

TESTIMONY OF

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**BEFORE THE COMMITTEE ON ENERGY AND COMMERCE,
SUBCOMMITTEE ON COMMERCE, MANUFACTURING, AND TRADE
U.S. HOUSE OF REPRESENTATIVES**

"WHERE THE JOBS ARE: EMPLOYMENT TRENDS AND ANALYSIS"

FEBRUARY 15, 2012

Chairman Bono Mack, Ranking Member Butterfield and other distinguished Members of the Subcommittee, good morning and thank you for the opportunity to testify on "where the jobs are".

I'm Hal Sirkin, a Senior Partner and Managing Director at The Boston Consulting Group. BCG is a global management consultancy, with almost 5,000 professionals based in 42 countries.

While many negative comments have been made about the state of US manufacturing, I would like to paraphrase, Mark Twain and say "The Death of US Manufacturing has been greatly exaggerated".

We've heard pronouncements of the death of US manufacturing before. In the 1970s conventional wisdom said, Japan, Inc, with its low cost cars, televisions and other manufactured goods was going to wipe out US manufacturing. Americans would be farmers and bankers. Children were sent to schools to learn the language of their new masters.

But that didn't happen.

In the 1990s, conventional wisdom also predicted that the Asian Tigers (from Hong Kong, Singapore, South Korea and Taiwan) were going to wipe out US manufacturing. But that didn't happen either.

And in the past decade, conventional wisdom has said the China was going to wipe out US manufacturing.

And that's not going to happen either.

Why? Our economy is designed to respond quickly to threats, unlike any other economy. We are not a country that protects, we compete. Our internal competition is fierce – companies are forced to be competitive or die.

And the results of all this competition are breath taking. The US produces 2.5 times as much manufacturing value added than we did in 1972. And we do it with 30% less labor. We are among the most productive economies in the world far more productive than Germany and Japan.

Each time we are attacked, we don't give up. We respond, we adapt and we thrive. It is what we are as a nation.

The threat from China is large – a nation of 1.4 billion people with a non-democratically elected government that can move fast and subsidize industries. And when China entered the WTO in 2001, wages in China were only 58 cents per hour on average. At that rate, outsourcing to China was a no-brainer decision for companies in many industries.

But the economics of China are rapidly changing:

Wages are rising at about 15-20% per year.

The Yuan, a controlled currency has been rising at 4% per year and most economists believe would be rising even faster if it wasn't controlled.

While productivity in China is rising at 7% - an incredible pace for any economy, it is swamped by the wage and Yuan increases.

And today, the average US worker is 3.4 times as productive as the average Chinese worker.

The tide is turning in favor of the US. China is just getting more expensive. Companies that went to China for ultra-cheap wages are finding it not so cheap. And they are beginning to rethink their decisions.

We project that sometime around 2015, we will reach a tipping point for seven key categories of goods where the cost to produce in China will be just 10% lower than in the US (rather than the 20%+ lower that companies have gotten accustomed to).

While 10% is a very important difference to companies, when you include all the costs associated with producing in China to serve the US market like the transportation to ship goods, the inventory costs for the 2-3 month of shipping, the risk of obsolescence of goods as they are transported, the risk of intellectual capital theft, the country risk, and just being 5,000 to 7,000 miles from the customer and not understanding their needs, the 10% differential disappears.

These seven categories include: Computers and Electronics, Appliances and Electrical Equipment, Transportation Goods, Plastics and Rubber, Machinery, Furniture and Fabricated Metals. These account for 2/3 of the \$300 billion we import from China each year.

In June we estimated that the impact, given the manufacturing multiplier would be 2-3 million jobs over the decade.

Given what we've seen since June, we believe that our estimate is conservative because we've seen far more re-shoring from China already than our models predicted. Companies like NCR, Ford, Coleman, Nat Labs and many others have re-shored jobs. We are also seeing companies from Japan and Europe recognizing that they can produce much more economically in the US for consumption in the US. And many of them are using or are considering using the US as an export base – companies like Siemens for power turbines, Rolls-Royce for Jet engine parts and Toyota are seeing the US as a low cost manufacturing location.

Once again, our amazing economy is responding. Once again manufacturing is growing in the US because of our underlying advantages. While this is just taking hold now, government policy can help accelerate the trend. Whether it is providing funds to train American workers, reforming our tax system or finding ways to level the playing field with our competitors, our government can make a difference.

Creating more good paying jobs is something that all Americans whether they are Democrats, Republicans or Independents can agree on. We all need to work together to create good jobs for our children and their children and ensure that our economy remains strong for generations to come.

Thank you.



THE BOSTON CONSULTING GROUP

"Made in America, Again"

Policy Actions to Accelerate Manufacturing Growth in the U.S.

“Re-shoring’ of manufacturing from China will create 2-3 million new jobs in the next 3-5 years. The United States is becoming an increasingly cost-effective option for supplying the developed world. These trends could be significantly accelerated through smart government action, helping to rebuild America’s manufacturing base and generating valuable new jobs for American workers.”

-Hal Sirkin, BCG Senior Partner and lead author of “Made in America, Again”

BCG’s Top Policy Actions for Accelerating the Growth of Manufacturing in America

Educate companies about the benefits of re-shoring and domestic manufacturing

1. Launch a public information campaign to inform business leaders of the benefits of manufacturing for the U.S. market in general, and re-shoring from China in particular
2. Create an online tool for companies to calculate their re-shoring or domestic manufacturing opportunity to demonstrate that perceived trends are sometimes not rooted in sound economics

Increase the skilled labor pool through a new emphasis on vocational education

3. Create hybrid educational programs that provide a mix of college and vocational education/training to increase the number of skilled workers, with a focus on targeted sectors of the economy
4. Provide special Federal Student Aid terms/loan forgiveness for training in relevant technical and vocational skill areas
5. Appropriately fund state-based programs to provide job (re)training for new employees when manufacturing plants are expanded or built

Create targeted manufacturing investment incentives

6. Enact financial incentives such as "surgical" tax breaks or expanded use of immediate/accelerated depreciation focused on key technologies, industries, and geographies to spur re-shoring
7. Attract and enhance “Supply Chain Clusters” to encourage “tipping point” industries to re-shore by promoting investments, technologies, and workforce skill-building in targeted geographies

Promote exports and domestic/foreign direct investment

8. Enhance effectiveness of U.S. Department of Commerce programs/capabilities (e.g., SelectUSA, U.S. Commercial Service) that benefit U.S. manufacturers

Reform U.S. immigration policy to support manufacturing

9. Develop a more intelligent visa process that responds strategically to market talent needs in relevant industries, rather than using blanket H-1B caps
10. Revise Green Card requirements to expand the pool of workers with relevant advanced degrees available to U.S. manufacturers

"Made in America, Again"

Potential Actions and Policy Implications

Hal Sirkin, Michael Zinser, Joe Davis, Peter Regen, and Jeff McNichols

January 2012

Educate companies about the benefits of re-shoring and domestic manufacturing

1. Launch a public information campaign to inform business leaders of the benefits of re-shoring. Federal government officials should launch a targeted public education campaign to encourage manufacturers to consider the U.S. as a viable option when making production location decisions to serve the U.S. market. Unfortunately, companies do not always conduct full economic analyses of critical business decisions, instead following perceived, and often, historical trends they see in the market. As "Made in America, Again" demonstrates, however, the economic benefits of re-shoring are significant for many companies, especially in certain industries. The report provides a solid, easy-to-explain description of why manufacturers should consider re-shoring, underscoring the valuable message of "Total Cost of Ownership" – before making any new decision, firms should look at the total cost today and in the future, including all hidden costs. The report also refutes the commonly-held perception that off-shoring has completely decimated the United States' manufacturing base by showing that Americans still make approximately 75% of what we consume, demonstrating that our manufacturing foundation remains strong and ready to capitalize on re-shoring opportunities.
2. Provide an on-line financial tool for companies to calculate their re-shoring opportunity. Building on the "Made in America, Again" message, the Federal Government should construct and promote a targeted on-line financial tool that allows manufacturers to calculate the potential savings they could achieve by retaining production in the U.S. or re-shoring production from overseas. Just as on-line finance calculators have increased the financial literacy of American consumers and encouraged them to more closely examine the long-term effects of their spending decisions, a financial tool for manufacturers would encourage firms to look beyond the current allure of Chinese and other "low-cost" country production, to the mid- and long-term savings prospects of U.S. production.

Increase the skilled labor pool through a new emphasis on vocational education

3. Create hybrid educational programs that provide a mix of college and vocational education/training to increase the number of skilled workers, with a focus on targeted sectors of the economy. In partnership with state/local governments and manufacturers, the Federal Government should develop hybrid educational streams that allow students to learn foundational vocational skills while also taking practical college-level classes (e.g., engineering, business administration). A hybrid educational stream would produce more technically proficient machinists, welders, and electricians to fill increasingly complex manufacturing jobs. Such programs could also produce more business savvy small business owners and manufacturers.

4. Appropriately fund state-based programs to provide job (re)training for new employees when plants are expanded or built. One of the greatest challenges for manufacturers seeking to build or re-locate production within the U.S. is finding workers with the right skills to handle technologically advanced manufacturing. The Federal Government should support state-based programs that combine government means of support (e.g., relocation support or unemployment benefits during training) and synergistic collaborative efforts with potential employers and local vocational schools, extension schools, community colleges, and school districts. The U.S. Government has already committed approximately \$9 billion to assist states with similar programs, but more can be done. A renewed focus on close partnerships with key stakeholders and more effectively administered funding could encourage manufacturing expansion and re-shoring by reducing uncertainty about the skilled labor pool.
5. Provide special Federal Student Aid terms/loan forgiveness for training in relevant technical and vocational skill areas. With young adults taking on increasingly greater student loan debt, favorable Federal Student Aid terms and loan forgiveness programs would provide a valuable incentive, encouraging students to enter technical and vocational skill areas relevant to manufacturers. Existing programs such as the Federal Public Service Loan Forgiveness Program that encourage law and public administration students to enter relatively low-paying but important public service jobs, demonstrate the potential success of this concept. The incentive impact for older workers, often hesitant to assume new debt that additional education or training would entail, could be similarly significant.

Create targeted manufacturing investment incentives through targeted actions

6. Enact financial incentives such as "surgical" tax breaks or expanded use of immediate/accelerated depreciation focused on key technologies, industries, and geographies to spur re-shoring. State and local governments have long used tax breaks to encourage firms to build new manufacturing plants. For these government officials, the increased employment and follow-on effect of attracting other manufacturers is often worth the loss in revenue. While it must be careful to avoid favoring one state or city over another, the U.S. Government can utilize federal tax incentives selectively and strategically to promote the re-shoring of manufacturing from overseas. Tax credits that target key technologies, industries, and geographies (within defined parameters) would provide useful incentives to re-shore production. The Federal Government could also encourage manufacturers to re-shore their production by re-establishing immediate depreciation of necessary capital investments. Tying this "100 percent expensing" policy to re-shoring or focusing on key technologies, industries, and geographies would provide a powerful incentive.
7. Attract and enhance "Supply Chain Clusters" to encourage "tipping point" industries to re-shore by promoting investments, technologies, and workforce skill-building in targeted geographies. Many companies that could re-shore their production remain overseas because of strong, established supply chains that don't currently exist in the United States. By focusing on "tipping point" industries that could potentially re-shore their production, the U.S. Government could accelerate the process. An effort coordinated by the Federal Government involving potential employers, colleges/universities, vocational training centers, local governments, and other key stakeholders would create an "eco-system" to supply a "tipping point" industry. This "eco-system" approach would increase the investment pool, encouraging the formation of "supply chain clusters." The Commerce Department's Economic Development Administration, by broadening its mission beyond economically disadvantaged areas, could assume the Federal

coordination role and enhance this approach by facilitating a cohesive package of investments and grants.

Promote exports and domestic/foreign direct investment

8. Enhance effectiveness of Department of Commerce programs/capabilities that benefit U.S. manufacturers. As labor-intensive manufacturing shifted overseas and remaining U.S. production harnessed new technology to become more efficient, the U.S. Commerce Department struggled to advance two primary missions: promoting U.S. exports and encouraging investment in the United States. Commerce's International Trade Administration and the U.S. Commercial Service assist thousands of U.S. companies in their traditional role as trade promoter. As the economics of manufacturing production change, however, the U.S. Commercial Service's charter and resource allocation must keep pace – expanding their authority to include guiding direct investments by global firms and shifting priorities and resources quickly both in the U.S. and overseas. Encouraging increased domestic and foreign direct investment requires an enhancement of current efforts. Commerce's SelectUSA website should be transformed from a "showcase" for prospective investors into an interactive web-based tool that enables investor decision-making, connects U.S. suppliers and downstream manufacturers, and promotes exports.

Reform U.S. immigration policy to support manufacturing

9. Develop a more intelligent visa process that responds strategically to market talent needs in relevant industries, rather than using blanket H-1B caps. The immigration process for temporary workers in specialty occupations, utilizing a system of yearly statutory caps, is an antiquated system that has failed to adapt to modern business practices. A dynamic system that responds to strategic and market pressures for foreign talent, allocating the necessary number of required H-1B visas to those with desired skill sets or within key industries, would reduce uncertainty for U.S. firms and allow the nation to benefit from foreign talent in key occupations. An uncapped, rolling visa process, informed by market needs, would remove the arbitrary nature of the current cap system, but still allow the U.S. Government to ultimately determine its immigration policy.
10. Revise Green Card requirements to expand the pool of workers with relevant advanced degrees available to U.S. manufacturers. Finding skilled workers remains one of the greatest challenges for manufacturing firms. Even after increasing the U.S. skilled labor pool through advanced vocational training programs, manufacturers will still need to fill many advanced technical positions requiring specialized science or engineering degrees. In a change from past decades, many foreign students pursuing such degrees have chosen to return to their home countries rather than live and work in the U.S. When combined with fewer American students studying hard sciences and engineering, this trend will have a negative effect on manufacturers seeking to re-shore their production. The U.S. Government could stop this "brain drain" by revising Green Card requirements to keep these foreign advanced degree students in the U.S. after graduation. For instance, the U.S. could offer a Green Card that would be activated through gainful employment within two years of graduation. This policy would demonstrate the nation's determination to continue building its robust manufacturing base.



Made in America, Again

Which Industries and Why?

February, 2012

THE BOSTON CONSULTING GROUP

The return of manufacturing from China will create 2-3 million new jobs

According to a new study by BCG, “re-shoring” of manufacturing from China and exports will create 2-3 million new jobs over the next several years

- \$80-120 billion in re-shored manufacturing
- 600 – 800 thousand direct manufacturing jobs, plus
- 1.7 – 2.4 million jobs to support the manufacturing base
- Unemployment reduction of 1.5 – 2%
- Reduction in the non-oil related trade deficit by 20-35%

China will no longer be the default low-cost manufacturing location for supplying the US market

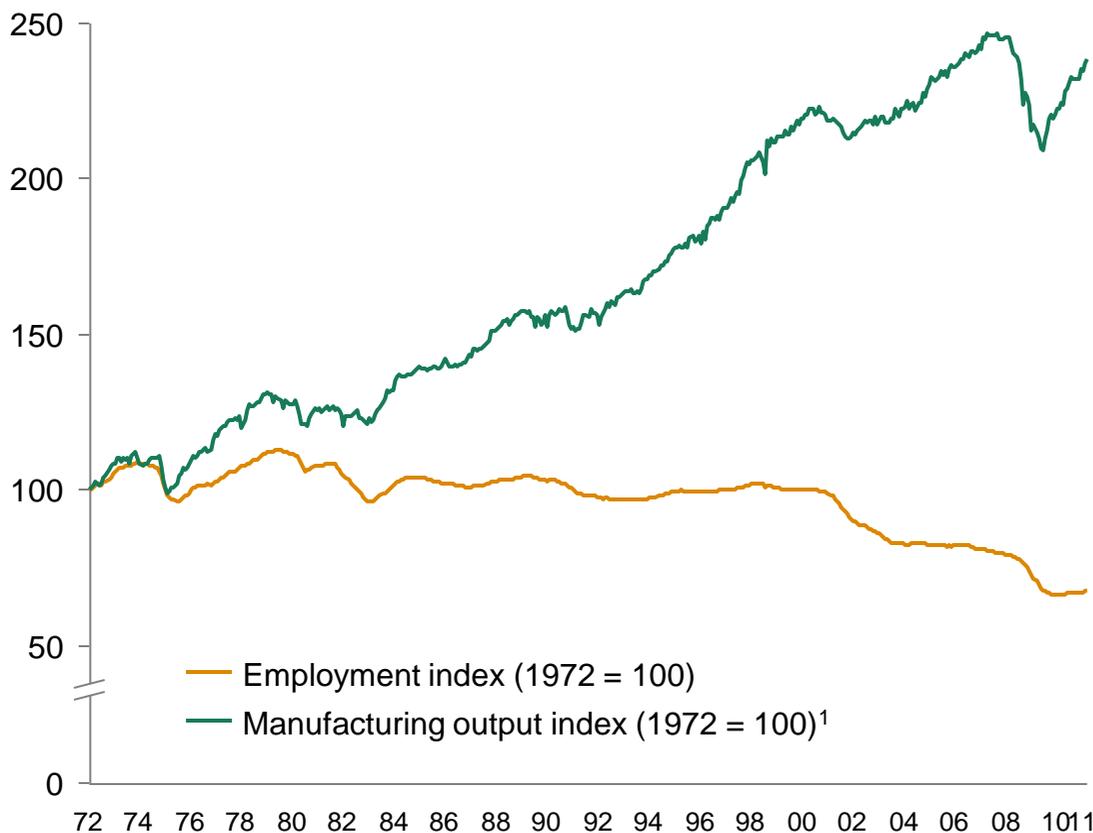
- China's wage rates are growing 15-20% per year
- China's cost advantage for many products, in competitive manufacturing regions, is expected to fall to 10-15%, before transportation, duties, and other costs
- Labor, transport, and production costs are the primary considerations for firms making offshoring decisions

The seven key industry groups have labor and logistics cost characteristics suggesting that they are most likely to "tip" in favor of U.S. production for U.S. consumption are:

- Computers and electronics
- Appliances and electrical equipment
- Machinery
- Furniture
- Fabricated metals
- Plastics and rubber
- Transportation goods

US manufacturing output has grown by 2.5x since 1970, while employment in the sector has decreased by 30%

US manufacturing output vs. US manufacturing employment

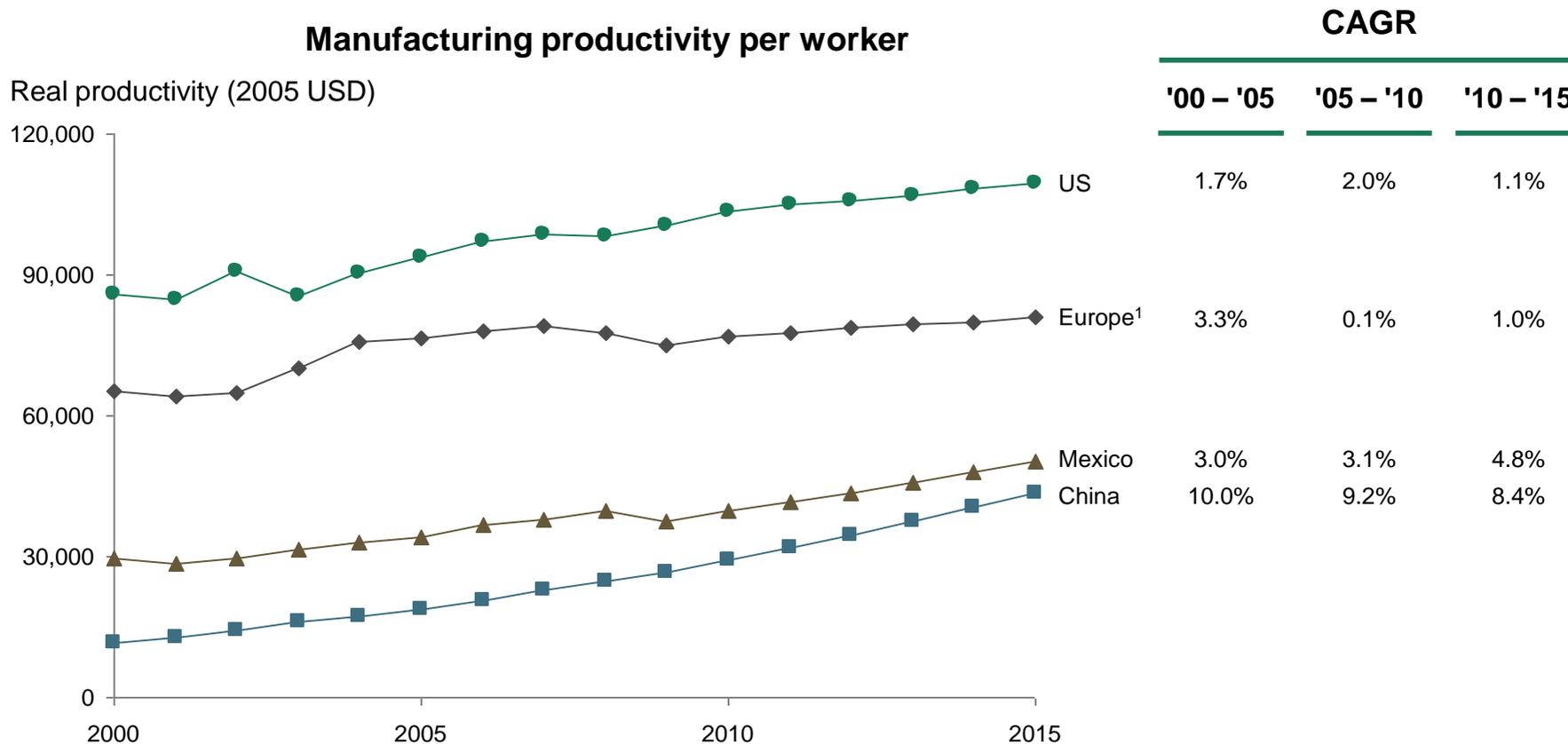


Compound annual growth rates (CAGRs)

	Employment	Output
'72-'80	0.7%	2.3%
'81-'90	-0.6%	2.4%
'91-'00	0.1%	4.1%
'01-'10	-3.9%	0.6%

1. Gross value of Final Products, measured in 2005 US\$ prices, Federal Reserve data
Source: Federal Reserve, US Bureau of Labor Statistics

This phenomenon has been due to very high labor productivity in the US, which has continued to grow

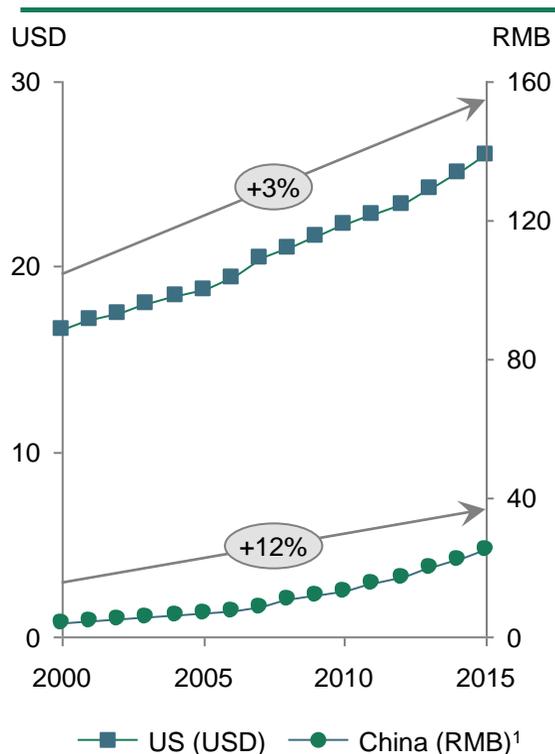


1. Europe includes Germany, France, UK, Italy, Czech Republic, and Poland

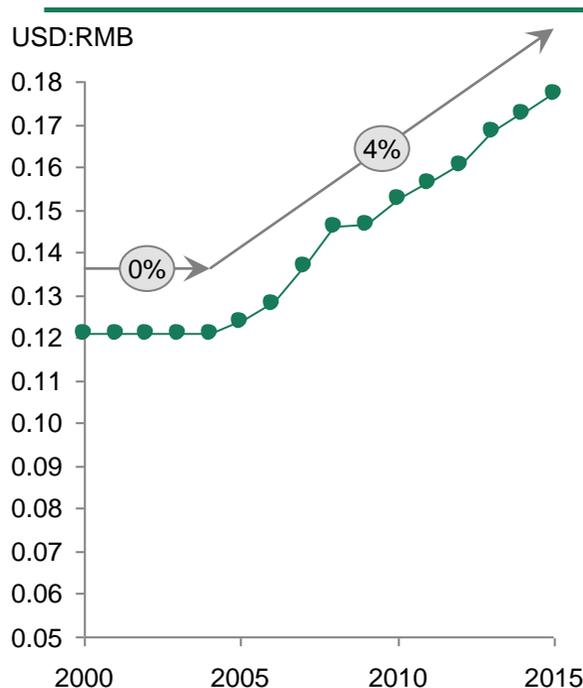
Source: EIU, BLS, ILO, BCG analysis

Labor rates in China are growing rapidly versus the US

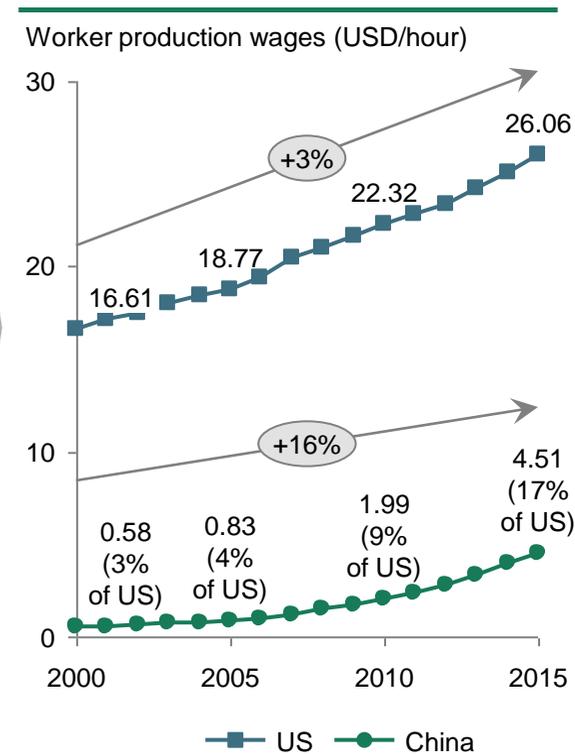
Chinese manufacturing wages growing faster than US



...and the yuan appreciating against the dollar



Dollar-denominated wages in China growing rapidly versus US



1. Hourly compensation based on BLS special studies data; an additional compensation premium of 14% added to account for recent labor market trends and TVE data bias; it should be noted that this figure data may be subject to some double counting due to BLS methodology for benefits calculations

Source: EIU, BLS, selected company data, BCG analysis

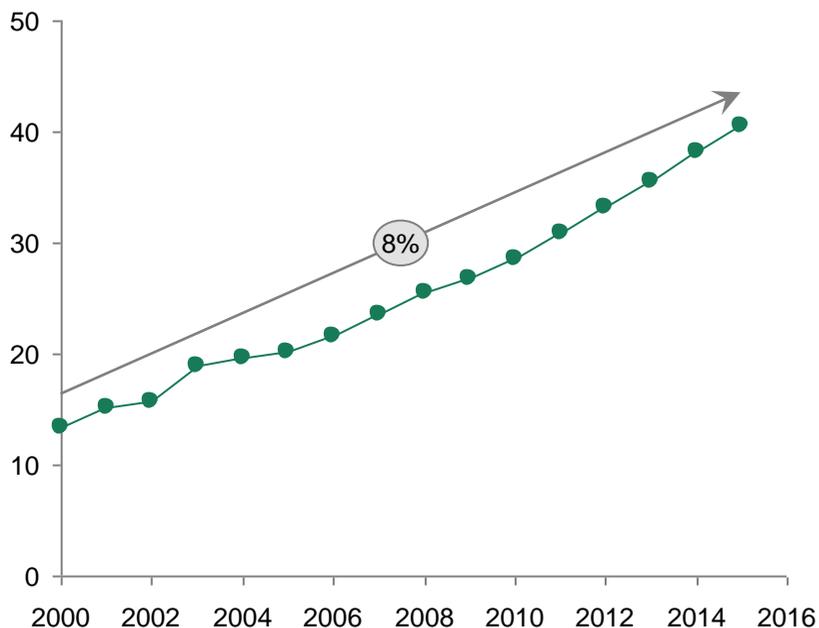
China productivity growth has lagged wage growth

Productivity-adjusted wages projected to grow ~4% faster than US

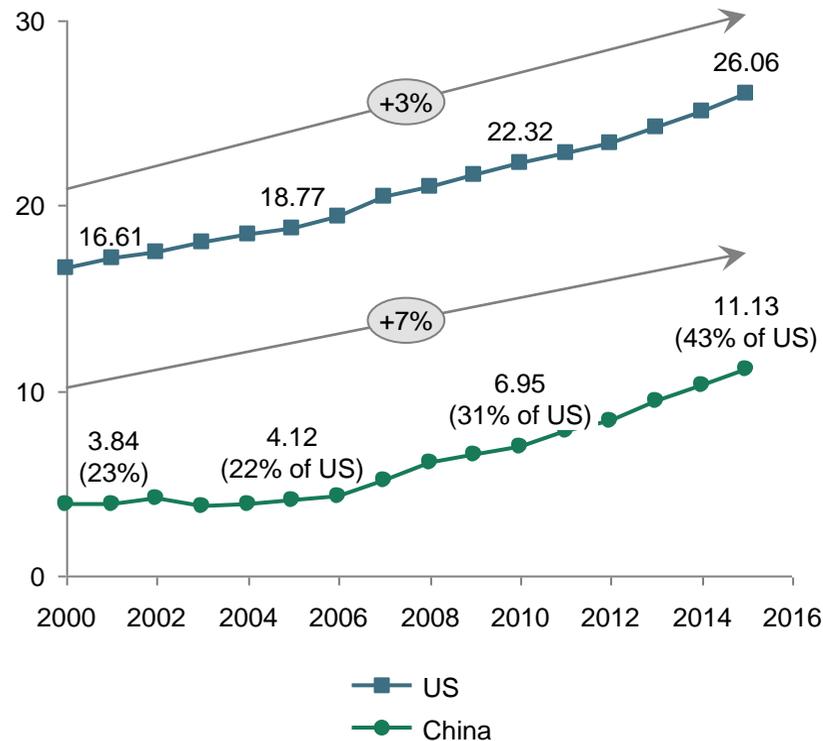
China's productivity gains will lag estimated 16% annual wage increase...

...resulting in productivity-adjusted wages of ~40% of US wage rate in 2015

China:US productivity (%)



Worker production wages (USD/hour)



Productivity-adjusted wage rates will near US by 2015

Assuming current capital-labor tradeoffs and low-cost US location

	2000	2005	2010	2015F	Δ '00 - 15	
Average wages	China nominal rate (\$/hr)	0.52	0.83	1.99	4.51	3.99
	China relative productivity (%)	13%	20%	29%	40%	+27 pts
	China adjusted wage rate (\$/hr)	3.84	4.12	6.95	11.13	7.29
	US wage rate (\$/hr)	16.61	18.77	22.32	26.06	9.45
	China as a % of US wage rate	23%	22%	31%	43%	+20 pts
YRD ¹ region vs. select lower-cost US states ²	YRD nominal rate (\$/hr)	0.72	1.16	2.79	6.31	5.59
	YRD relative productivity (%)	26% ³	27%	32%	42%	+16 pts
	YRD adjusted wage rate (\$/hr)	2.81	4.28	8.62	15.03	12.21
	US wage rate (\$/hr)	15.81	17.87	21.25	24.81	8.99
	YRD as a % of select lower-cost US states wage rate²	18%	24%	41%	61%	+43 pts

1. Yangtze River Delta region; includes the provinces of Shanghai, Jiangsu, and Zhejiang; for 2009 the region had a relative wage index of 133 against the median; a 5% MNC wage premium has been added 2. Alabama, Georgia, Louisiana, Mississippi, North Carolina, South Carolina, Tennessee, and Texas 3. Year 2000 YRD relative productivity based on overall China average figures (no data available for YRD region)

Source: EIU, BLS, NBSC, BCG analysis

Economics will drive reinvestment in US

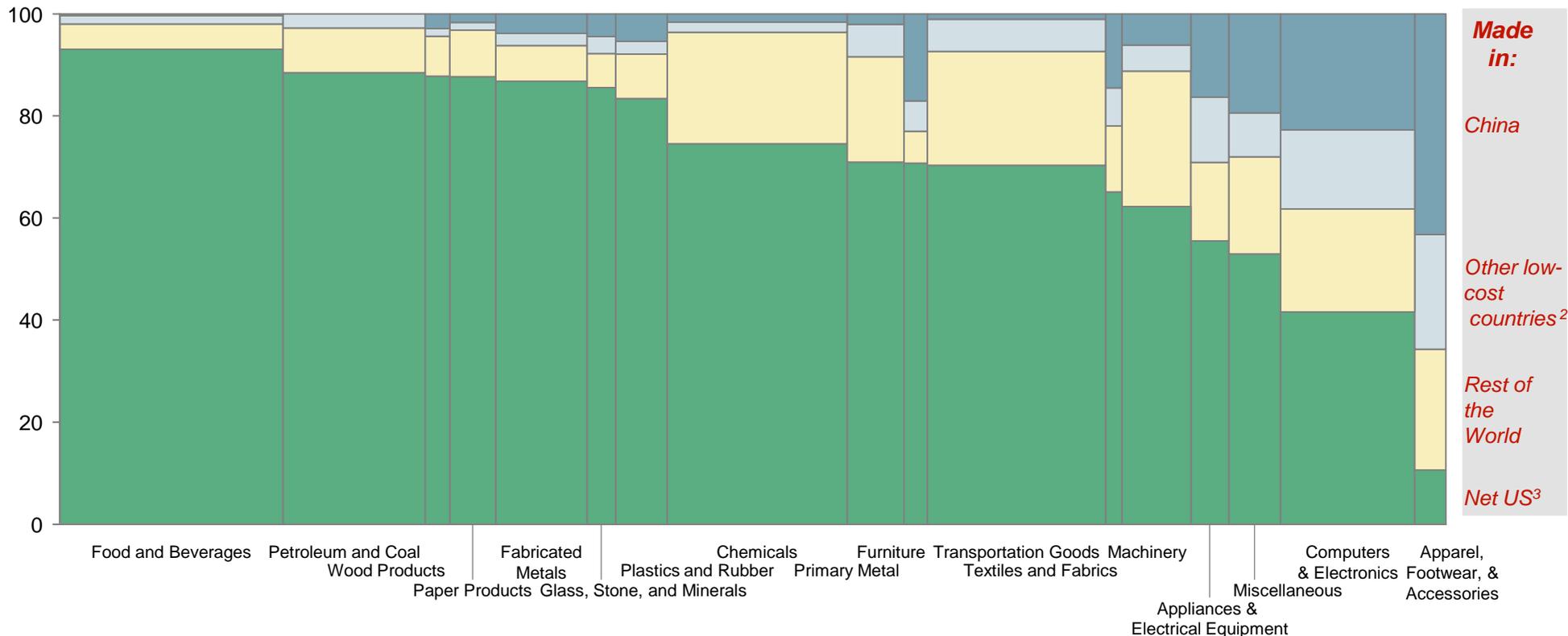
Near-shore locations will also benefit, especially when manufacturing for US market

Imagine a company...	...with the following location choices...	2000	2015F	
<ul style="list-style-type: none"> US-based auto parts supplier Most customers are US OEMs that manufacture in the US Parts take 8 minutes of labor on average in the US Labor represents 1/4 of the total cost of the part 	<p>US, select lower-cost states</p> <ul style="list-style-type: none"> Flexible workforce Minimal wage growth High worker productivity 	Wage rate (\$/hr)	15.81	24.81
	<p>China, Yangtze River Delta region</p> <ul style="list-style-type: none"> Scarce labor Rapidly rising wages Low productivity relative to the US 	Productivity (%)	100%	100%
		Labor cost/part (\$)	2.11	3.31
		Wage rate (\$/hr)	0.72	6.31
		Productivity (%)	13% ¹	42% ²
		Labor cost/part (\$)	0.74	2.00
		Labor cost savings (%)	65%	39%
		Total cost savings (before transportation, duties, and other costs)	16%	10%

1. Based on average overall Chinese productivity. 2. Average productivity difference between US and China's YRD Region. YRD productivity assumed to grow at ~7% CAGR over 2009 baseline, slightly slower than overall Chinese manufacturing productivity (~8.5%) as other regions adopt more advanced manufacturing practices. Source: BCG analysis, BLS, EIU

Even today, the US maintains a robust manufacturing base, making ~75% of the manufactured goods it consumes...

% of US manufactured goods consumed in 2009¹ by source



Value of US manufactured goods consumed by category (USD billions)

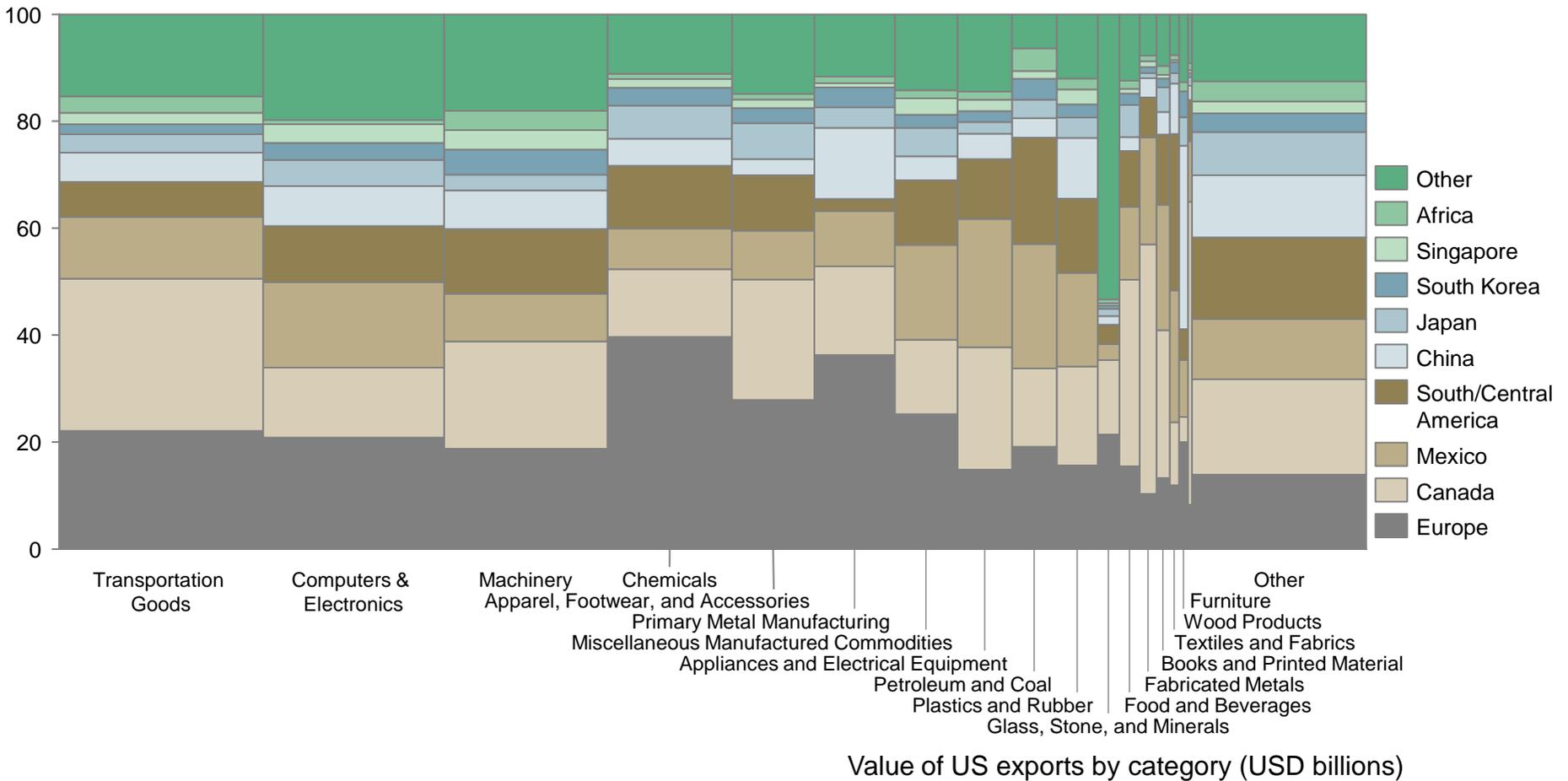
1. Goods consumed = Production (value of final and intermediate goods) + Imports (CIF basis) – Exports (CIF basis) 2. LCC sample comprises 13 countries (Brazil, Cambodia, China, Czech Republic, Hungary, India, Indonesia, Malaysia, Mexico, Poland, Russia, Thailand, and Vietnam) 3. Net US = Production (value of final and intermediate goods) - Exports

Source: National Census Bureau, BEA, BCG analysis

...and exporting ~\$1.3 trillion in goods to the world

Europe, Canada, and Mexico receive over 50% of US exports

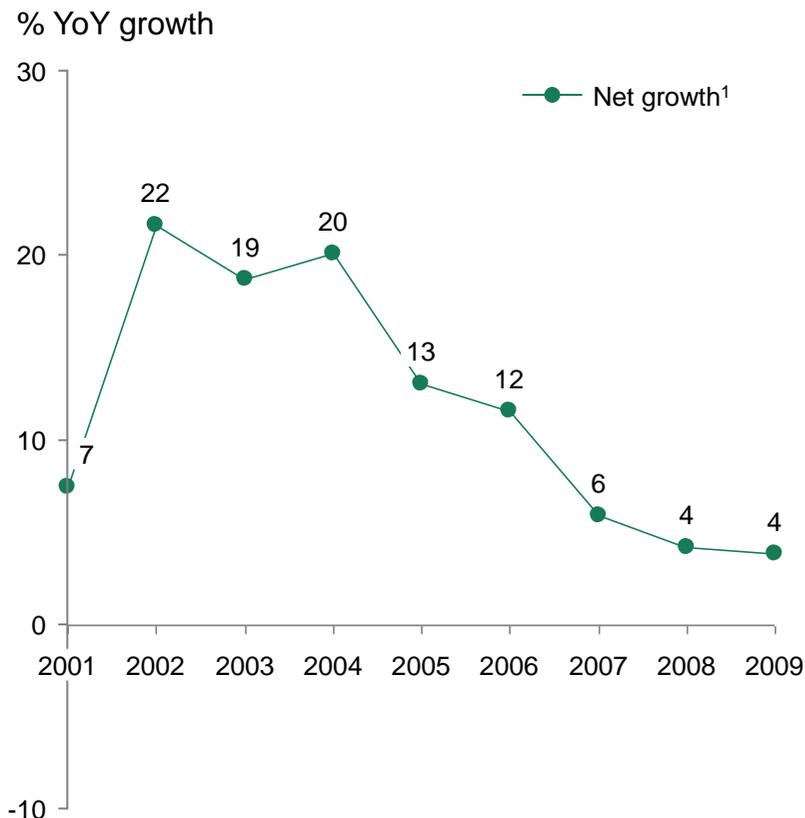
% of 2010 US exports by destination



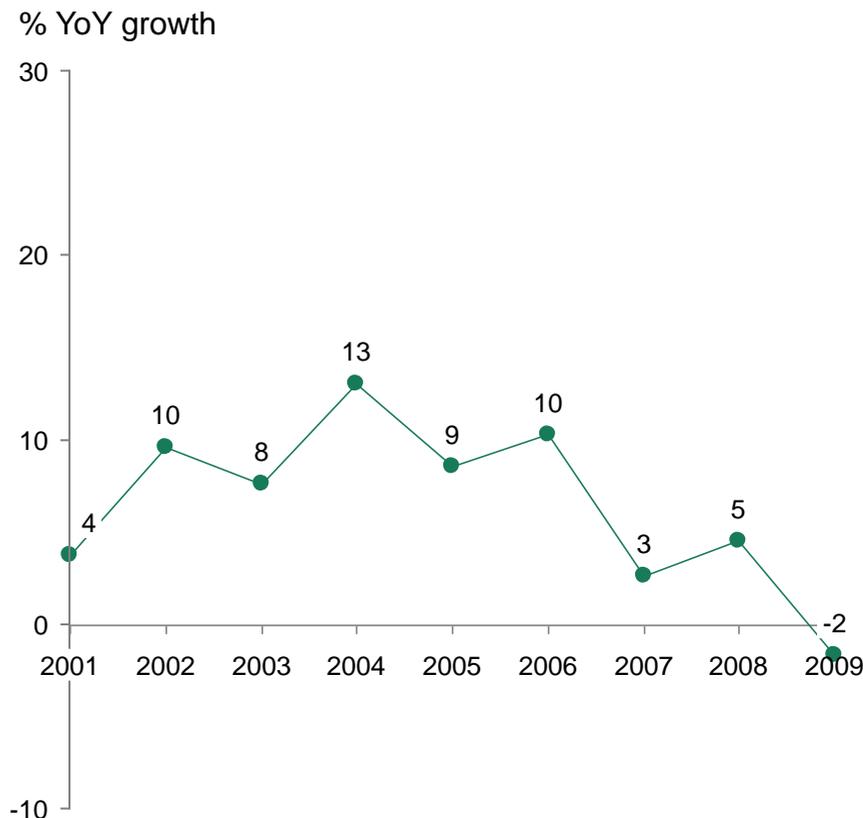
Source: BEA, BCG analysis

Accelerating competitiveness of US is reflected in flattening growth of imports from China & other low-cost countries...

Growth in Chinese imports has flattened significantly in recent years



Growth in imports from LCCs has flattened recently and declined in 2009



1. Net growth defined as LCC import growth minus growth rate of U.S. domestic consumption, which normalizes for changes in U.S. domestic consumption
 Note: Included total of 18 NAICS industries. LCC sample comprises 13 countries (Brazil, Cambodia, China, Czech Republic, Hungary, India, Indonesia, Malaysia, Mexico, Poland, Russia, Thailand, and Vietnam). Data based on real dollars (2005 \$).
 Source: U.S. Census Bureau; BCG analysis

...and in recent decisions by North American companies to rethink their supply chains and production locations (I)

Company	Manufacturing move	Company	Manufacturing move
NCR	Brought back production of its ATMs to Columbus, Georgia, with approximately 870 jobs being created.	Sauder Woodworking	Moved back some component production to local manufacturers from foreign low-cost sources, based on a supply-chain assessment analysis.
Ford	Bringing back up to 2,000 jobs due to a favorable agreement with UAW, allowing the company to hire workers at \$14/hr.	Chesapeake Bay Candle	Opened first domestic factory in Glen Burnie, MD in June 2011. All prior mfg had been in Asia. U.S. plant will make high-volume filled vessels, incl. exports to China.
Flextronics	Building more product categories in Mexico.	All-Clad Metalcrafters	High-end cookware manufacturer continues to bring lid production back to the U.S. from China, closer to the customers and main factory, to shorten supply chains and reduce the cost of capital.
Master Lock	Shifting some production back from China to Milwaukee, adding about three dozen jobs in recent years, due to rising costs in China.	Ashland Inc.¹	Specialty chemicals company decided to invest \$39 million to expand its Hopewell, Virginia plant – preserving 200 jobs and creating 15 new ones – after considering further investment in its China and Europe facilities.

1. State incentives included a \$250,000 performance-based grant, funding and services to support recruitment and training, and possible benefits from the Virginia Enterprise Zone Program. Source: Press search; company websites

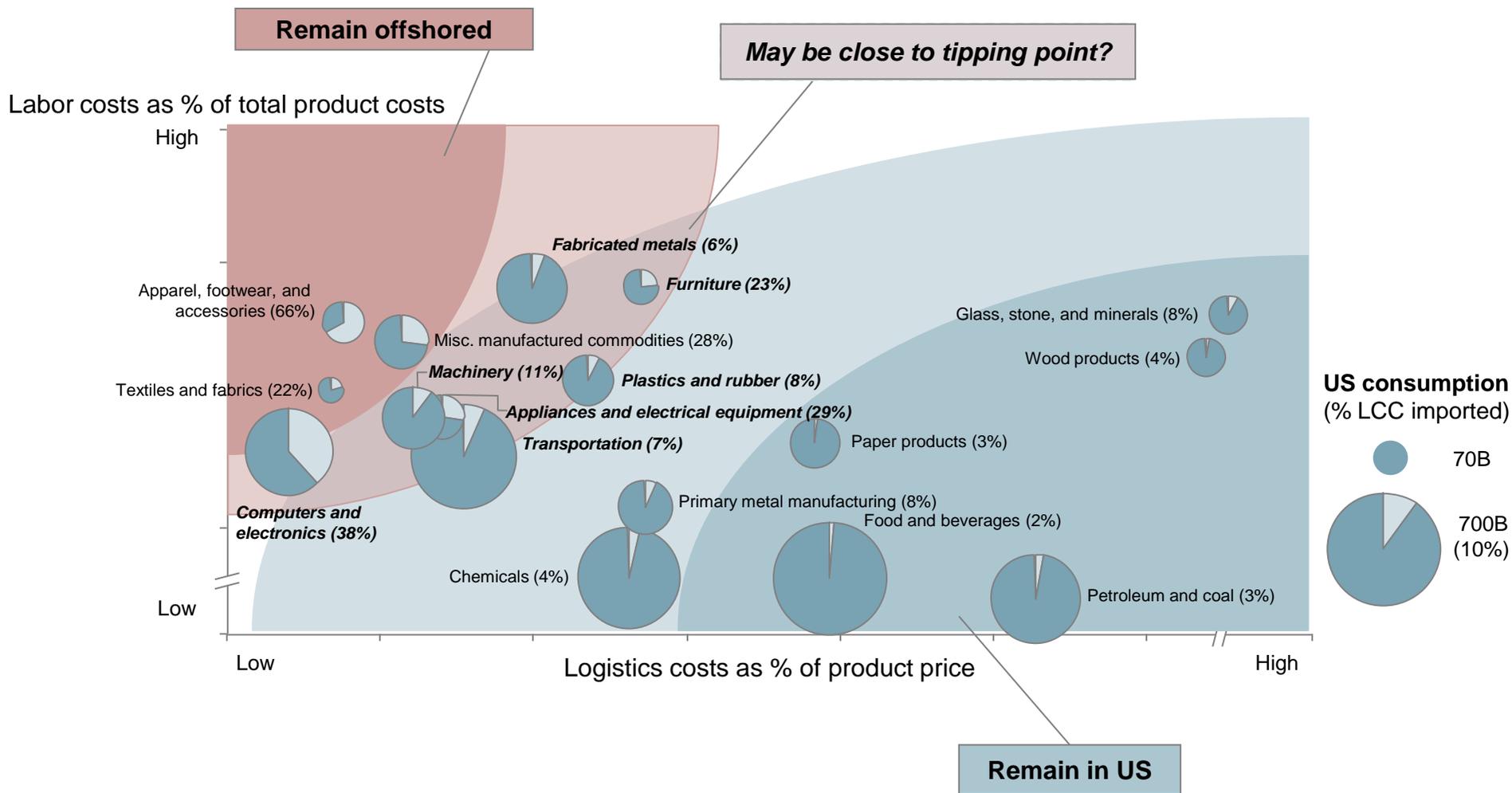
...and in recent decisions by North American companies to rethink their supply chains and production locations (II)

Company	Manufacturing move	Company	Manufacturing move
Coleman	Moving production of its plastic 16-quart wheeled cooler from China to Wichita, Kansas due to rising Chinese manufacturing and shipping costs.	The Outdoor Greatroom Co.	Moved production of fire pits and some outdoor shelters from China to the U.S., citing the inconvenience of having to book orders from Chinese contractors nine months in advance.
Farouk Systems	To address counterfeiting and reduce inventory costs, Farouk has moved some assembly of its hair irons and dryers from South Korea and China to a Houston, Texas factory that employs 1,000.	Sleek Audio	Moved production of high-end earphones from Chinese suppliers to its plant in Manatee County, Florida.
Global Sticks	Moving production from Dalian, China to Thunder Bay, Ontario. The new plant will employ 130 permanent workers and produce a variety of wooden sticks used for ice cream bars, corn dogs, tongue depressors for doctors and nurses, and paint paddles.	Peerless Industries	Announced new HQ near Chicago that will consolidate its Illinois and China facilities, making Peerless the only major domestic A/V mount producer with a 100% U.S.-based mfg operation. Expected benefits include cost efficiencies, shorter lead times, and local control over mfg processes.

...and in recent decisions by North American companies to rethink their supply chains and production locations (III)

Company	Manufacturing move	Company	Manufacturing move
NatLabs	<p>The dental lab company is moving to a digital pathway, with automation that is cheaper than the traditional methods now used in China. 200 jobs currently in China will be phased out, and all existing and future production will move to the U.S. Approximately 283 jobs will be added to an expanded Bradenton, Florida facility in the next five years.</p>	AmFor Electronics	<p>Company is "onshoring" wire harness production and some final assembly from China and Mexico to Portland, Oregon due to delivery responsiveness and ease of design revisions. AmFor found it was able to provide a lower landed cost for customers than it was getting from overseas suppliers after lean production practices were implemented.</p>
ET Water Systems	<p>The irrigation controls company had manufactured in China since 2002 but relocated production and assembly to San Jose, California because it was faster and cheaper. In addition to the cost advantage, the move was aimed at eliminating tariffs and duties, improving quality and yield, and accelerating innovation and product development.</p>	RibbedTee.com	<p>Shifted all production back to Los Angeles from China due to issues such as communications, payment terms, and quality. Now one of a few made-in-America T-shirt brands, there are no plans to produce overseas in the foreseeable future.</p>

Quantitative assessment indicates seven industry clusters may be close to tipping point



Note: Included total of 17 NAICS industries. LCC sample comprises 13 countries (Brazil, Cambodia, China, Czech Republic, Hungary, India, Indonesia, Malaysia, Mexico, Poland, Russia, Thailand, and Vietnam). Based on 2009 numbers

Note: Consumption defined as Total Production + Imports – Exports; \$1.5T value is nominal for 2009

Source: US Department of Transportation, US Census Bureau, Bureau of Economic Analysis; BCG analysis

Detailed analysis of specific products in "tipping" categories identified several key themes

Specific products selected for deep dives

Plastics and Rubber

- Passenger car tire

Appliances and Electrical Equipment

- Dishwasher for residential use

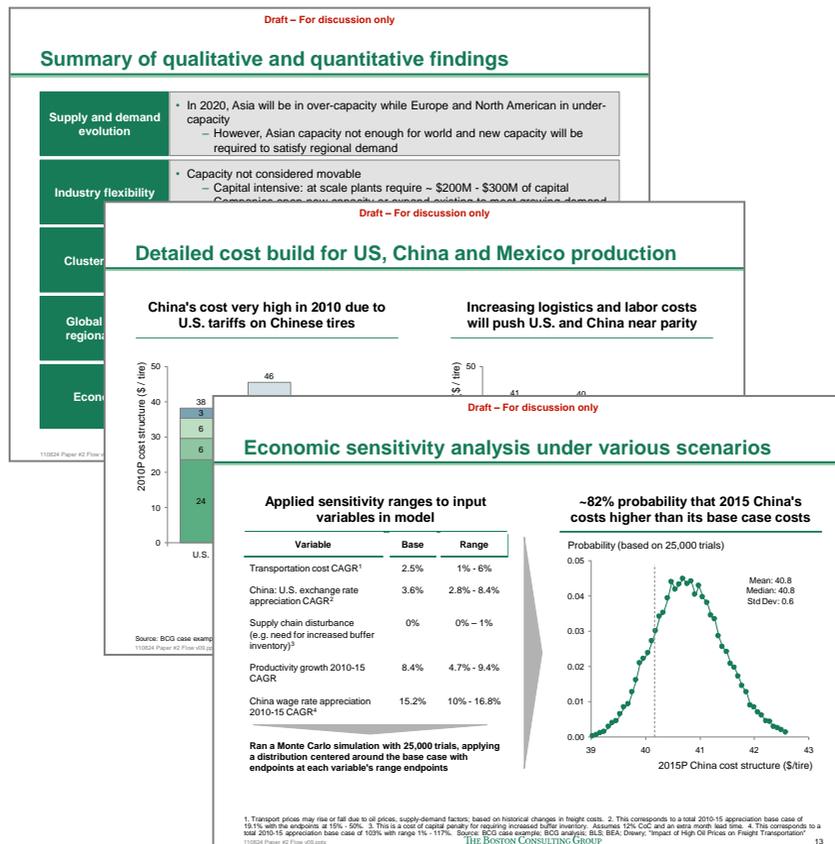
Furniture

- Upholstered couch

Machinery

- Industrial pump

Detailed quantitative and qualitative assessment conducted for each



Several key themes identified

- Cost gap closing between US and China for all products examined – in some cases, US becomes cost advantaged
- Mexico economics very favorable versus both US and China
- Producing in China carries significantly higher risk than producing in US

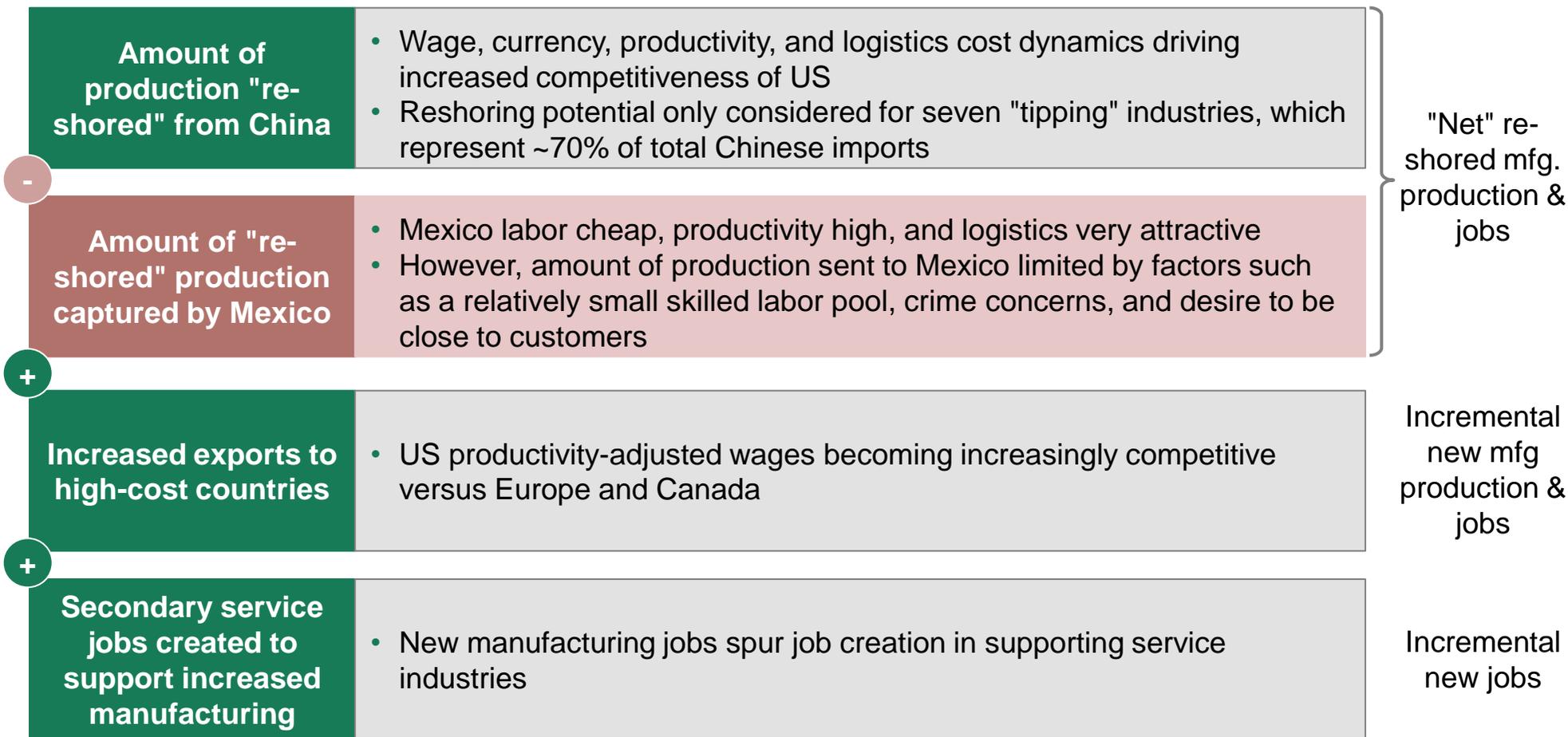
"Tipping" industries account for ~\$2 trillion of US consumption and nearly \$200 billion¹ in imports from China

Industry category	Value of goods consumed ²	Imports from China	
Transportation goods	~\$620B	~\$7B	
Computers and electronics	~\$464B	~\$105B	
Fabricated metals	~\$315B	~\$12B	
Machinery	~\$240B	~\$15B	
Plastics and rubber	~\$180B	~\$10B	
Appliances and electrical equipment	~\$130B	~\$21B	
Furniture	~\$80B	~\$14B	

How much of this is likely to be re-shored? What are the implications for US job growth and the trade balance?

1. Total imports from China in 2009 ~\$300B; tipping point categories encompass 70% of total 2. Goods consumed = Total production (intermediates & final goods) + Imports - Exports
 Source: National Census Bureau, BEA, BCG analysis

Increases in manufacturing production and associated jobs are governed by four factors





Analysis of four factors shows total US manufacturing production could increase by \$80-120 billion

	Size of Chinese imports (\$B)	Reshoring likelihood	Re-shored to N America (%)	% likely to be made in Mexico ¹	Increased production to US (\$B)
Computers and electronics	105	Low	5% - 30%	Low (5% - 10%)	5 - 28
Appliances & electrical equip	21	Medium	30% - 60%	High (25% - 40%)	5 - 8
Machinery	15	Low	5% - 30%	Medium (20% - 35%)	1 - 3
Furniture	14	Medium	30% - 60%	High (35% - 50%)	3 - 4
Fabricated metals	12	Low	5% - 30%	Low (10% - 20%)	1 - 3
Plastics and rubber	10	Medium	30% - 60%	Low (10% - 20%)	3 - 5
Transportation goods	7	High	60% - 80%	High (35% - 50%)	3 - 3
Exports ²					40 - 90

Total: 80 – 120³

1. Assessment based on availability of skilled workers, likelihood of US government incentives, and possibility that firms will be deterred by high crime rates. Limited amount of production going to Mexico at 2 - 3x production of goods in category today. Unlikely that infrastructure would be able to support more than that. 2. As currency depreciates, productivity increases, the US becomes more competitive against the rest of the world, expect 5% increase in exports. 3. Total range expected; does not represent the sum of highest and lowest estimates above.

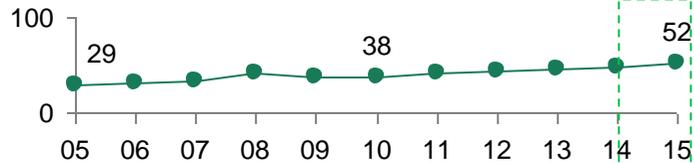
Source: BEA, BCG analysis



Mexico will be an attractive place to absorb some, but not all, Chinese imports re-shored to North America

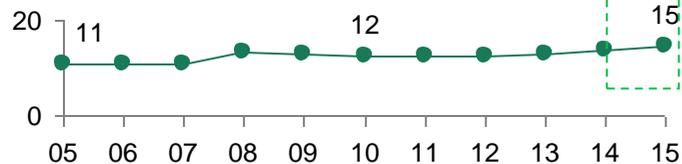
Mexico's fundamentals are positive...

MXP/hour **Limited nominal wage growth ...**



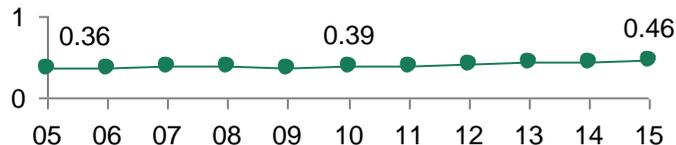
\$-denominated wages competitive against Chinese wages by 2015

MXP/US\$ **... a depreciating currency ...**



... growing relative productivity ...

Relative Productivity vs. US¹ (x)



...as well as a trade advantage with the US based on the NAFTA and geographical proximity

...but will likely not absorb all re-shored Chinese imports

Re-shored imports could overwhelm existing resources in certain industries

- Value of re-shored production greater than MX production in some industries
 - Expect \$5-30 bn in re-shored computers and electronics
 - MX only makes ~\$.5 bn in computers electronics currently
- Do not expect MX can absorb more than 2-3x what it currently produces

High crime rates could deter investment

- Crime a significant problem in common manufacturing areas
 - Murder rates in Chihuahua, MX 20x the US average
- Situation unlikely to improve significantly in the near term

Labor constraints may cause issues for employers

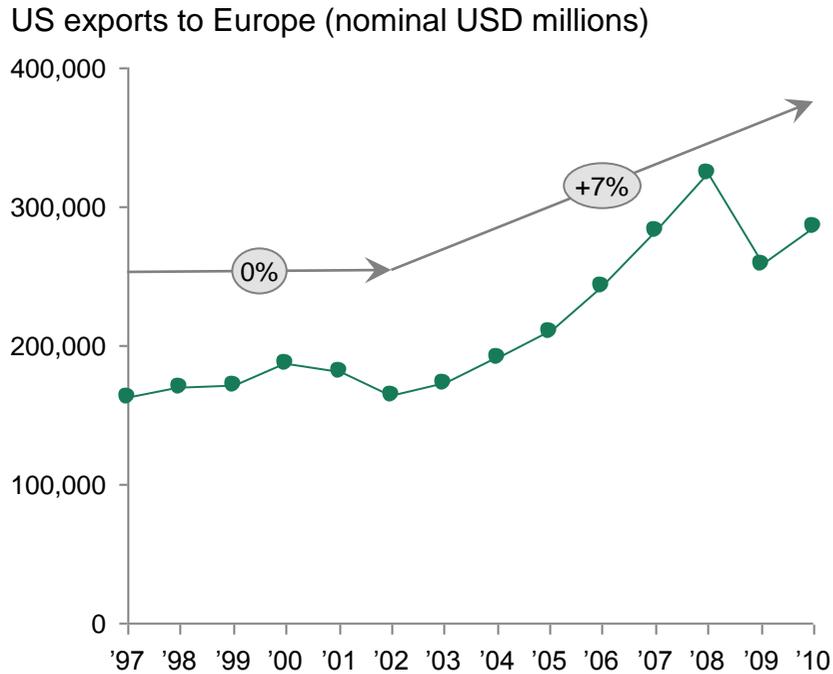
- Labor pool significantly smaller than the US
 - MX has 44 million in labor force (150 million in US)
- High employee turnover rates in plants
- Limited skilled workforce base

1. Adjusted for manufacturing/industry
Source: BLS, EIU, BEA, BCG analysis



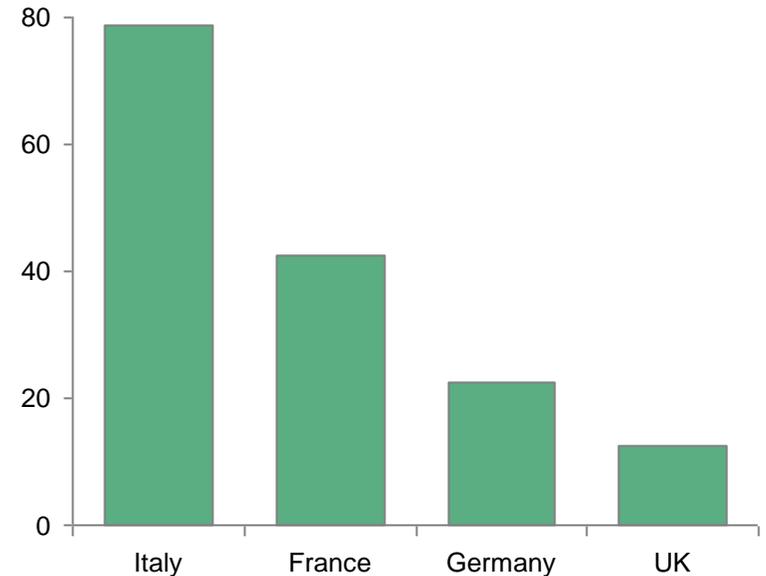
The US will continue to be competitive versus other high-cost regions (example: Europe)

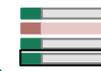
US exports to Europe have grown substantially in recent years...



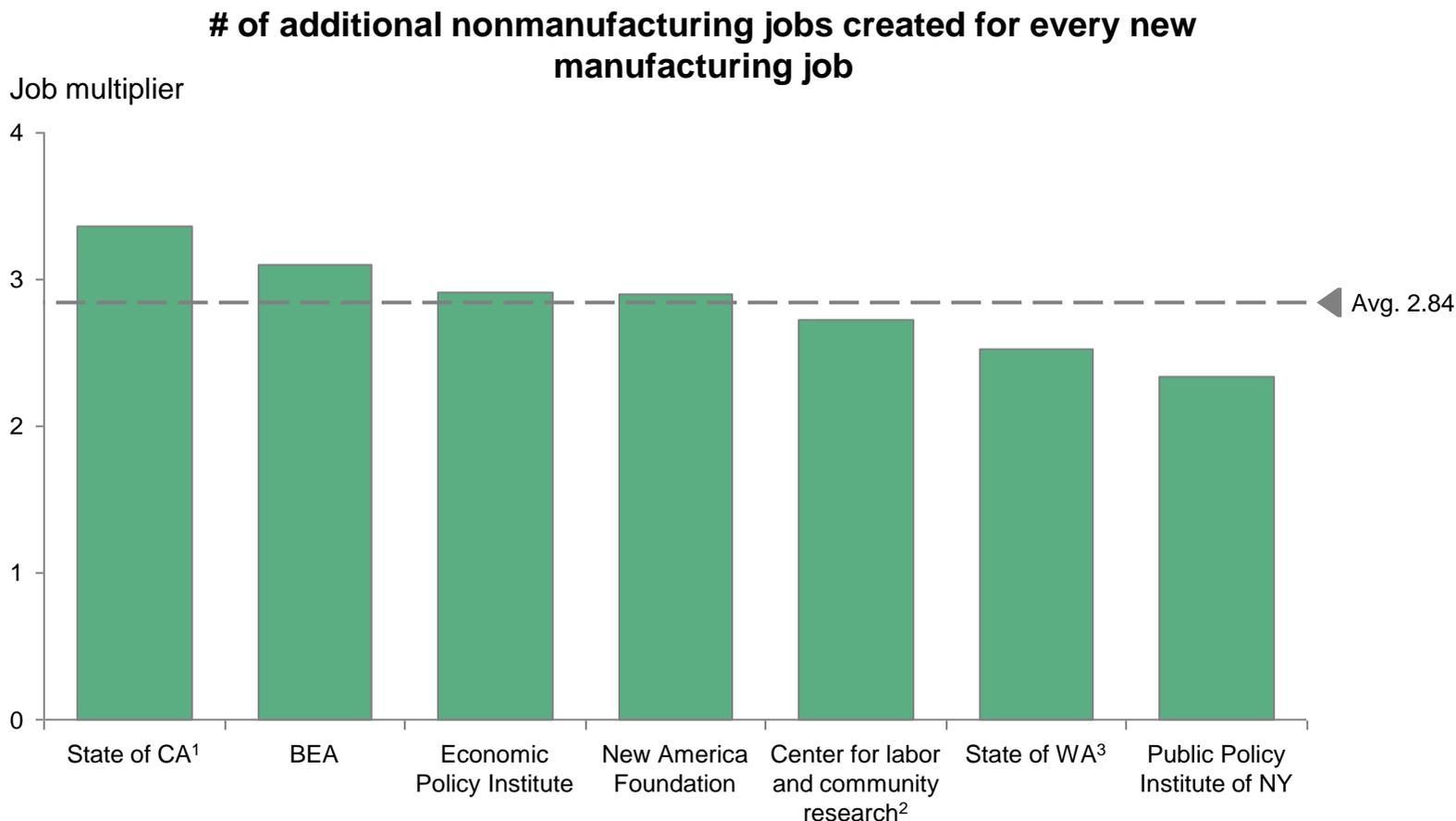
...and will continue to grow as productivity-adjusted wages grow relative to the US

Change in productivity-adjusted wage as % of US, 2000 – 2015 (pts)



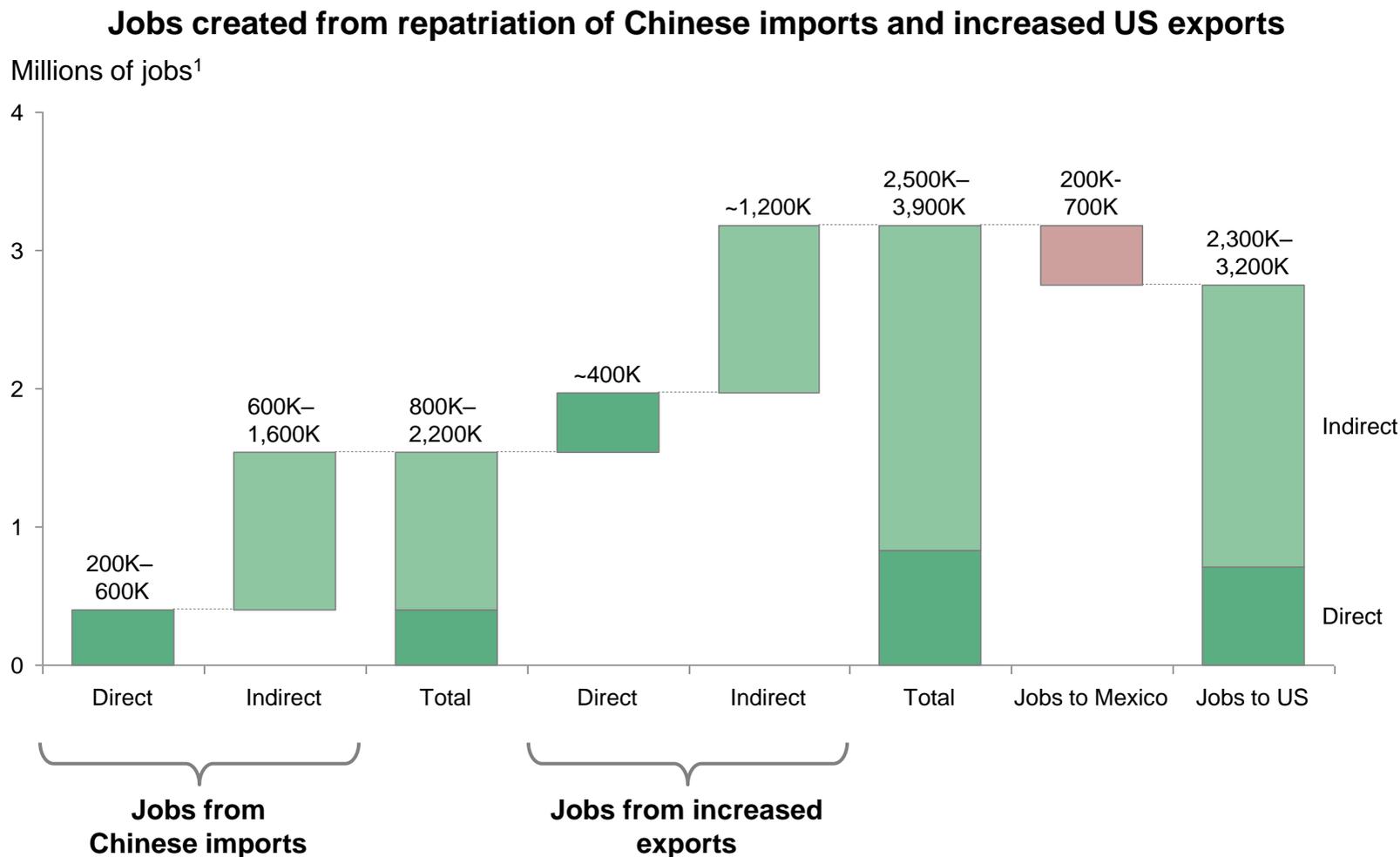


Range of studies show that one new US manufacturing job creates ~3 additional nonmanufacturing jobs



1. Multiplier calculated for California only 2. Multiplier calculated for Illinois only 3. Multiplier calculated for Washington only
 Note: Employment multiplier defined as number of *additional* jobs created per incremental manufacturing job. Estimates shown here are averages for overall manufacturing. Estimates for individual industry can be as high as 10x (as is the case for Auto).

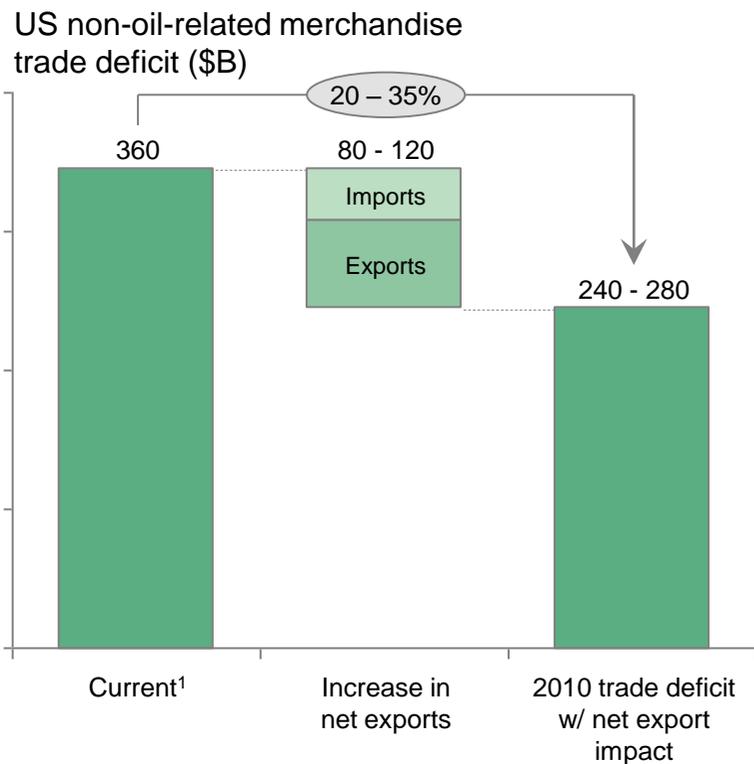
In sum, \$80-120 billion in incremental production estimated to create ~2-3 million total jobs



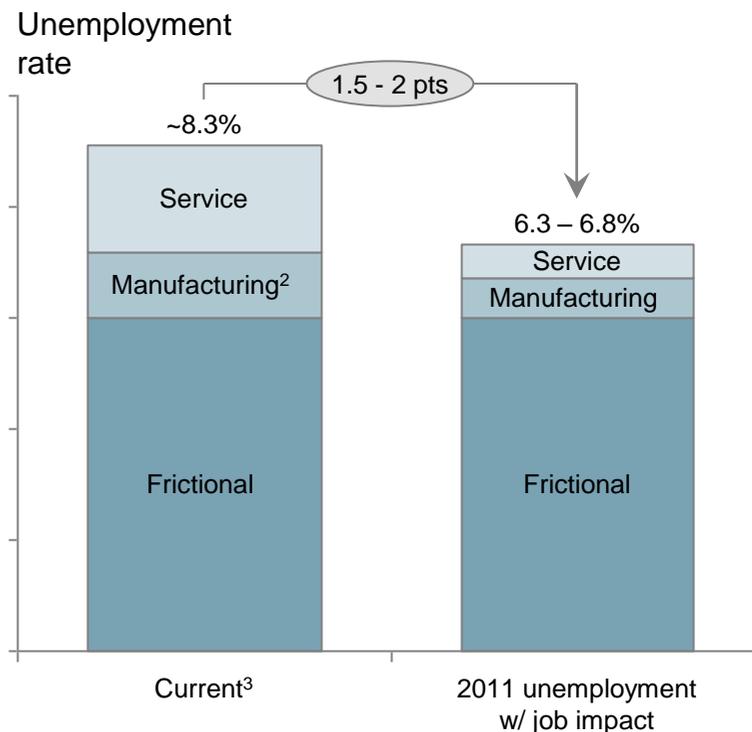
1. Bars on graph reflect midpoint of range
 Source: BLS, BEA, CIA World Factbook, BCG analysis
 Which Industries and Why_FINAL_Overview_PS_12Feb2012.pptx

Increase in production and jobs would have meaningful impact on trade balance and unemployment

Impact could reduce non-oil-related merchandise deficit by 20-35%...



...and unemployment by 1.5 to 2 points



Note: Employment figures based on 2010 employment

1. As reported by Bureau of Economic Analysis for 2010. Oil imports defined as imports under NAICS code 211 (oil and gas imports) 2. Manufacturing unemployment based on losses since June 2008 3. Current unemployment as of January, 2012

Source: BLS, BEA, CIA World Factbook, BCG analysis

Policy actions to accelerate US manufacturing growth

Educate companies about the benefits of re-shoring and domestic manufacturing

1. Launch a public information campaign to inform business leaders of the benefits of manufacturing for the U.S. market in general, and re-shoring from China in particular
2. Create an online tool for companies to calculate their re-shoring or domestic manufacturing opportunity to demonstrate that perceived trends are sometimes not rooted in sound economics

Increase the skilled labor pool through a new emphasis on vocational education

3. Create hybrid educational programs that provide a mix of college and vocational education/training to increase the number of skilled workers, with a focus on targeted sectors of the economy
4. Provide special Federal Student Aid terms/loan forgiveness for training in relevant technical and vocational skill areas
5. Appropriately fund state-based programs to provide job (re)training for new employees when manufacturing plants are expanded or built

Policy actions to accelerate US manufacturing growth

Create targeted manufacturing investment incentives

6. Enact financial incentives such as "surgical" tax breaks or expanded use of immediate/accelerated depreciation focused on key technologies, industries, and geographies to spur re-shoring
7. Attract and enhance "Supply Chain Clusters" to encourage "tipping point" industries to re-shore by promoting investments, technologies, and workforce skill-building in targeted geographies

Promote exports and domestic/foreign direct investment

8. Enhance effectiveness of U.S. Department of Commerce programs/capabilities (e.g., SelectUSA, U.S. Commercial Service) that benefit U.S. manufacturers

Reform U.S. immigration policy to support manufacturing

9. Develop a more intelligent visa process that responds strategically to market talent needs in relevant industries, rather than using blanket H-1B caps
10. Revise Green Card requirements to expand the pool of workers with relevant advanced degrees available to U.S. manufacturers

Key takeaways for manufacturers

China may no longer be the default low-cost mfg location for supplying the US market

- Economics are becoming marginal for many products

US becoming a "cheap" option for supplying the developed world

- Low-cost regions in US are growing more competitive as wage gap with China shrinks
- As a result, manufacturers are expected to increase investment in the US in certain industries, particularly for supplying US market

Manufacturers considering where to build new capacity must manage an expanded list of considerations

- The economics of the decision – lifetime of investment, total cost of ownership, etc
- Risks embedded in offshoring and how those risks change the economics of the decision
 - Volatility in transport costs, currency exchange rates, wage rates, delivery times
 - Government policy issues (IP protection, taxes, tariffs, etc)
 - Added complexities of longer supply chains

Manufacturers need to take a holistic view of the long-term economics and risks to make the best financial decision

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