#### Bakers' sons aren't butchers: Analysis of microclass immobility in the 19<sup>th</sup> Century

Dave Griffiths, Richard Zijdeman, Paul S. Lambert

#### Microclasses

- Microclass concept a recent innovation advocating measuring large numbers of smaller, dissaggregated classes ('microclasses'), rather than larger, 'big class' units
  - Grusky, Jonsson and colleagues argue that contemporary societies characterised by reproduction according to specific occupations ('microclass immobility'), not into larger classes
- Widely discussed in sociological circles (here, RC28, numerous blogs), but little published work
  - Grusky and colleagues have published various papers
  - Erikson, Goldthrope and Hällsten (2012; Goldthorpe 2002) critiqued the work
  - Published research using the concept rare to find (Griffiths & Lambert, 2012)
- Hitherto microclasses only analysed for contemporary, industrialised societies
  - Might microclasses have been present during early stages of industrialisation?

#### Industrialisation thesis

- Treiman's 1970 classic paper suggests industrialisation:
  - Involves decline in proportion of agricultural workers
  - Creates a wider variety of occupations
  - Generates more advantaged jobs and also more educated workers
  - Strengthens relationship between education and own job
  - Weakens relationship between fathers and own job

Type of reproduction

Type of resources	<b>Big-class</b>	Micro-class	
Human capital	General or abstract skills (e.g., cognitive or verbal abilities)	Occupation-specific skills (e.g., acting skills, carpentry skills)	
Cultural capital	Abstract culture and tastes (e.g., "culture of critical discourse")	Occupation-specific culture and taste (e.g., aspirations to become a medica doctor)	
Social networks	Classwide networks (typically developed through neighbor- hood or job-related interactions)	Occupation-specific networks (typically developed through on-the-job interactions)	
Economic resources	Liquid resources (e.g., stocks, bonds, income)	Fixed resources (e.g., business, farm)	

Table 2. Micro-classes nes	ted in manual	-nonmanual classes, 1	nacro classes, and mes	o classes
1. NON	MANUAL CLA	\$\$	2. MANUAL	CLASS
1. Professional-managerial	2. Proprietors	3. Routine nonman.	4. Manual	5. Primary
1. Classical professions	1. Proprietors	1. Sales	1. Craft	1. Fisherman
1. Jurists		1. Real estate agents	1. Craftsmen, n.e.c.	2. Farmers
2. Health professionals		2. Agents, n.e.c.	2. Foremen	3. Farm laborers
3. Professors and instructors		<ol><li>Insurance agents</li></ol>	3. Electronics service and repair	
4. Natural scientists		4. Cashiers	<ol><li>Printers and related workers</li></ol>	
5. Statistical and social scientists		5. Sales workers	5. Locomotive operators	
6. Architects		2. Clerical	6. Electricians	4
7. Accountants		1. Telephone operators	7. Tailors and related workers	
8. Authors and journalists		2. Bookkeepers	8. Vehicle mechanics	
9. Engineers		3. Office workers	9. Blacksmiths and machinists	2 Foremen
2. Managers and officials		4. POSTAI CIERKS	10. Jewelers	
Officials, govt. and non-profit orgs.     Other managers			12. Disphare and ping fitters	5. Electronics service and repair
2. Other managers			12. Plumbers and pipe-litters	4 Drinters and related words and
A Building managers and proprietors			14 Bakers	4. Frinters and related workers
3 Other professions			15 Welders	5 Locomotive operators
1 Systems analysts and programmers		7	16 Painters	J. Locomotive operators
2 Aircraft pilots and pavigators			17 Butchers	6 Electricians
3 Personnel and labor relations workers			18 Stationary engine operators	V. Dicetticians
4. Elementary and secondary track	1000000000000000		19. Bricklavers and carpenters	7. Tailors and related workers
5. Librarians	10111001000	no pipe inters	20. Heavy machine operators	
6. Creative artists 13.	Cabinetmal	cers	2. Lower manual	8. Vehicle mechanics
7. Ship officers			1. Truck drivers	0 Distantition in the internet
8. Professional and technical, n	Bakers		2. Chemical processors	9. Blacksmiths and machinists
9. Social and welfare workers			3. Miners and related workers	10 Janualars
10. Workers in religion	Welders		4. Longshoremen	IV. Jewelets
11. Nonmedical technicians			5. Food processing workers	11 Other mechanics
12. Health semiprofessionals	Painters		6. Textile workers	C II CAMPI INCOMINGS
13. Hospital attendants	Dutchow		7. Sawyers	
14. Nursery school teachers and	Butchers		8. Metal processors	
10	Castingana	and an an areators	9. Operatives and kindred , n.e.c.	
10.	Stationary	engine operators	2 Complex workers	
10.1	Deintelassaco	and an an atom	Service workers     Protective service workers	
			2 Transport conductors	
J. Omer projessi	ons		3 Guards and watchmen	
1 Contractor 1	- 1		4. Food service workers	+
<ol> <li>Systems analysts</li> </ol>	and progr	ammers	5. Mass transportation operators	<u> </u>
A 41 A 11 A			6. Service workers, n.e.c.	
<ol><li>Aircraft pilots an</li></ol>	a navigate	ors	7. Hairdressers	
			8. Newsboys and deliverymen	
			9. Launderers	
			10. Housekeeping workers	(Table 2, page 10, from
			11. Janitors and cleaners	Grusky et al., 2008).
			12. Gardeners	



Mobility / immobility argued to involve a mix of 'micro', 'meso' and 'macro' level influences.

Image taken from Jonsson et al. (2009), pp. 998.

FIG. 2.—Overlapping inheritance terms in mobility model. The y-axis pertains to occupational origins and the x-axis to occupational destinations. The unlabelled microdiagonal squares represent occupational immobility (see app. table A2 for more information on the class schemes).

# Microclass mobility in historical perspective?

- 1) Can Microclasses be operationalised on historical data at all?
- 2) If so, is it relevant to operationalise microclasses for late 19<sup>th</sup> century societies?
- 3) If so, do the same microclass mechanisms observed for 20<sup>th</sup> century apply to 19<sup>th</sup>?
- 4) When did microclass divisions accentuate in social history?

#### Operationalising historical data into microclasses

- Resources such as NAPP offer large volumes of detailed occupational data coded to various schemes
- Files generated to convert NAPP codes to standardised codes of HISCO (Zijdeman, Griffiths)
- Contemporary microclass translation macros under development (to selected national schemes – Grusky & colleagues; to ISCO and UK schemes – Griffiths, Lambert)
- Developed a HISCO-microclass algorithm, using slightly different microclass units, for this analysis (Griffiths, Zijdeman)
  - Exploiting previous HISCO-HISCLASS routines (Maas, van Leeuwen)
  - Part of ongoing development of occupation-based schemes for historical data – see also HISCAM (<u>www.camsis.stir.ac.uk/hiscam</u>)

#### Data conversion

- 471 Norwegian job titles (NAPP HISCO) and
   250 USA job titles (US 1950 census)
- 466 HISCO occupations
   with 359 unique HISCAM scores
- 13 HISCLASS categories
  - 6 macroclasses (5 non-agricultural)
  - 17 mesoclasses (15 non-agricultural)
- 68 microclasses (62 non-agricultural)

	Non-manual		Manual		
1. Professionals	2. Lower professionals	3. Lower non-manual	4. Skilled manual	5. Semi and unskilled	
11.Higher professionals	21. Lower professionals	31. Clerks	41. Makers and	51. Construction and	
			operators	Industry	
111. Lawyers	211. Artists	311. Clerks	411. Foremen	511. Stoner cutters	
112. Health professionals	212. Bookkeepers	312. Store clerks	412. Blacksmiths	512. Metal processors	
113. Teachers	213. Sales professionals	32. Other non-manual	413. Mechanics	513. Construction	
114. Architects and engineers	214. Proprietors	321. Watchmen	414. Sheet metal workers	514. Miners	
115. Other higher professionals	215. Religious workers	322. Janitors	415. Stone masons	515. Sawyers	
12. Higher managers	216. Police officers	323. Other non-	416. Joiners	516. Painters	
121. Governmental managers	217. Other lower	manual	417. Plumbers	52. Textiles	
122. Business managers	professionals		418. Other makers and	521. Textile workers	
	22. Lower managers		operators	522. Knitters	
	221. Governmental		42. Artisans	53. Service	
managers			421. Printers	531. Barbers	
	222. Business managers		422. Tailors	532. Domestic service	
	223. Ship's officers		423. Shoemakers	533. Waiters	
			424. Cabinetmakers	534. Messengers	
			425. Cartwrights	535. Other service	
			426. Coopers	54. Transport	
			427. Jewellers	541. Brakemen	
Bronosod scho	mo for microclasse	nc in 10 <sup>th</sup>	428. Other artisans	542. Seamen	
· Proposed sche		5 111 15	43. Food producers	543. Train guards	
century using	HISCO units		431. Bakers	544. Motor vehicle drivers	
			432. Butchers	55. Other semi-skilled	
Translation co	de to HISCO at		433. Other food	551. Stationary engine	
individuelle co			producers	operators	
<u>www.camsis.s</u>	tir.ac.uk/sonocs			552. Other semi-skilled	
				workers	
				56. Unskilled workers	
				561. Labourers	
				562. Other unskilled	



- Microclasses:
  - 28,543 in largest (proprietors)
  - 108 cases in smallest (watchmen)
  - Mean of 3,950 (s.d=4,769)
- Mesoclasses:
  - 38,810 in largest (lower professionals)
  - 3,133 in smallest (higher managers)
  - Mean of 14,840 (s.d. of 11,497)



## Reconstructing father-son mobility on historical datasets

- Previous analyses have often used marriage registers (groom's occupation plus father of groom / bride)
- NAPP and census datasets link co-resident adults (e.g. adult son living with father) but this could introduce age-related bias
- NAPP for USA and Norway (other countries forthcoming) has linked census data for samples of cases, that can allow linkage between fathers of children in one decade with the children as adults some decades later

### Data – linked NAPP census data for father-son combinations in 19<sup>th</sup>/early 20<sup>th</sup> century USA and Norway

	USA	Norway
Cases (including farming)	104,887	203,049
Cases (excluding farming)	34,961	41,838
% agricultural workers' son working in agric.	68%	77%
% agri/non-agri relations moving from agric.	79%	83%
Manual/manual immobility*	73%	80%
Macroclass immobility*	50%	56%
Mesoclass immobility*	40%	44%
Microclass immobility*	35%	37%
HISCO immobility*	34%	32%

\* Non-agricultural combinations only

#### Number of cases, by year and country

USA	cases	Linked to	Norway	cases	Son's
1850	1,990	father or son	1875	6,407	occupations
1860	4,093	in 1880	1900	35,431	or 1875 fathers)
1870	6,835				,
1900	9,628				
1910	6,432	Number of cases of both working and non-agricultural father and			Iral father and
1920	3,436	sons combinations relatively low, but sufficient to analyse.		nalyse.	

1930

2,547

Approx 11k USA cases for 1880 sons (linked to fathers 10-30 years earlier) and 22k cases for 1880 fathers (linked to sons 20-50 years later).

Norway has data linking 1865-1875; 1865-1900; and 1875-1900. Therefore gaps can be 10, 25 or 35 years apart.



### Absolute rates of immobility by fathers manual/non-manual status

	Fathers – country and job type			
	USA non-manual	USA manual	Norway non-manual	Norway manual
Manual/manual immobility	76%	71%	80%	80%
Macroclass immobility	48%	51%	51%	59%
Mesoclass immobility	43%	38%	43%	44%
Microclass immobility	36%	34%	35%	38%
HISCO immobility	35%	34%	28%	35%

#### Results: Models of immobility in 19<sup>th</sup> century America and Norway

N=76,799	L <sup>2</sup>	df	Δ	BIC
Full model	24,429	14,801	.175	-142,066
(excluding HISCAM)	24,982	14,800	.177	-141,502
(excluding Microclass)	61,640	14,863	.322	-105,553
(excluding Meso and macroclass)	27,780	14,823	.192	-138,963
(with log-muliplicative scaling replacing HISCAM)	21,688	14,679	.162	-143,435

#### Model:

(origin\*country\*era) + (destination\*country\*era) + (manual/non-manual immobility) + (macroclass immobility) + (mesoclass immobility) + (microclass immobility) + (HISCAM scaling)

Results consistent with Grusky et al. analysis for contemporary data: microclasses have the greatest influence on (im)mobility patterns

### Propensity towards macroclass immobility, given manual/non-manual reproduction

	Beta	Odds ratio
Higher professionals	3575	.70
Lower professionals	4803	.62
Lower non-manual	1249	.88
Skilled manual	1253	.88
Semi and unskilled manual	.0818	1.09

People generally likely to move to a different macroclass if in manual/nonmanual reproduction, aside from the least skilled workers.

Signs of mobility amongst those aggregated studies have declared 'immobile' (Long and Ferrie, 2013)

	Beta	Odds ratio
Higher professionals	.5657	1.76
Higher managers	3604	.70
Lower professionals	.3533	1.42
Lower managers	.0920	1.10
Clerks	.3062	1.36
Other non-manual workers	1045	.90
Makers and operators	.1797	1.20
Artisans	.0971	1.10
Food producers	0719	.93
Construction and industry	.1734	1.19
Textiles	.7263	2.07
Service	1.2998	3.67
Transport	.3664	1.44
Other semi-skilled	.4600	1.58
Unskilled	.5755	1.78

Mesoclass immobility, given macroclass reproduction

Patterns of immobility into mesoclass moderate, aside from certain semi-skilled occupations.

Again, no sign of big class reproduction, although some observable patterns (the sons of higher professionals generally gain a profession, not enter management).

	Beta	Odds ratio
Higher professionals	2.627	14.1
Higher managers	2.466	12.4
Lower professionals	1.586	8.1
Lower managers	2.175	8.9
Clerks	1.213	3.5
Other non-manual workers	2.369	27.1
Makers and operators	2.934	25.5
Artisans	3.832	51.9
Food producers	4.620	104.5
Construction and industry	3.211	26.6
Textiles	.871	5.5
Service	2.241	15.3
Transport	2.140	10.8
Other semi-skilled	2.468	12.0
Unskilled	1.489	4.9

Microclass immobility, given mesoclass reproduction

High patterns of microclass reproduction when in the same mesoclass (principally, a subdivision of HISCLASS).

### (2) Do the same microclass mechanisms observed for 20<sup>th</sup> century apply to 19<sup>th</sup>?

- Grusky, Jonsson and others argue that microclasses are more important in contemporary nations than big classes
- Goldthorpe, Erikson and others argue that microclasses give the impressions of being more important to less advantaged workers, but only due to fewer available options for employment
- Both sets of researchers agree, however, that microclass reproduction in stronger for nonmanual workers

	Beta	Odds ratio
Higher professionals	3575	.70
Lower professionals	4803	.62
Lower non-manual	1249	.88

Macro, Meso and
Micro (from top)
immobility for
Non-Manual
workers

	Beta	Odds ratio
Higher professionals	2.627	14.1
Higher managers	2.466	12.4
Lower professionals	1.586	8.1
Lower managers	2.175	8.9
Clerks	1.213	3.5
Other non-manual workers	2.369	27.1

	Beta	Odds ratio
Higher professionals	.5657	1.76
Higher managers	3604	.70
Lower professionals	.3533	1.42
Lower managers	.0920	1.10
Clerks	.3062	1.36
Other non-manual workers	1045	.90

Little evidence of immobility at big class level; mesoclass perhaps suggests using advantage to learn a profession; microclass shows, clerks aside, sons prefer to go into father's occupation.

	Beta		Odds ratio			
Skilled manual	12	253	.88		Beta	C
Semi and unskilled manual	.08	318	1.09	Makers and operators	.1797	
Macro Meso and Micro (from top)		Artisans	.0971			
immobility for Non-Manual			Food producers	0719		
workers		Construction and industry	.1734			
	Beta	Od	ds ratio	Textiles	.7263	
Makers and operators	2.934		25.5	Service	1.2998	
Artisans	3.832		51.9	Transport	3664	
Food producers	4.620		104.5	Othor comi skillod	4600	
Construction and industry	3.211		26.6	Other semi-skilled	.4000	
Textiles	.871		5.5	Unskilled	.5/55	
Service	2.241		15.3	Again, little evidence of big cla inheritance. Service workers o mesoclass strongly reproducir		s ly
Transport	2.140		10.8			•
Other semi-skilled	2.468		12.0	Microclasses largely reproduci		g.
Unskilled	1.489		4.9			

Odds ratio

1.20

1.10

.93

1.19

2.07

3.67

1.44

1.58

1.78

### Microclass reproduction in non-manual occupations

Lawyers	14.7
Health professionals	14.9
Teachers	11.4
Architects and engineers	22.8
Other higher	12.2
Public sector managers	7.6
Private sector managers	15.5
Artists	28.7
Bookkeepers	8.8
Sales professionals	10.6
Proprietors	2.9
Religious workers	23.3
Police officers	47.4
Other lower professionals	18.7
Public sector lower managers	9.7
Private sector lower managers	6.5
Ship's officers	9.5
Clerks	4.6
Stock clerks	2.4
Watchmen	371.8
Janitors	38.9
Other non-manual workers	5.3

Relatively consistent patterns of odds of being in same microclass, given mesoclass reproduction.

Proprietors appears much lower, perhaps due to parents encouraging children into particular professions.

Clerks appear to have much movement, perhaps implying they are not as different as the other categories.

Watchmen are the obvious outlier – they are much less like other non-manual workers.

# Microclass reproduction in manual occupations

Foremen	6.2
Blacksmiths	47.2
Mechanics	11.3
Sheet metal workers	54.6
Stone masons	84.9
Joiners	12.6
Plumbers	82.2
Other makers and operators	22.6
Printers	43.0
Tailors	28.2
Shoemakers	44.7
Cabinetmakers	52.8
Cartwrights	39.0
Coopers	97.1
Jewellers	122.3
Other artisans	75.6
Bakers	96.8
Butchers	136.7
Other food producers	66.8

High levels of reproduction in most occupations – signs that people learn the family trade, or that people use their parents contacts for work?
Bakers and butchers seem highly independent of each other, and food producers. Evidence that those microclasses existed in the

period?

Stone cutters	58.9
Metal processors	34.3
Construction workers	18.4
Viners	24.9
Sawyers	16.9
Painters	37.6
Textile workers	22.3
Knitters	1.4
3arbers	49.6
Domestic servants	4.1
Waiters	20.2
Messengers	8.3
Other service workers	5.9
3rakemen	25.7
Seamen	5.4
Frain guards	58.9
Motor vehicle drivers	11.0
Stationary engine operators	18.0
Other lower skilled workers	11.0
abourers	6.5
Other unskilled workers	2.6

# When did microclass divisions accentuate in social history?

- Evidence that microclasses were present during industrialisation in the USA and Norway
- Effects largely same as in contemporary societies, although different interpretations possible
- Therefore, could microclasses have become relevant in preindustralised times?

### Results: Era-related coefficents for immobility

	Beta	Odds ratio
USA 1880	.1805	1.20
USA post 1880	1819	.84
Norway 1875	2489	.78
Norway post 1875	.2368	1.27

Results inconclusive. USA saw less reproduction after 1880 – signs of industrialisation?

Norway saw a reduction in reproduction after 1875 – signs that industrialisation didn't exist?

Given similar patterns of movement from agricultural workers and rural populations, inconclusive when microclasses when formed, or inconclusive where formed?

#### Summary

- Microclasses were evident during the period of industrialisation in the USA and Norway
- Developments in historical occupational analysis (HISCO, HISCAM, HISCLASS) enable development of historical microclass schemes
- Microclasses offer potential for more fine grained analysis of immobility patterns in historical settings
- Possible factor that microclasses were used in historical times to consolidate social advantage, whereas currently they are seen as consolidating disadavantage.

### Bibliography

- Erikson, R., Goldthorpe, J.H., and Hällsten, M. (2012) 'No way back up from ratcheting down? A critique of the 'microclass' approach to the analysis of social mobility', *Acta Sociologica*, 55(3), 211-229.
- Goldthorpe, J. H. (2002). Occupational Sociology, Yes: Class Analysis, No: Comment on Grusky and Weeden's Research Agenda. *Acta Sociologica*, *45(3)*, *211-217*.
- Griffiths, D., and Lambert, P.S. (2012) 'Dimensions and Boundaries: Comparative analysis of occupational structures using social network analysis and social interaction distance", *Sociological Research Online*, 17(2).
- Grusky, D.B., Yoshimichi, S., Jonsson, J.O., Miwa, S., Di Carlo, M., Pollak, R., and Brinton, M.C. (2008). "Social Mobility in Japan: A New Approach to Modeling Trend in Mobility." in Wantanabe, T. (ed) *Intergenerational Mobility and Intragenerational*. 2005 SSM Research Project Series, Volume III.
- Jonsson, J.O., Grusky, D.B., Di Carlo, M., Pollak, R., and Brinton, M.C. (2009) 'Microclass Mobility: Social Reproduction in Four Countries', *American Journal of Sociology*, 114(4), 977-1036. Long, J., and Ferrie, J. (forthcoming) 'Intergenerational Occupational Mobility in Britain and the U.S. since 1850', *American Economic Review*.
- van Leeuwen, M.H.D. van, and Maas, I. (2011) *HISCLASS: A Historical International Social Class Scheme*. Leuven: Leuven University Press.
- van Leeuwen, M.H.D. van, Maas, I., and Miles, A. (2004) *HISCO: Historical International Standard Classifications of Occupations*. Leuven: Leuven University Press.
- Treiman, D.J. (1970) 'Industrialization and Social Stratification', *Sociological Inquiry*, 40(spring), 207-234.
- Xie, Y., and Killewald, A. (forthcoming) 'Intergenerational Occupational Mobility In Britian and the U.S. since 1850: comment', *American Economic Review*.