similar targeting decisions would be made using Approximated social grade

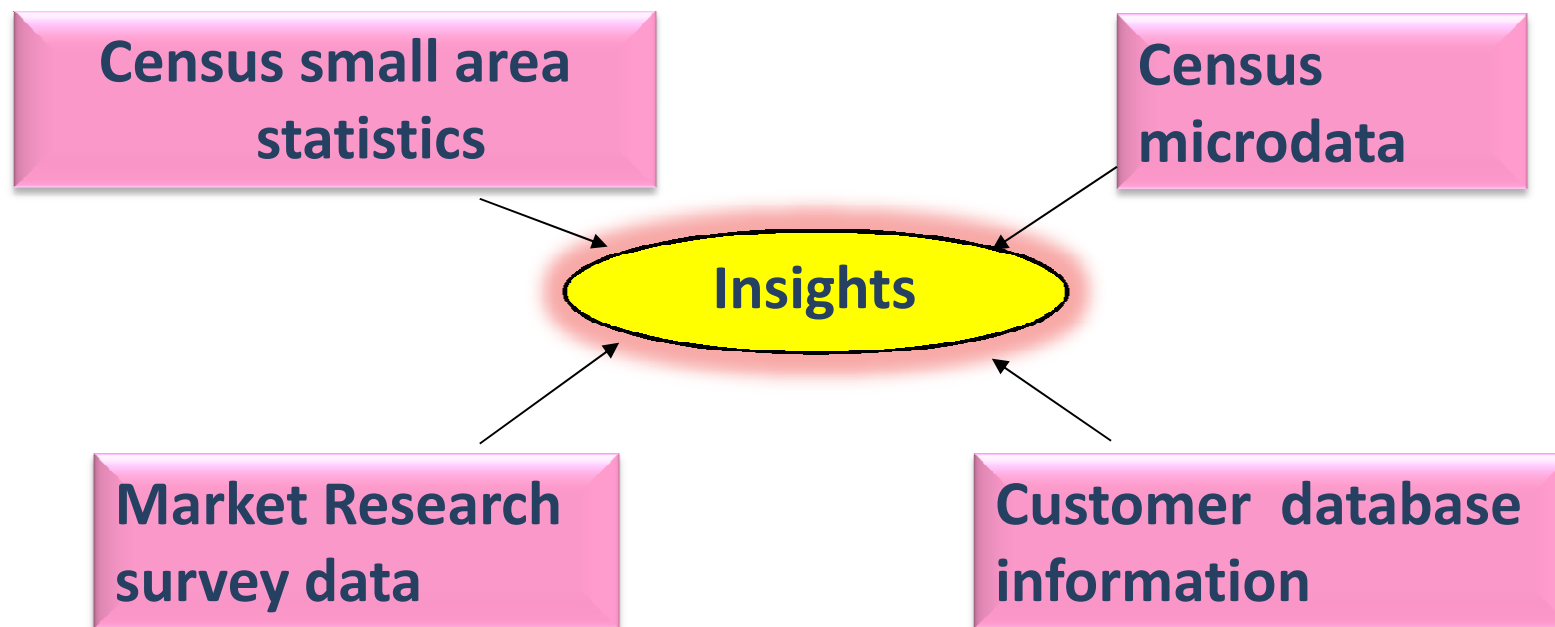


Source: GfK NOP

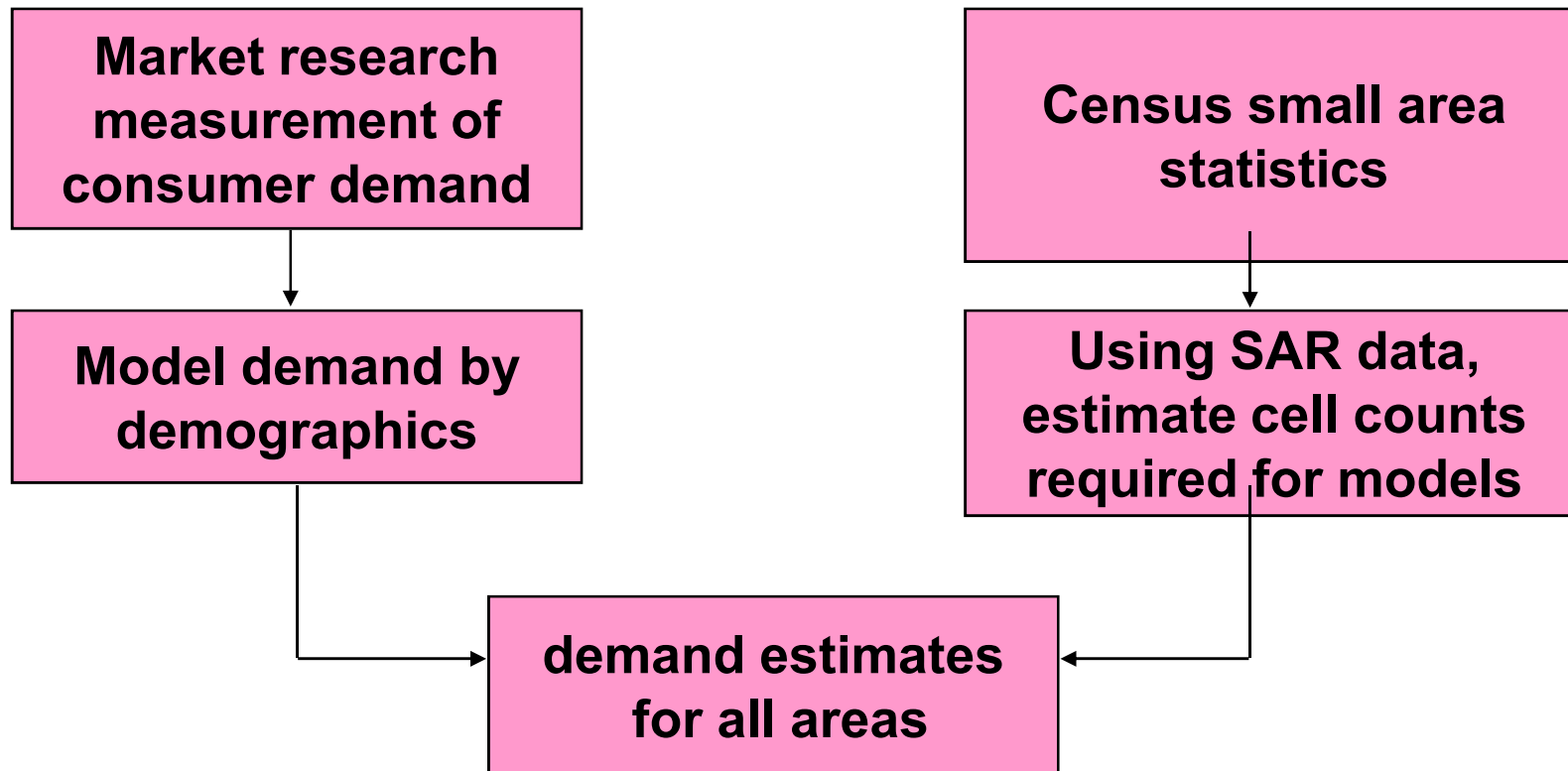


Integration of Census data with other sources

- The value of Census data increases if it can be integrated with other sources
- For example, new insights can be created by integrating...



Example - Generating Small Area Estimates of Consumer Demand



This method was applied to estimate and map the demand for 7 eating-out markets, at small area level

Conclusions

- The 2011 Census will be a valuable data source for market researchers
- '2011' will provide many significant 'firsts' – most importantly in outputs and access
 - UK-wide data
 - API development
 - Web-based access with Data Explorer
- Users may integrate Census with their own data
 - demographic and survey analysis
 - custom-built analytics and information products

Thank you!

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