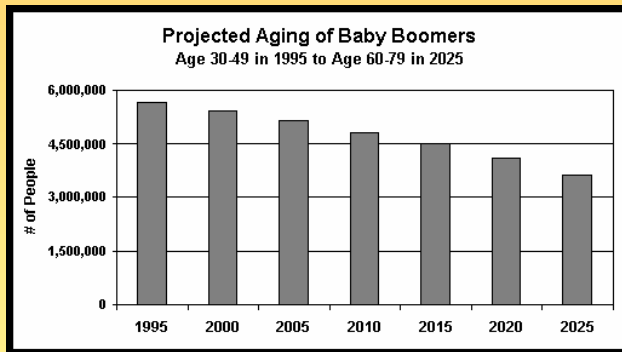


A Labor Shortage When the Baby boomers retire?



- Richard B. Freeman
- ISIM Workshop, Projections
- September 27, 2006

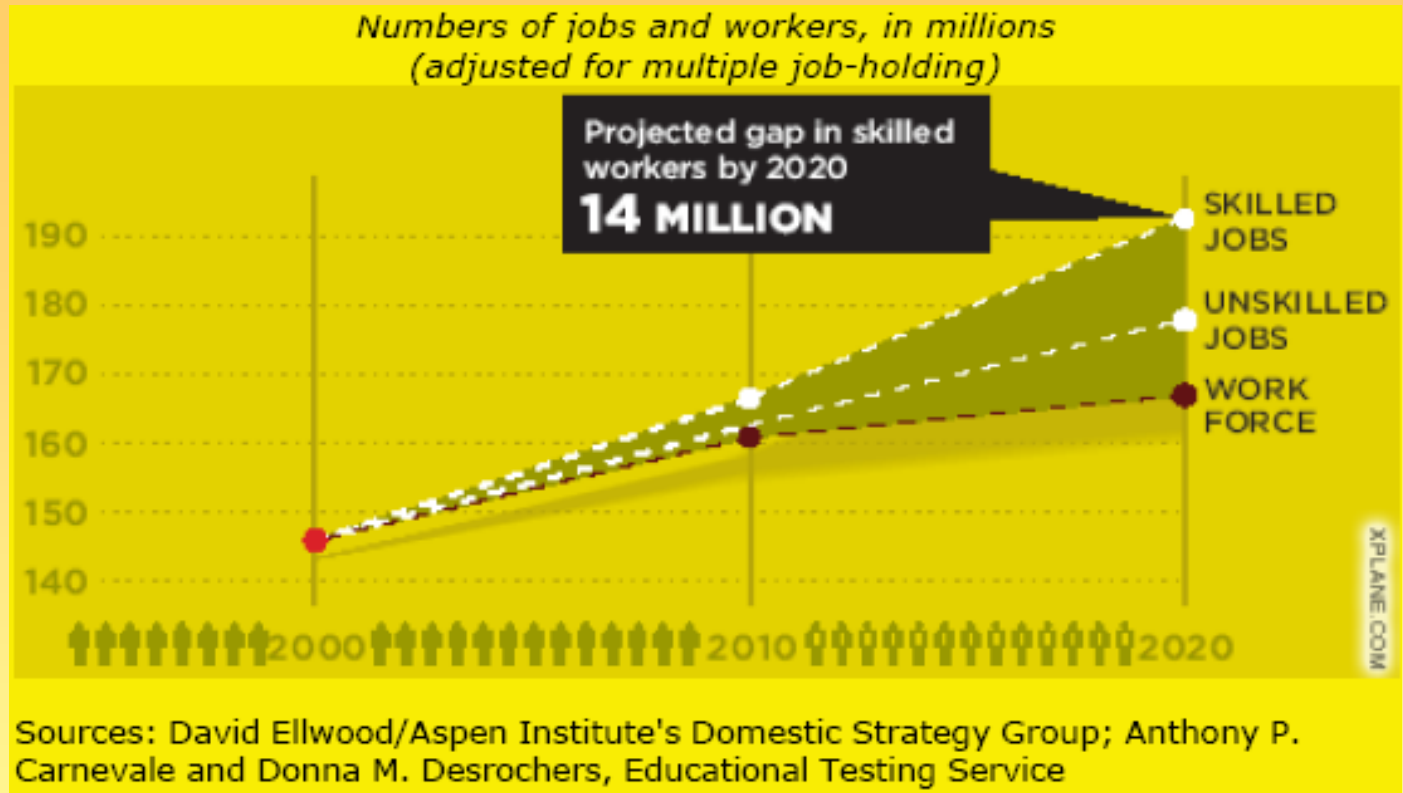
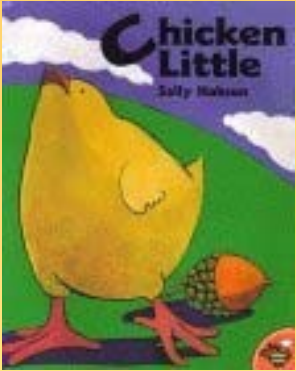
To bell with the sky

The labor market is falling down:
A Great Labor shortage is coming

Great Labor Shortage is Coming

- Hudson Institute, *Workforce 2020, Beyond Workforce 2020*
- TIME Magazine, The Coming Job Boom: April 29, 2002
“The help-wanted ads may look thin — but thanks to aging baby boomers, that's about to change”
- GAO "Older Workers," "the United States could experience a labor shortage of 35 million” by 2030
- NAM: 5.3 million skilled worker gap by 2010 and 21 million by 2020
- David T. Ellwood: "CEOs, labor leaders, community leaders, all came to the unanimous conclusion that we will have a worker gap that is a very serious one.”
- Other distinguished folk: Ed Montgomery, Larry Summers

“Believe It or Not, a Labor Shortage Is Coming” -- Fortune, Oct 7, 2003



“The coming labor shortage could become the most significant problem the electrical utility industry will face. BLS estimates shortage of 12 million skilled workers by 2010 and 20 million by 2020” – Public Power, Nov-Dec 2005

"Oh my goodness!" said Chicken Little. "More jobs than workers. Firms might have to increase wages. A wage increase for American workers? I must go and tell the king. Something must be done."

If current trends continue, the labor force will only grow to 165 million by 2030, a shortage of 35 million workers ... serious consequences, slower growth in the standard of living, change in the balance of payments, "wage-push" inflation, ... Inequality, persistent structural unemployment – EPF, 2001

"the long term tragedy of off shoring isn't that it's snatching away skilled American jobs but that it isn't snatching enough of them" – Paul Kaihla, Sept 2003

Vs “The Labor Shortage Myth”

Continued labor force growth: 2000-2020

college graduate supplies rise; productivity growth
(Capelli)

Growth in employment 1990-2003

Total	21 million
-------	------------

women	12 million
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immigrants	8 million
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So who is right?

- How big is demographic shift?
- Has replacement demand been important in the past?
- How much can we rely on projections of demand by occupations?
- Will youth employment and wages rise?

Proposition 1: Projected Labor supply, in millions, 2002-2012 and 2000-2050

A. Entrants vs Leavers

	Entrants	Leavers	Stayers	Change	% ⁽¹⁾
1992-2002	33.5	19.1	109.0	14.4	11.3
2002-2012	40.5	23.1	121.8	17.4	12.0

B. Total Numbers

2000	140.9	2030	170.1
2010	157.7	2040	180.5
2020	164.7	2050	191.8

Source, Toossi, MLR, February, 2004; May 2002

Proposition 1: College Graduate Supply in thousands, 1988, 2001, and Projected 2013

	Bachelor's	Associate	Master's
1988	995	435	299
2001	1244	579	468
2013	1509	699	556

Source, NCES

Proposition 2: Rising number of highly skilled workers in world

US share of World Population ... 6%

US share of college students

1970	30%
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2000	14%
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US share of S&E PhDs

1975	40%
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2010	15%
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Ratio of #S&E PhDs from Foreign Universities to # from US Universities

	1975	1989	2001	2003 ^a	2010 ^a
Asia major nations	0.22	0.48	0.96		
China	na	0.05	0.32	0.49	1.26
Japan	0.11	0.16	0.29		
EU major (Fr, Germ, UK)	0.64	0.84	1.07		
All EU	0.93	1.22	1.54	1.62 ^c	1.92 ^c
Chinese ‘diaspora’ vs. US ‘stayers’ (estimate)			0.72 ^b		

^a For 2003 & 2010, ratios calculated using US doctorates at 2001 production level.

^b ‘diaspora’ includes estimates of Chinese doctoral graduates from UK, Japan, and US (with temporary visas). US ‘stayers’ include US citizens and permanent residents

^c EU data extrapolated from earlier years.

China BS engineering degrees

Some confusion recently. Here are correct numbers

	Total Reported	4 year graduates
1989	---	108,729
2001	349,100	219,563
2002	459,820	252,024
2003	644,106	351,537
2004*	846,690	462,798

With Huge Supplies outside US, Trend in Foreign-born Share of S&E Employment

	1990	2000
Bachelors	11%	17%
Masters	19%	29%
All PhD	24%	38%
PhDs < 45	27%	52%
Post-Doc	51%	60%

Source: all but post-docs from Census of Population; Post-Docs from NSF

Proposition 4: Changes in retirement age group have modest impact on young hires

We regressed the influx of persons for age groups 15-24, 25-34, 35-44 into an occupation from 1990 to 2000 relative to its 1990 employment on the rate of retirement rate from the occupation in 1990 to 2000 and obtained **negative** signs on the rate of retirement.

Why? Where is the replacement demand?

Occupations with lots of retirees tend to be “older occupations” with little or negative growth

Demographic Changes Do Not Greatly Affect Earnings or Employment by Age

When Baby boomers entered job market
the age-earnings profile shifted against them

When post-baby boomers entered job market
the age-earnings profile did not return to previous level.

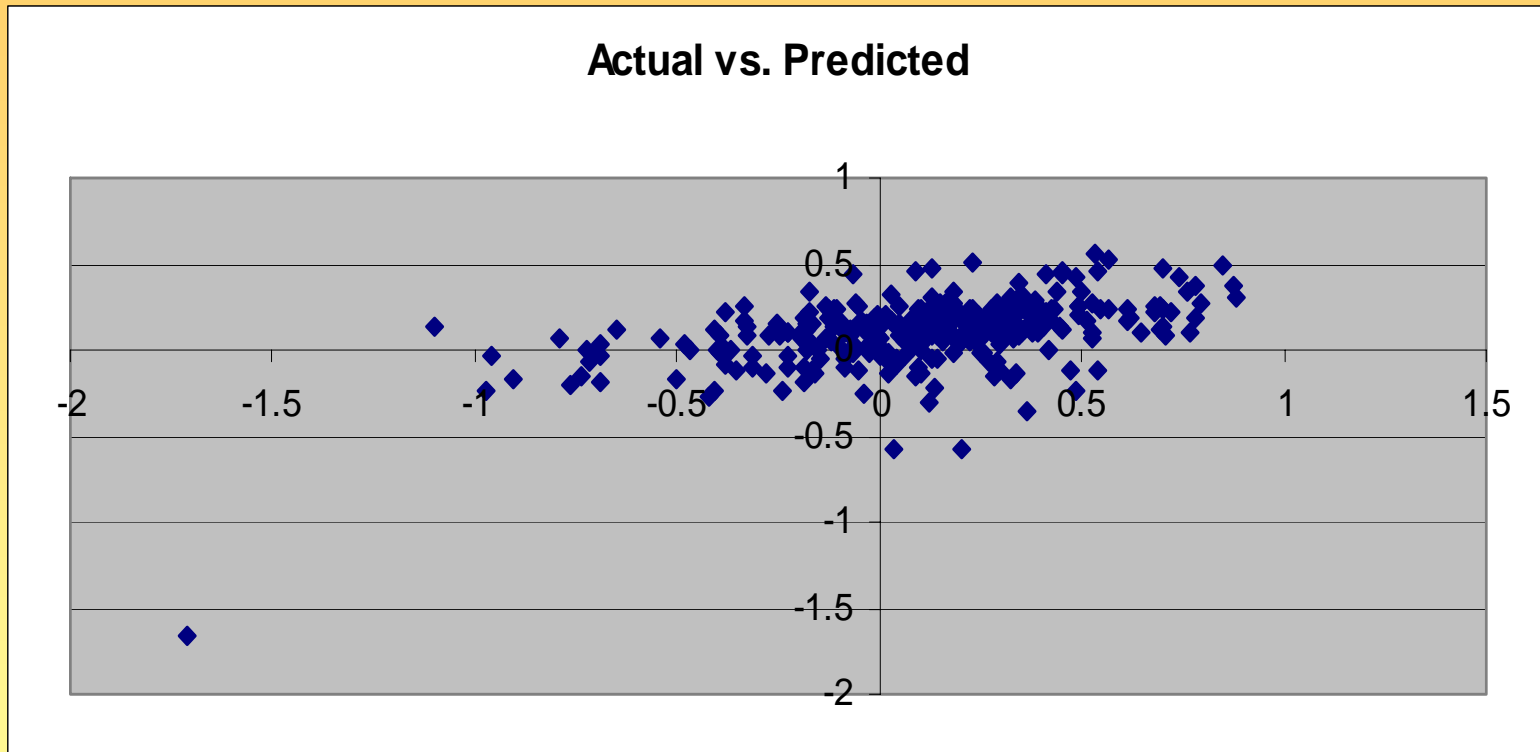
Youth employment rate did not rise with smaller
cohorts

Worldwide, change in age structure did not have impact
that analysts expected

For Replacement Demand to Have Positive Effect, Need Stable or well-predicted demand but predicting demand is subject to great uncertainty



Predicted and Actual Ln Change in Employment by occupation, 1988-2000



Actual ln change = .00+ .93 (0.09) Pred ln change $R^2 = 0.26$
Std Deviation of actual change 0.34; Std Error of regression 0.30
N= 338

BLS projections for critical fields change greatly over short periods: computer and mathematical science jobs

A. Projected Rate of Growth/number of new jobs

1996 projected to 2006 98% growth 1.0 M new jobs
1998 projected to 2008 92% growth 1.5 M new jobs
2000 projected to 2010 67% growth 2.0 M new jobs
2002 projected to 2012 34% growth 1.1 M new jobs

B. Actual Number vs Projected number

	Number	Projected Number	
• 1996	1.0 M	2006	2.0 M
• 1998	1.7 M	2008	3.2 M
• 2000	3.0 M	2010	5.0 M
• 2002	3.0 M	2012	4.1 M