Remember the Ladies: Social and Occupational Mobility in 19th Century Massachusetts

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America in the 2nd half of the 19th century is often viewed as a "land of opportunity" characterized by social, economic, and geographic mobility for native-born citizens and for immigrants.

From 1850 to 1880:

- The population more than doubled from 23 million to 50 million
- Real GDP per capita grew 79%
- The share of the labor force in non-agricultural occupations increased from 36% to 51%
- The share of the population which was foreign born increased from 9.7% to 13.3%.
- 20% – 25% of the native born population lived in a state other than where they were born

Previous studies of occupational and geographic mobility in this period in the U.S. have found:

- Immigrants and native born had similar rates of occupational mobility (Abramitzky, *et al* 2014)
- Internal migration increased occupational mobility and property accumulation (Herscovici 1998, Long and Ferrie 2013)
- Unskilled workers had some upward mobility, but rarely reach white collar occupations (Thernstrom 1964)
- Intergenerational (father to son) occupational mobility and geographic mobility was greater in the US than in the UK (Long and Ferrie 2013)
- Farming offered an important stepping stone in both occupational and geographic mobility and in wealth accumulation through property ownership (Thernstrom 1964, Herscovici 1998, Long and Ferrie 2013)

Previous Study Methodology

The main data source of the analysis of mobility in the U.S. is the U.S. Census, taken every 10 years.

Beginning in 1850, the Census lists every person in the household, their age, sex, color, place of birth, residence (town, county and state), and occupation.

Match an individual across two censuses with an algorithm which

- takes into account variations in spelling for names
- allows age to vary by a few years
- Some require the birthplace to match
- Most exclude matches with more than one possible match / common names
- Some prioritize matches with same residence
- Some prioritize matches with same other household members

Previous studies have two large drawbacks:

- Only match men
- Low match rates

Matching Rates and matching restrictions of previous studies

Study	Dates	Study Population	Study match rate
IPUMS linked representative samples (Ruggles)	1870 - 1880	•native born white males •foreign born males	12% 3%
Herscovici	1850 - 1860	Males aged 10 +	65%
Long and Ferrie	1850 - 1880	fathers/sons	22%

Matching Rates and matching restrictions of previous studies

Matched and unmatched differ in ways that matter

- Immigrants are harder to match
  - English speaking clerks recording non-English names
  - Some groups (Irish) have more common names
- Internal migrants are harder to match
- Illiterate people are harder to match
- All women are unmatched!

Genealogical Matching techniques

- Search for other household members and family members (start with unusual names!)
- Search more name variations – phonetic and transcription errors
- Look at manuscript records / Learn to read cursive
- Search birth, marriage, and death records
- Search Town/city directories
- Search probate records / wills
- Search Town Records / Poor Records
- Search on-line cemetery registries
- Search published genealogies

Research goal

- Match everybody in the Newbury/Newburyport, MA 1850 Census

Research question

- Did the exclusion of many individuals from previous studies bias their results?
- Did women and men experience socio-economic mobility differently?
- What role did geographic mobility play in socio-economic mobility for men and women ? For immigrants ?

Why Newburyport ?

- Previously studied (Thernstrom, Herscovici)
- Massachusetts kept excellent vital records in the 19th century
- The town clerk has very legible handwriting
- Mix of agriculture and manufacturing both traditional small craftsman and large industrial firms
- Sizable immigrant population

About Newburyport

Newbury & Newburyport, MA

- the Merrimack River runs into the Atlantic Ocean,
- 30 miles north of Boston, 5 miles south of the Massachusetts – New Hampshire border
- Newbury was settled in 1635 by English colonists
- In 1764, the waterfront portion was set off as the separate town of Newburyport
- In 1851, a large section of Newbury was incorporated into Newburyport, leaving only about 1,400 people in Newbury
- Main industries are farming, shipbuilding, fishing, and textile mills

The match – Newbury only

1850 Sex	Total	Found in 1860		Died By 1860		Not Found	
F	2,128	1,668	78%	216	10%	244	11%
M	1,944	1,538	79%	204	10%	202	10%
Total	4,072	3,206	79%	420	10%	446	11%

- Recent estimates of the 1860 census undercount for northern born whites are 5.6% (Hacker 2013)

The match by origin / birthplace

origin1850	Total		Found			Died by 1860			Not Found	
Massachusetts	3,283		2,659	81%		356	11%		268	8%
Rest of New England	460		343	75%		51	11%		66	14%
Other US	41		32	78%		1	2%		8	20%
Total US	3,784		3,034	80%		408	11%		342	9%
Canada	88		57	65%		6	7%		25	28%
Ireland	119		54	45%		2	2%		63	53%
UK	67		51	76%		3	4%		13	19%
Other Europe	10		8	80%		0	0%		2	20%
Hawaii	3		2	67%		0	0%		1	33%
Haiti	1		0	0%		1	100%		0	0%
Total Immigrant	288		172	60%		12	4%		104	36%
Total	4,072		3,206	79%		420	10%		446	11%

- Immigrants are more likely to be unmatched, particularly Irish immigrants
- Internal migrants are slightly more likely to be unmatched

The match by age

agegroup1850	Total	Found		Died by 1860		Not found	
0 - 4	507	446	88%	40	8%	21	4%
5 - 9	407	362	89%	15	4%	30	7%
10 - 14	409	335	82%	16	4%	58	14%
15 - 19	408	305	75%	19	5%	84	21%
20 - 29	728	551	76%	52	7%	125	17%
30 - 39	545	436	80%	40	7%	42	8%
40 - 49	434	362	83%	37	9%	35	8%
50 - 59	269	208	77%	42	16%	19	7%
60 - 69	215	130	60%	65	30%	20	9%
70 - 79	114	40	35%	67	59%	7	6%
80 +	36	4	11%	27	75%	5	14%
Total	4,072	3,206	79%	420	10%	446	11%

- Young adults (ages 20 – 39 in 1860) are more likely to be unmatched

The match by property ownership

Amount of Property owned in 1850		Found 1860		Dead by 1860		Not Found 1860	
$3000 +	130	96	74%	30	23%	4	3%
$1000 - $2999	188	138	73%	46	24%	4	2%
$500 - $999	102	76	75%	21	21%	5	5%
< $500	87	64	74%	17	20%	6	7%
None	3565	2832	79%	306	9%	427	12%
Total	4,072	3206		420		446	

- Those without property are slightly more likely to be unmatched

Measuring socio-economic outcomes

- The 1850 and 1860 Census include occupation and property ownership data
- Using standardized historical social class classification schemes, we can approximate the economic well-being of households with at least one employed member.
- Using recorded property values from the census, we can approximate the economic well-being of richer households who owned real estate

Measuring socio-economic outcomes – Household status

Almost everyone lived in a household

- Only 7 people in the 1850 Census in Newbury lived alone
- Households consisted of related and unrelated individuals
- Most were spouses, parents, and children
- Often grandparents, grandchildren, siblings, other relatives
- Some were unrelated - boarders, employees, servants

Measuring socio-economic outcomes – Household status

Family members share economic status

Unrelated household members do not

- Occupation
  - own occupation
  - If no own occupation, Head of household's occupation if related
  - If no own occupation and related to other household member use other household member's occupation
  - If no own occupation and unrelated to all other household members, assume servant
  - If no one in household has occupation, search directory, or for widows, search husband's death record
- Property Ownership
  - own real estate value
  - If no real estate, total household's real estate value if related to owner of real estate
  - If no real estate and if unrelated then count household real estate as "none"

Classifying occupations

Use HISCLASS, van Leeuwen and Maas 2011

Classify occupations based on

- Manual vs. non-manual
- Supervisory role
- Manufacturing & service vs. primary sector
- Skill level

Classifying occupations: Newburyport – White Collar

1 Higher Managers

- Merchant

2 Higher Professionals

- Clergyman, Physician, Lawyer, Newspaper Publisher, Treasurer, Latin Teacher, Music Teacher, Hotel Keeper

3 Lower Managers

- Master Mariner, Ship Captain, Postmaster, Railroad Ticket Master

4 Lower Professionals, Higher Clerical and Sales Personnel

- Pilot, Broker, Inspector of Fish, Surveyor of Port, Surveyor of Lumber, Superintendent of the Poor House, Boardinghouse Keeper, Common School Teacher, Organist, Town Clerk, Surveyor, Coal Dealer, Leather Dealer, Lumber Dealer, Shoe & Boot Dealer, Organist, Grocer, Victualler, Restauranteur, Milkman

5 Lower Clerical and Sales Personnel

- Clerk, Bank Cashier, Lighthouse Keeper, Trader

Classifying occupations: Newburyport – Manufacturing and Service Workers

6 Overseer

- Overseer in Textile Mill

7 Skilled Manufacturing workers

- Ship Builder, Ship Carpenter, Sailmaker, Carpenter, Joiner, Cooper, Engineer, Machinist, Mechanic, Railroad Fireman, Miller, Hat maker, Tailor, Baker, Butcher, Printer, Tin Plate Worker, Blacksmith, Jeweler, Watchmaker, Silversmith, Bricklayer, Mason, Cabinetmaker, Carriage Maker, Harness Maker, Wheelwright, Block Maker, Plane Maker

9 Semi-Skilled Manufacturing workers

- Shoemaker, Wool Puller, Tanner, Spinner, Weaver, Confectioner, Cigar Maker, Snuff Maker, Soap Boiler, Iron Founder, Brick Maker, Stone Cutter, Painter, Rope Maker, Caulker, Coach Driver, Teamster, Truckman

11 Unskilled Manufacturing workers

- Manufacturer, Operative, Mariner, Laborer

Classifying occupations: Newburyport – Primary Sector Workers

8 Farmers

- Farmer

10 Semi-Skilled Primary sector workers

- Fisherman

12 Unskilled Manufacturing workers

- Farm Laborer, Gardener, Hostler

Classifying occupations: wages for manufacturing workers

1850 Census of Manufacturing - monthly wages paid in Newburyport

MALE WORKERS	7: Skilled Manufacturing workers	9: Semi-Skilled Manufacturing workers	10: Semi-Skilled Primary sector workers	11: Unskilled Manufacturing workers	12: Unskilled Primary sector workers
Mean wage per worker	$32	$22	$20	$20	$23
# workers	508	167	378	453	16
# firms	101	35	79	5	6
Maximum firm reported average wage	$40	$34	$30	$26	$25
Median firm reported average wage	$25	$25	$20	$21	$24
Minimum firm reported average wage	$15	$15	$20	$16	$13

Classifying occupations: wages for manufacturing workers

1850 Census of Manufacturing - monthly wages paid in Newburyport

FEMALE WORKERS	7: Skilled Manufacturing workers	9: Semi-Skilled Manufacturing workers	11: Unskilled Manufacturing workers
Mean wage per worker	$11	$8	$13
# workers	86	161	999
# firms	12	13	5
Maximum firm reported average wage	$16	$16	$16
Median firm reported average wage	$10	$8	$14
Minimum firm reported average wage	$8	$4	$12

Occupational classes in Newbury

Occupational Class 1850	Number with of own occupation	Number with household occupation
1	35	160
2	25	126
3	26	97
4	38	150
5	30	92
6	7	31
7	310	1031
8	***235***	***752***
9	226	795
10	***20***	***67***
11	226	724
12	***6***	***47***
Total	1,184	4,072

Geographic mobility 1850 - 1860

Residence 1860	Male		Female		Total	
Newburyport	1433	86%	1291	84%	2724	85%
other Essex County	107	6%	97	6%	204	6%
other Massachusetts	46	3%	56	4%	102	3%
other New England	41	2%	44	3%	85	3%
Mid Atlantic	12	1%	6	0%	18	1%
MidWest	23	1%	28	2%	51	2%
West	3	0%	14	1%	17	1%
South	1	0%	1	0%	2	0%
Canada	2	0%	1	0%	3	0%
Total	1668	100%	1538	100%	3206	100%

Geographic mobility 1850 - 1860

logit persists male native age1850 agesq1850 REln1850
(omitted categories are female, immigrant)

```
Logistic regression                               Number of obs     =      3,206
                                                  LR chi2(5)        =      95.38
                                                  Prob > chi2       =     0.0000
Log likelihood = -1309.4241                       Pseudo R2         =     0.0351
------------------------------------------------------------------------------
    persists |      Coef.   Std. Err.      z    P>|z|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
        male |  -.1824414   .1041697    -1.75   0.080    -.3866102    .0217275
      native |   .8582088 **   .17827     4.81   0.000      .508806    1.207612
     age1850 |  -.0295679 **  .0103573    -2.85   0.004    -.0498678    -.009268
   agesq1850 |   .0008171 **  .0001895     4.31   0.000     .0004458    .0011885
    REln1850 |   .0744057 **  .0320644     2.32   0.020     .0115607    .1372507
       _cons |   1.000354 **  .2199529     4.55   0.000     .5692541    1.431454
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- Men, immigrants, young adults, those without property are more likely to leave town

Geographic mobility 1850 - 1860

logit persists native farmer whitecollar skilled semiskilled noocc age1850 agesq1850 REln1850 if male (omitted categories are immigrant, laborer)

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Logistic regression                               Number of obs     =      1,537
                                                  LR chi2(9)        =      61.81
                                                  Prob > chi2       =     0.0000
Log likelihood = -646.65353                       Pseudo R2         =     0.0456

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    persists |      Coef.   Std. Err.      z    P>|z|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
      native |   .8488062   .2436372     3.48   0.000     .3712861    1.326326
      farmer |   .6591229   .3498021     1.88   0.060    -.0264766    1.344722
 whitecollar |  -.2847541    .328759    -0.87   0.386    -.9291099    .3596018
     skilled |    .126678   .2718939     0.47   0.641    -.4062242    .6595802
 semiskilled |   .3989114   .2982385     1.34   0.181    -.1856253    .9834481
       noocc |    .799645   .3326138     2.40   0.016     .147734    1.451556
     age1850 |    .012922   .0218823     0.59   0.555    -.0299665    .0558105
   agesq1850 |   .0002638   .0003193     0.83   0.409     -.000362    .0008896
    REln1850 |   .0767087   .0363868     2.11   0.035     .0053918    .1480256
       _cons |   -.154188   .4610114    -0.33   0.738    -1.057754    .7493777
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- For men, farmers and those with no occupation are less likely leave than other occupations

Socio-economic mobility 1850 - 1860

All

relhisclass 1850	relhisclass1860																			
		1	2	3	4	5	6	7	8	9	10	11	12	Total	moved down		stayed		moved up	
	1	60	4	2	23	16	0	11	3	4	0	5	0	128	64	50%	64	50%		
	2	2	57	2	14	3	6	2	1	0	0	6	0	93	34	37%	59	63%		
	3	10	0	22	0	3	1	2	3	2	6	25	2	76	44	58%	22	29%	10	13%
	4	6	9	1	73	10	0	3	5	8	0	10	0	125	36	29%	74	59%	15	12%
	5	0	4	1	23	28	0	2	5	5	0	7	0	75	19	25%	28	37%	28	37%
	6	0	0	0	0	1	8	1	3	1	0	14	0	28	15	54%	12	43%	1	4%
	7	15	5	5	46	28	8	518	61	89	2	52	8	837	151	18%	587	70%	99	12%
	8	4	5	0	23	9	0	35	413	44	0	20	40	593	104	18%	448	76%	41	7%
	9	9	1	12	16	17	4	20	61	397	14	67	20	638	87	14%	411	64%	140	22%
	10	0	0	0	0	0	0	1	0	26	20	7	1	55	8	15%	46	84%	1	2%
	11	1	5	20	22	12	6	41	28	128	21	198	14	496			212	43%	284	57%
	12	0	0	0	2	0	0	3	10	6	1	13	25	60			38	63%	22	37%
	Total	107	90	65	242	127	33	639	593	710	64	424	110	3,204	562	18%	2001	62%	641	20%
															moved down		stayed		moved up	

Socio-economic mobility 1850 - 1860

	moved down			stayed			moved up	
All	562	18%		2001	62%		641	20%
persisters	471	17%		1757	65%		494	18%
leavers	91	19%		244	51%		147	30%

- Leavers are more likely to move up the socio-economic ladder
- The same pattern for women and for men

Socio-economic mobility 1850 – 1860 by age and sex

WOMEN 5 -14	moved down		stayed		moved up	
All	86	25%	183	54%	71	21%
persisters	70	24%	164	57%	55	19%
leavers	16	31%	19	37%	16	31%

MEN 5 -14	moved down		stayed		moved up	
All	109	31%	174	49%	74	21%
persisters	88	30%	153	52%	53	18%
leavers	21	33%	21	33%	21	33%

- Young adult men lose more from staying

Socio-economic mobility 1850 – 1860 by age and sex

WOMEN 15 - 24	moved down		stayed		moved up	
All	43	14%	189	59%	86	27%
persisters	31	12%	158	62%	67	26%
leavers	12	19%	31	50%	19	31%

MEN 15 -24	moved down		stayed		moved up	
All	53	19%	168	60%	61	22%
persisters	42	19%	142	64%	38	17%
leavers	11	18%	26	43%	23	38%

- Young adult men lose more from staying and gain more from leaving