



Reshoring Initiative

Bringing Manufacturing Back Home

Trends in American Manufacturing:
-Companies Seeking Skilled Workforce
-Mfg. Trends esp. Reshoring

NEPIRC
MFG. DAY 2015

Harry Moser
President
Reshoring Initiative

- 82% of manufacturers: enthusiastically seeking
 - Engineers
 - CNC and 3D operators and programmers (critical)
- Excess supply of non-technical university graduates (40%)
- Soaring student debt
- Manufacturing:
 - Has shifted largely to modern high tech
 - Is growing
 - Pays well! (avg. 19% more than non-mfg)



3D/Additive

Source: <http://makezine.com/2015/06/14/drawn-to-it/>



Self-Balancing Autonomous Arduino Bot

Source: <http://makezine.com/projects/arduoller-self-balancing-robot/>

Work with Robots that save U.S. Jobs



- Apprenticeships
- Strong academic and technical training
- Creating, innovating, team skills
- CNC, computers, 3D, CAD
- Students who would do fine at the university but want a practical foundation for a degree, no tuition, earnings starting now.



New wisdom about education and training

- “Post high school credential for all” replaces “College for all”

Source: [Pathways to prosperity](#), Harvard Graduate School of Education, Feb. 2011



Occupation More Important Than Degree Level

- “80% of associates degree holders earn more than the Bachelor’s median income.”
- “Occupation, not degree level, determines salary.”

Source: AP Carnevale (2000) (ED439743)



Dunwoody's Machine Tool Technology AAS Degree Program

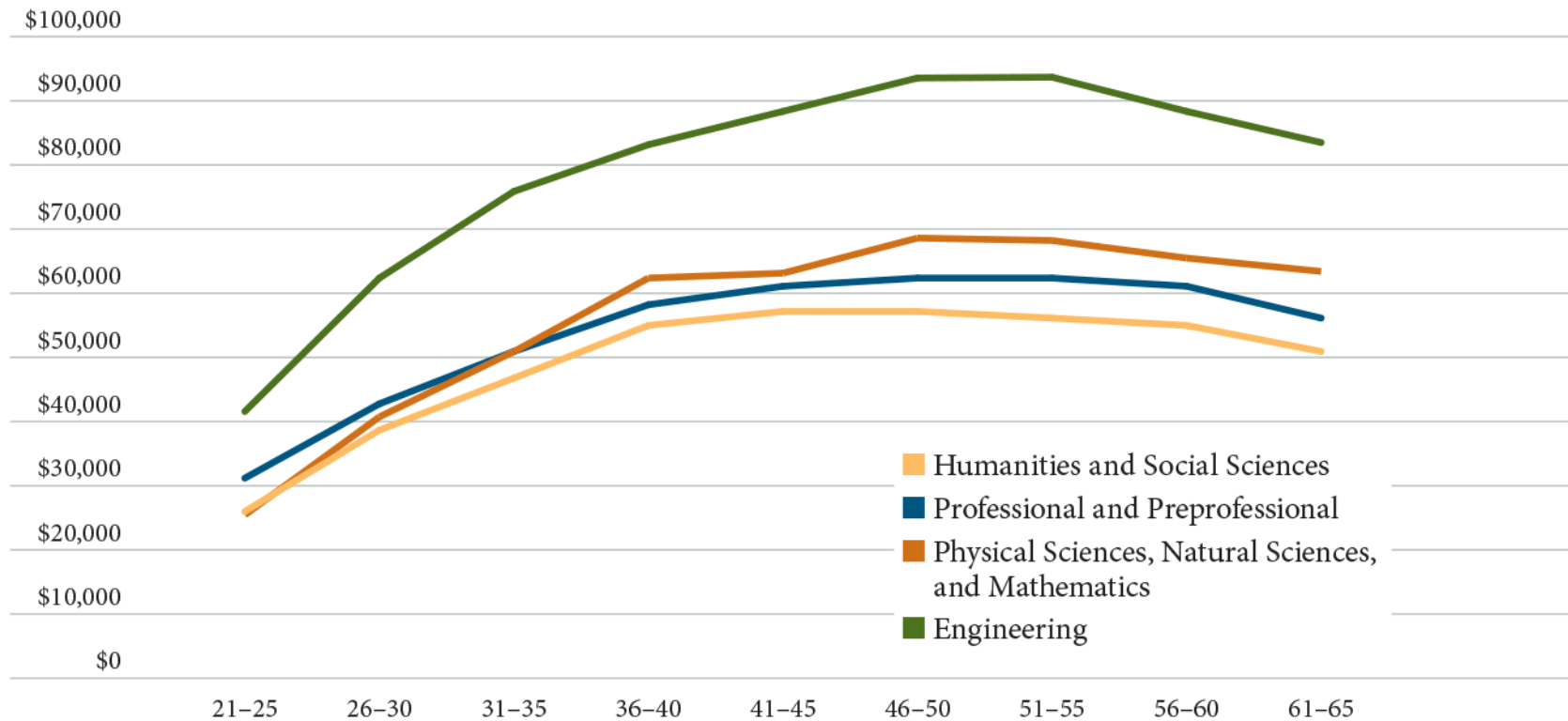
- Minneapolis, MN
- Number of June 2012 graduates: 22
- Number fully employed in the industry when graduating: 21
- (Recent BA/BS grads employed fulltime: 47%)
- Average starting salary: \$17.64 per hour
- Requests to hire graduates: 450
- Complaints from companies: 50

5-Axis Milling



Apple needed a 5-axis CNC milling expert:
\$\$\$\$

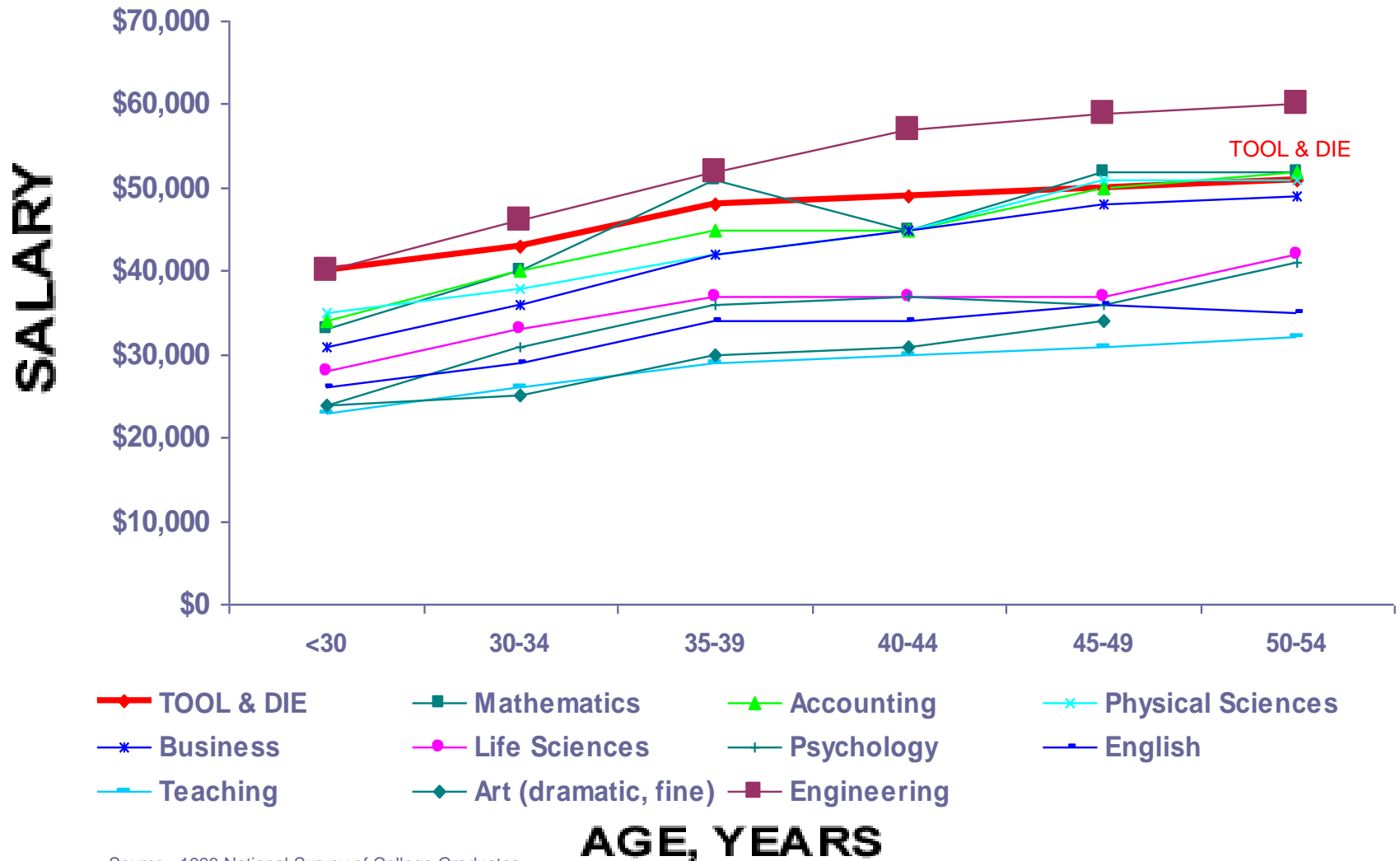
Median earnings for graduates with only baccalaureate degrees (2010-11)



Source: *How Liberal Arts and Sciences Majors Fare in Employment*. 2013

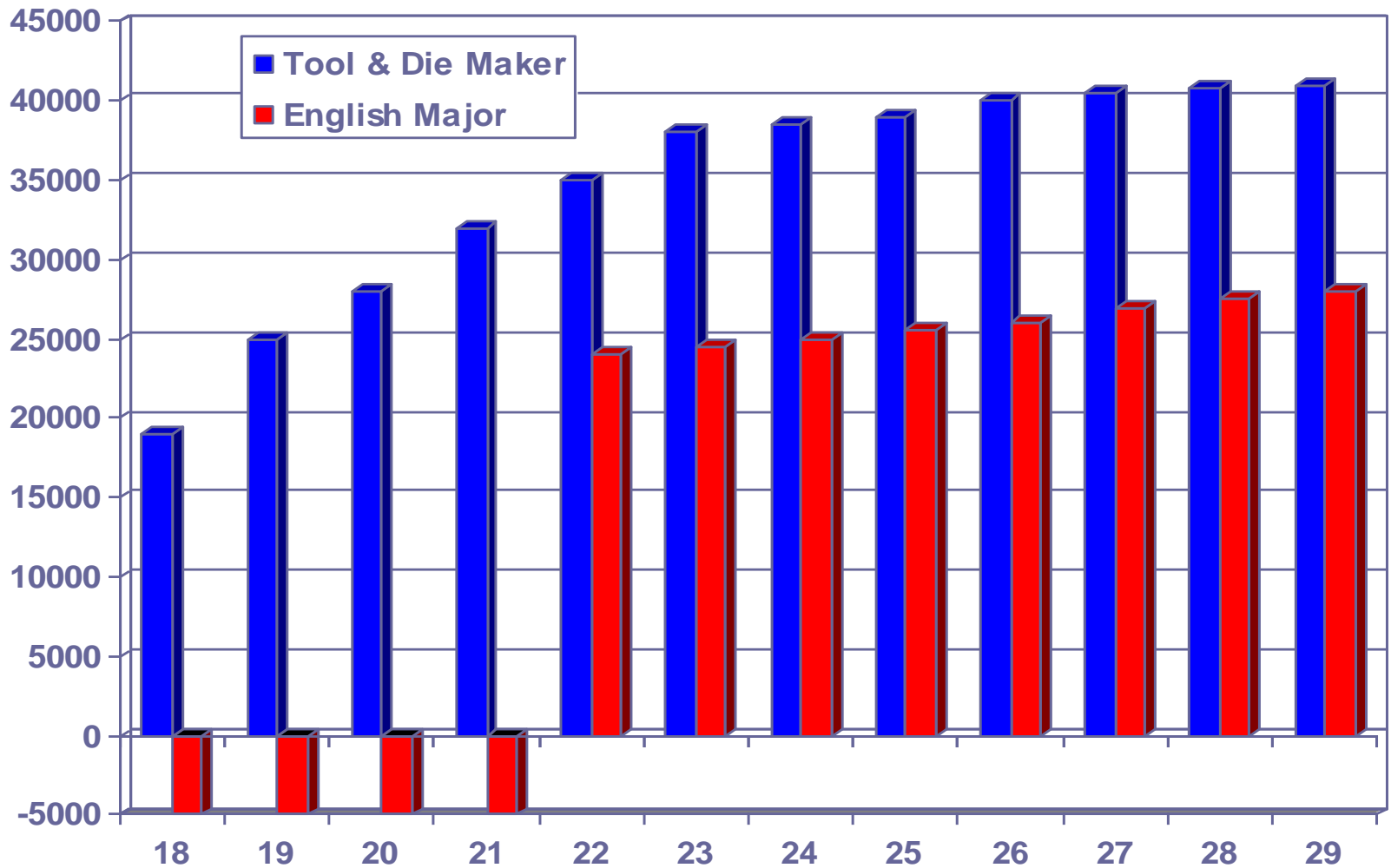


Median Annual Salary of Bachelor's Graduates by Field of Major and Age, 1993

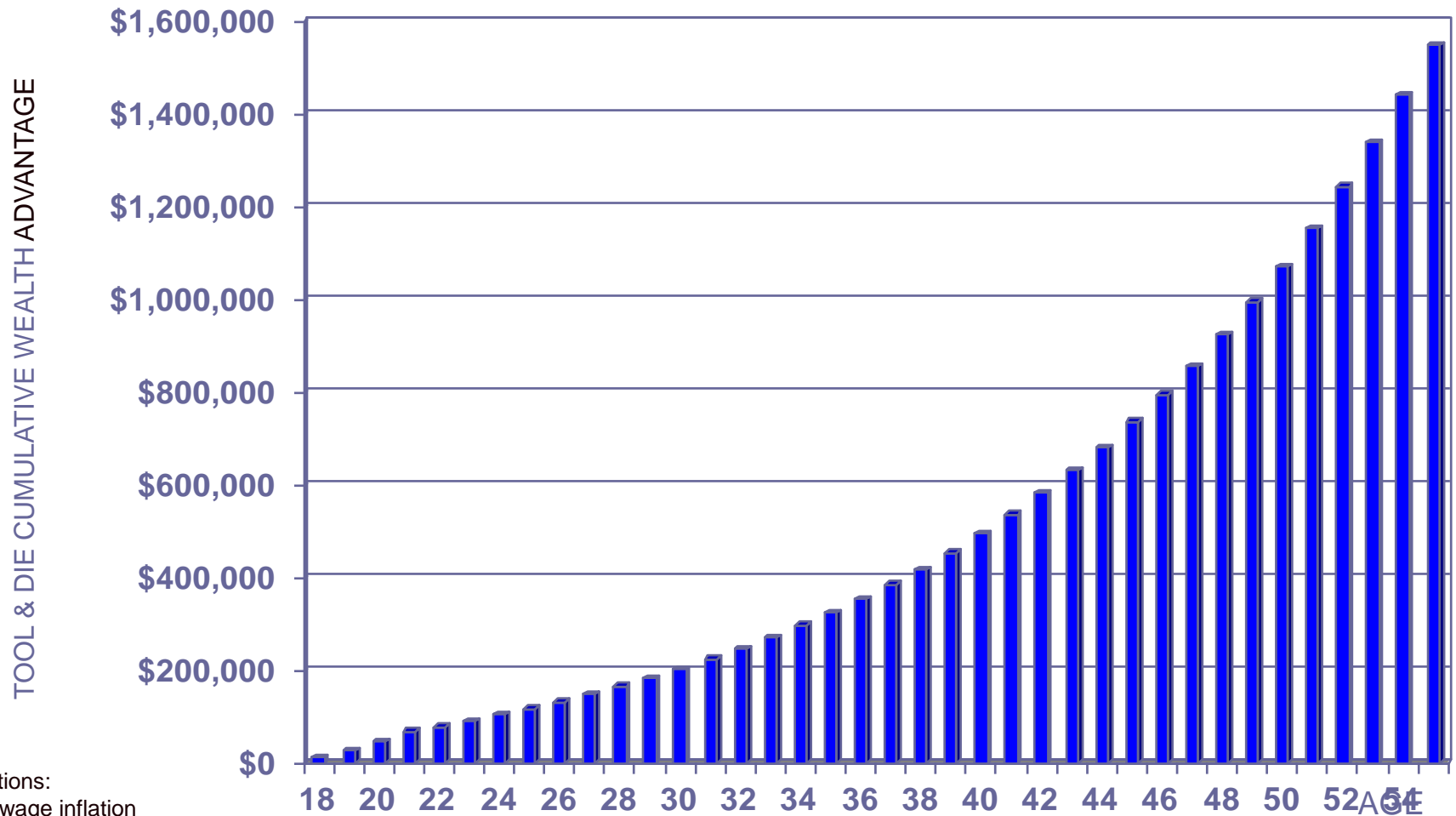


Source: 1993 National Survey of College Graduates,
NSF/SRS, NTMA, PMA/TMA.
(Data will next be released in 2003-2004)

Annual Income/Age



Tool & Die or English Major? A Million \$ Decision



Assumptions:

1. Zero wage inflation
2. Savings = 50% of difference in income
3. Investment return of 7% per year on savings



Entrepreneurial Opportunities

BACKGROUND	FOUNDED	PURCHASED	INHERITED	UNSPECIFIED	TOTAL OWNERS
APPRENTICE GRADUATE	50%	35%	10%	40%	35%
MACHINING TRAINING BUT NOT APPRENTICE	24%	20%	39%	20%	28%
MANUFACTURING MANAGEMENT	11%	12%	11%	20%	11%
BUSINESS MANAGEMENT BUT NOT MANUFACTURING	4%	24%	19%	20%	12%
OTHER	11%	8%	21%	0%	13%
TOTALS	100%	99%	100%	100%	99%
% of Total	50%	19%	24%	6%	99%

CONCLUSION: APPRENTICES & MACHINISTS FOUND COMPANIES

SOURCE: NTMA/CHARMILLES OWNER/MANAGER SURVEY. SURVEY DATE: 2001



INDUSTRY & COMMUNITY COLLEGE RECRUITING TOGETHER

IDEA: JOINT HELP WANTED ADS IN THE LOCAL PAPER

-1 AD

-1 OR MORE COMPANIES:

-PRAISE THE COLLEGE

-LIST CURRENT JOB OPENINGS
("THE OPPORTUNITIES")

-COLLEGE:

-DESCRIBES ITS PROGRAM
THAT FIT THE JOB OPENING
("THE MEANS")

SOURCE: CHIPPEWA VALLEY TECHNICAL
COLLEGE, EAU CLAIRE, WI

Join the Resurgence in Wisconsin Manufacturing

Demand for skilled graduates in the machine trades is again soaring. We have received requests for more than 100 graduates in Tool and Die and Machine Tool in the past 8 to 10 months. Graduates in the machine trades are accepting jobs paying \$17 to \$18 an hour with excellent fringe benefits. Many third semester students are accepting jobs even as they complete coursework. The opportunities are excellent. Classes start every eight weeks.

Contact Manufacturing Technology Campus at 715-874-4604.



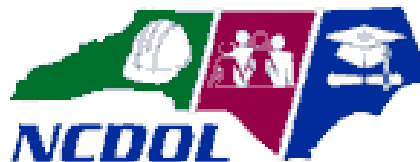
"CVTC has always played an important role in providing us with qualified candidates. Right now we have openings for toolmakers starting at \$20.00 an hour and machinists starting over \$14.00, and we can't find them fast enough. I see this as a great career opportunity now and into the future."

Peggy Schlagenhauser, HR Generalist, Hutchinson Technology

www.htch.com

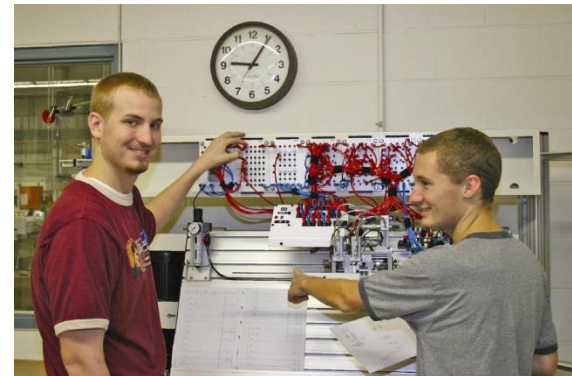
Eau Claire Leader Telegram

Apprenticeship 2000



European Based Technical Training

- Learning Manufacturing Skills Hands-On
- Dual Training Theory in College, Hands-on at Sponsor Company
- Scholarship (free college and tuition)
- Manufacturing Technology Degree (AAS)
- Journeyman Certificate by the Department of Labor
- Guaranteed Employment After Graduation



- 2006 Apprenticeship Signing Group





- Avg. age (all employee's) – 34.3
- Avg. age (manuf / design only) – 30.4
- Avg. tenure (all excluding Steve) – 6.74 yrs
- avg tenure (all, excl. Steve, and (2) 1st year apprentices) – 7.37 yrs
- Avg wage / hr (manf + design) - \$19.07
- Current apprentice/grads
 - Manuf/design = 33%
 - Total company = 28%

Employment Projections

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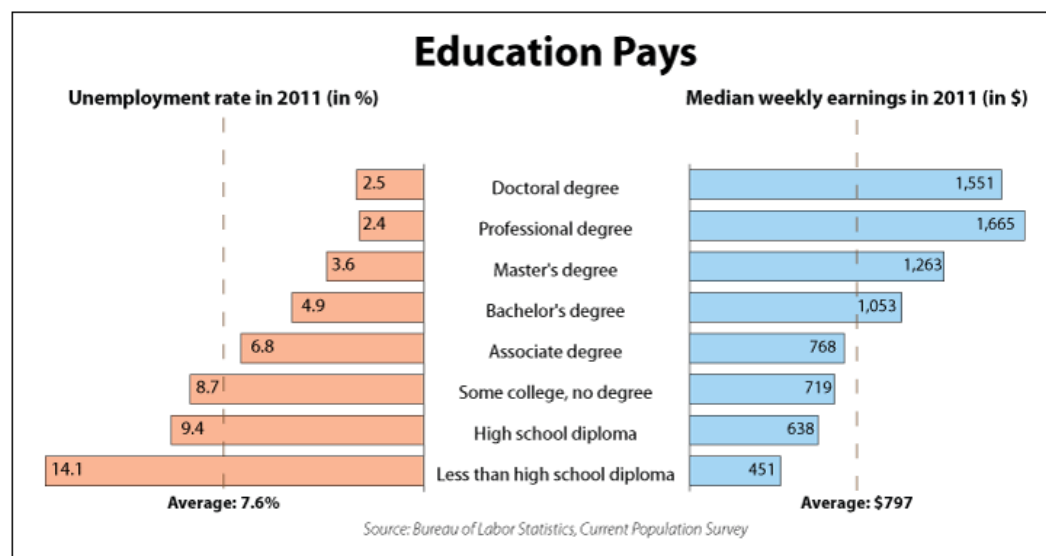
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Education pays...

Education pays in higher earnings and lower unemployment rates



[Chart data \[TXT\]](#)

Note: Data are for persons age 25 and over. Earnings are for full-time wage and salary workers.

Source: Bureau of Labor Statistics, Current Population Survey.

BLS has some data on the [employment status](#) of the civilian noninstitutional population 25 years and over by educational attainment, sex, race, and Hispanic origin online.

The Census Bureau also has some data on [educational attainment](#) online.

**WE NEED
YOUR
HELP!**

Better Terminology

Current	Proposed
High skill	Academic skill
Middle skill	Technical skill
Low skill	Manual skill

And Improve Image Locally

Issue	Solution
“Trades” and “vocations” image	Call them “Professions”
“Middle skills”	“Technical Skills”
Manufacturing career image due to offshoring	Industry collect and media report the local reshoring case of the month. Use our Case Studies feature.

- Reshoring/Backshoring/Onshoring/Insourcing: Bringing back manufacture of products that will be sold or assembled here.
- Transplants/FDI: Similar logic
- Producing near the consumer!
- Localization

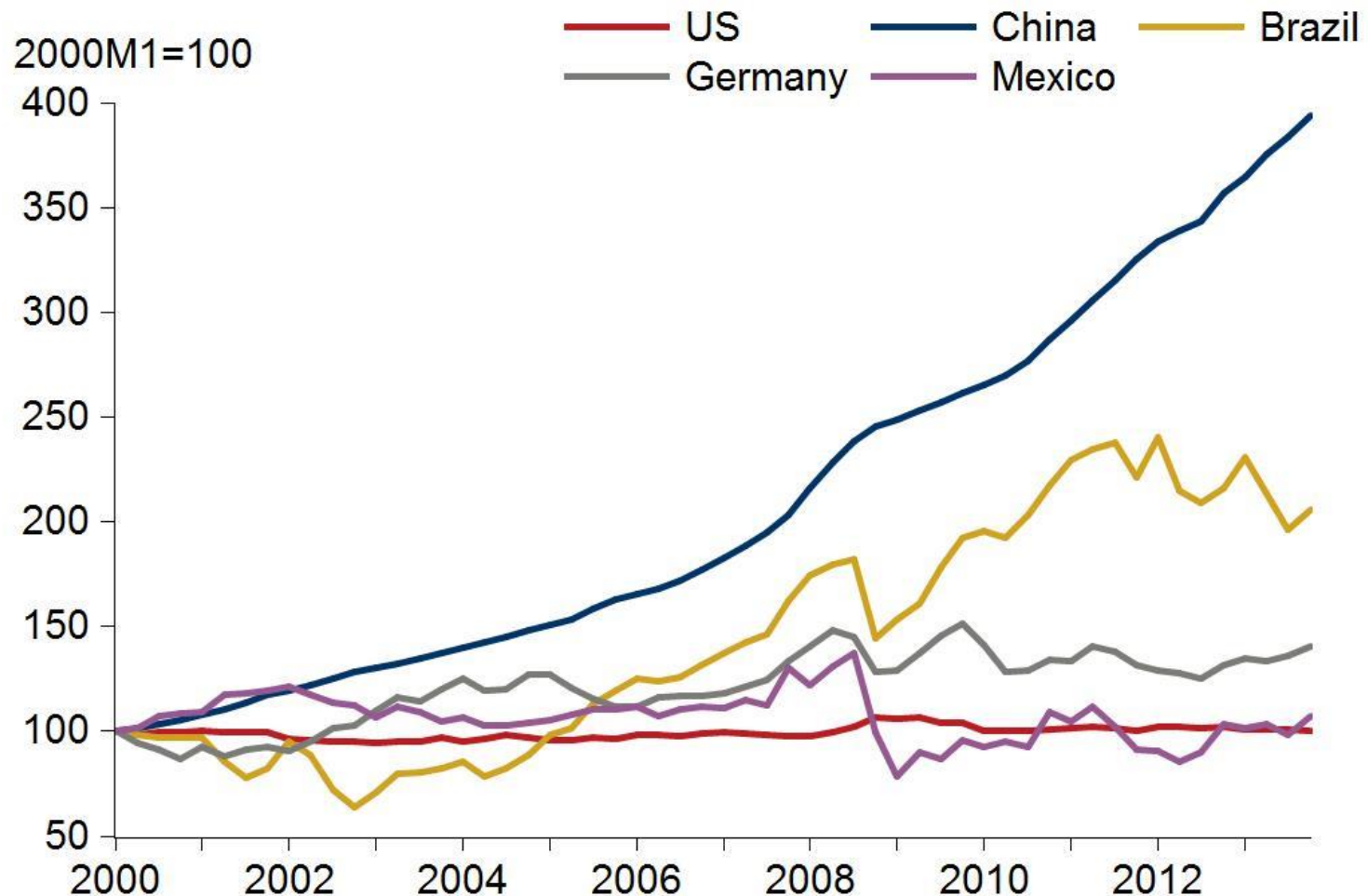
60% of manufacturers:

- Apply “rudimentary” total cost models
 - Wage Arbitrage
 - PPV (Purchase Price Variance)
 - Landed Cost
- Ignore 20% or more of the total cost of offshored products

Source: Archstone Consulting survey, American Machinist Mag., 7/16/09

Indexed Unit Labor Costs in the Manufacturing Sector of Selected Countries

US: Unit labor costs in manufacturing in US\$



Source: Oxford Economics/Haver Analytics

TCO Comparison Example

Present and Forecast US and China Price and TCO (US\$)





2012 TCO cases, China vs. U.S.

Comparison Basis	% of cases where U.S. has the advantage
Price	5%
TCO	53%
Difference	48%*

*Conservatively 25% might return if companies shifted to TCO

Source: TCO user database



Bringing Production back from China:

- Water-heaters, fridges, and washing machines
- Unionized facility in Louisville, KY
- 1300 jobs, renovated facility, \$800 million invested
- Reasons:
 - Tax incentives
 - High-tech new model
 - Ease of design collaboration with workers: retail price -20%
 - 2 tier contract
 - Chinese cost: -30% becomes +6% considering inventory and delivery problems



Some PA Reshorners

All-Clad Metalcrafter	Canonsburg
Armstrong Tile	Lancaster
B Braun Medical	Allentown
Bollman Hat	Adamstown
Foxconn	Harrisburg
Independence LED	Boyerstown
K'NEX/Rodon	Hatfield
Pequea Machine	Earl Township
Reading	Reading
Toydozer	Pendell
Unilife	York

- Walmart's increase in U.S. manufactured purchases:
 - \$250 Billion over 10 years
 - \$50 Billion in the 10th year
 - In the 10th year:
 - Approx. 300,000 manufacturing jobs*
 - Approx. 1 million total jobs**
 - <http://engage.walmart-jump.com/>
- *Reshoring Initiative **Boston Consulting Group

The Bleeding has Stopped

Manufacturing Jobs/Year			
	2003	2014	% Change
New Offshoring	~150,000*	30,000-50,000*	-70%
New Reshoring & FDI	12,000*	60,000**	+ 400%
Net Jobs Gained	~-140,000	~+10,000	N/A

* Estimated ** Calculated



Benefits of Reshoring

- Balance the \$500 billion trade deficit:
 - 3 million manufacturing jobs
 - Cut U.S. budget deficit by about 50%
 - Reduce unemployment about 4% points
 - Reduce income inequality
 - 25% increase in manufacturing



Gaining support in Washington, DC

- Commerce Dept:
 - 2012 budget specifies TCO.
 - Links:
 - <http://nist.gov/mep/reshoring.cfm>
 - <http://business.usa.gov/program/reshoring-initiative>
 - Major new site: <http://acetool.commerce.gov/>
 - Testified at Congressional hearing on 3/28/12
 - Working actively with SelectUSA
- Calls from:
 - US-China Economic and Security Review Commission
 - White House National Economic Council





More Boots on the Ground

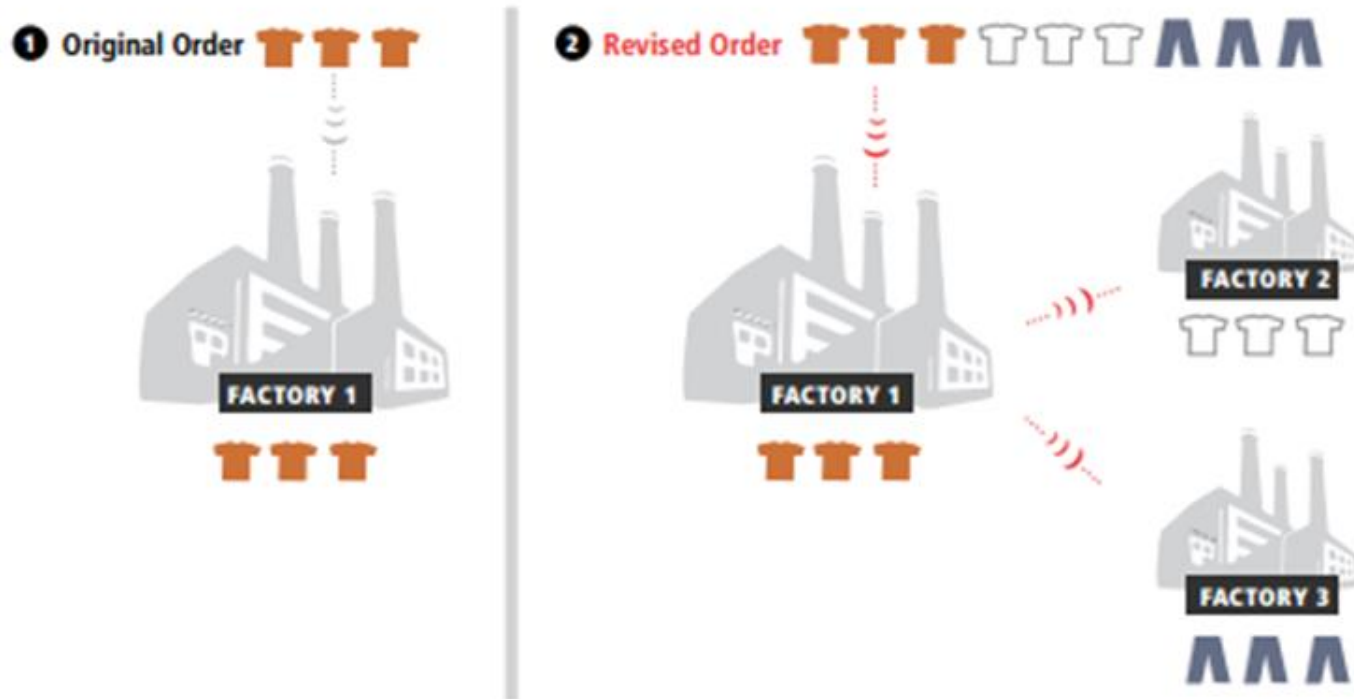
- Suppliers suggest companies where they lost to offshoring
- Visit the companies
- Educate on TCO
- Encourage reshoring and use of local suppliers
- Underway in MS and PA



Other Manufacturing Issues Driving Trade Deficits

Issue	Status	Proposed Action
Currency	Avg. 20-30% too high	-USD lower -Yuan, Yen and Euro higher
Corporate tax rates	35%: highest in the developed world	-Cut to 20%, at least for mfg. -Eliminate all special deals

FIGURE 1: The IoT enables “Smart Factories” that will optimize operations dynamically, making sudden order changes manageable.



26 billion connected devices by 2020

Source: The Internet of Things Supply Chain by GT NEXUS



Company Enthusiasm

- Production is growing
- Baby Boomers retiring
- New technologies to implement
- You are computer competent
- Companies want you!



A non-profit with 30 sponsors, including:

Platinum



Gold



Silver



A non-profit with 30 sponsors

Bronze



Steel



Iron





Help Reverse the Offshoring Flood Now!

Contact:

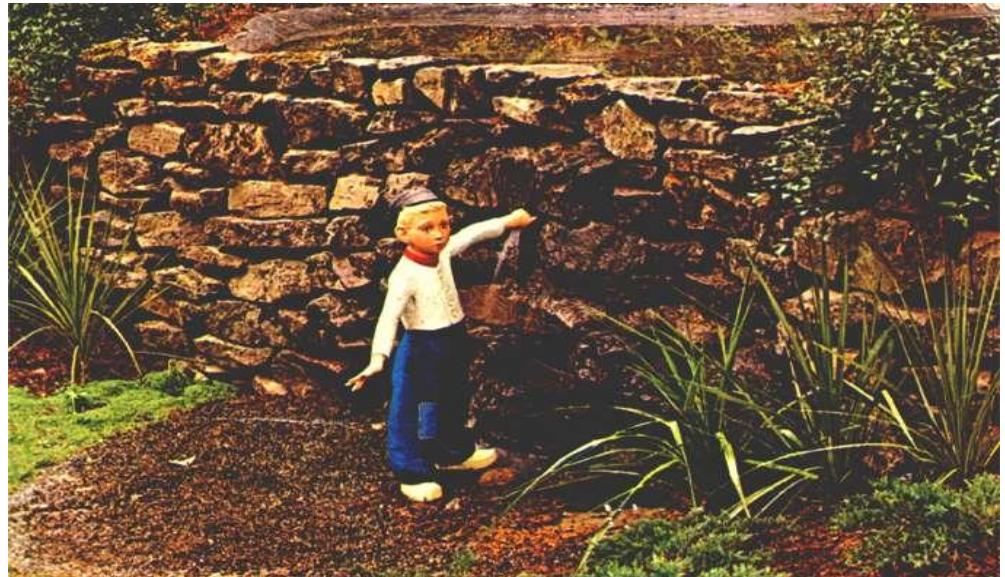
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www.reshorennow.org



Recruiting trainees for the skilled manufacturing workforce:

<http://tinyurl.com/33vpz9k>