



**United States
Employment
Analysis:
Q2 2016**

31 July 2016

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Jobenomics U.S. Employment Analysis: Q2 2016

By: Chuck Vollmer

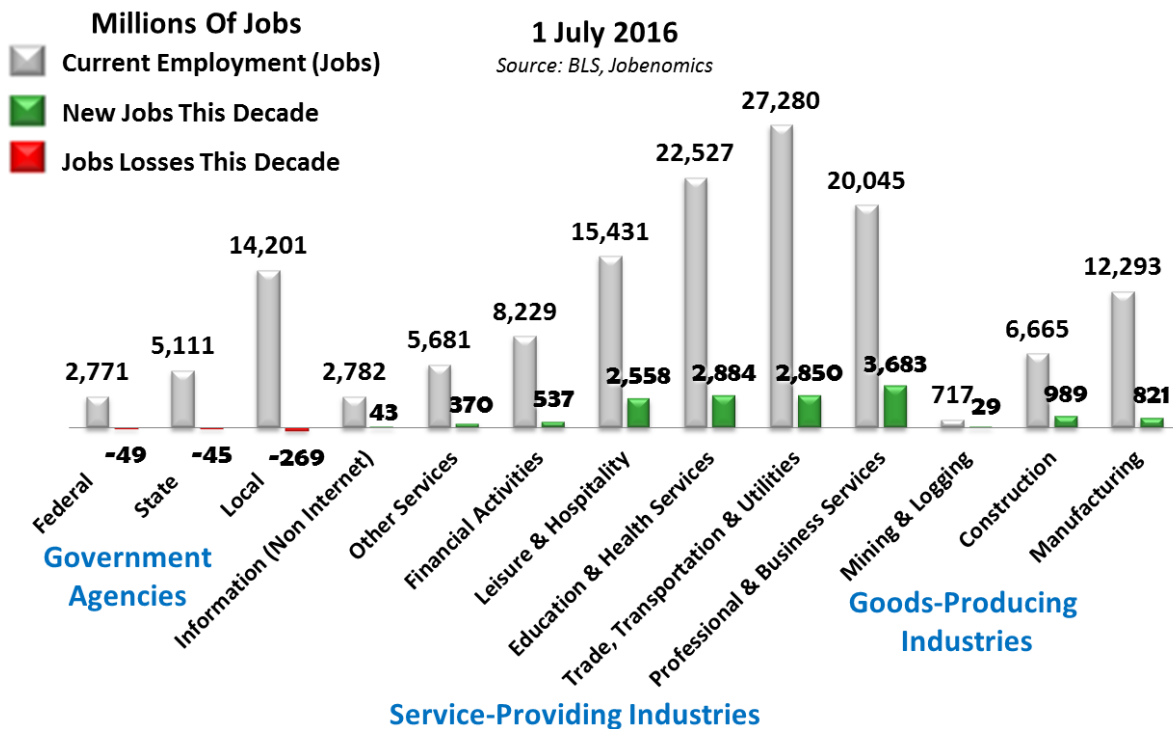
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31 July 2016

Jobenomics reports on U.S. employment and unemployment size, characteristics and trends. This Employment Analysis focuses on the U.S. labor force, business and job creation, and transformative trends—with emphasis on the 60 million workers in the rapidly growing, and underreported, contingent workforce. The companion Unemployment Analysis focuses on how the U.S. government reports on unemployment and income statistics, why Americans who can work chose not to work, and the impact of 109.8 million non-working able-bodied citizens are having on the United States.

Executive Summary



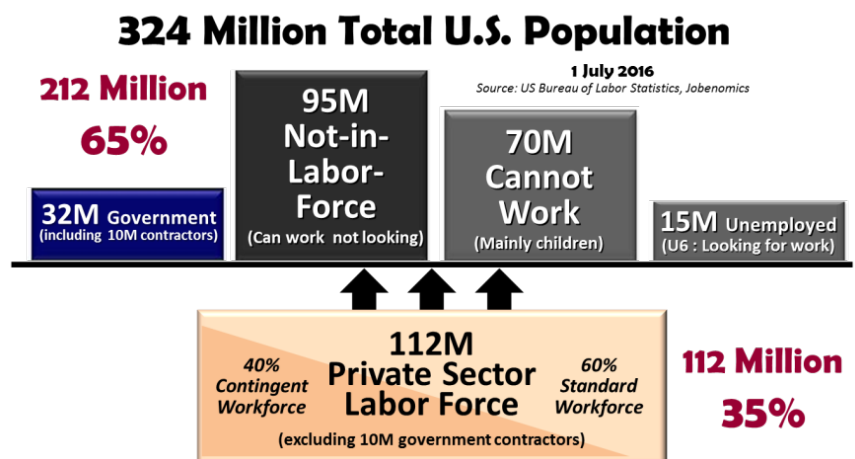
Current U.S. employment and job gains/loss statistics since the beginning of the decade are shown above. Between 1 January 2010 and 1 July 2016, the United States has created 14,401,000 new jobs with a net gain of 14,764,000 in the private sector and a net loss of 363,000 in government employment. 81.1% of all new jobs this decade were produced by four service-providing industries (Professional & Business Services; Education & Health Services; Trade, Transportation & Utilities; Leisure & Hospitality). Manufacturing and Construction industries contributed 5.6% and 6.7%, respectively. 77.9% of all Americans are now employed by small businesses that created 77.7% of all new jobs this decade. In June 2016, small businesses created 85.4% of all new jobs with micro-businesses (1-19 workers) employing 69% more Americans than all large corporations with over 1000 employees.

While these employment statistics are positive, they are offset by three trends that threaten economic growth and stability. These disturbing trends include voluntary workforce departures, contingent workforce growth and sclerotic GDP growth.

- **Voluntary Workforce Departures.** In Q2 2016, the U.S. labor force lost 593,000 more workers than it gained due to the exodus of frustrated job-seekers and able-bodied workers to welfare and alternative lifestyles. Since year 2000, 25,862,000 able-bodied workers departed versus 13,395,000 workers who joined the labor force for a net loss of 12,467,000 workers. This net loss does not include the number of unemployed (2.1 million more people are unemployed in 2016 than 2000) or population growth (42 million additional Americans today compared to 2000).
- **Contingent Workforce Growth.** Contingent workers are defined by the U.S. government as “non-standard” workers who work part-time by necessity (temps and day workers) or by choice (free lancers and self-employed). Today, the contingent workforce is approximately 60,000,000 employed Americans or 40% of the total employed workforce. By 2030, this number will grow to 80,000,000 or 50% of the U.S. employed workforce—a trend that is largely unknown to U.S. policy-makers and the American public.
- **Sclerotic GDP Growth.** Most economists believe that economic growth depends on job and GDP growth. The ideal rate for U.S. GDP growth is 2% to 3%. Since 2000, U.S. GDP averaged a sclerotic 1.76%. During the post-recession recovery period to today, U.S. GDP averaged only 2.0%. In Q1 2016, U.S. GDP grew by an abysmal 0.8%. Q2 2016 is estimated to be not much better at 1.2%.

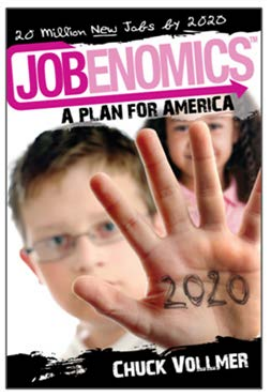
Job creation is the number one issue facing U.S. in regard to economic growth, sustainment and prosperity. Jobs do not create jobs, businesses do, especially small businesses. Unfortunately, America is focused on big business and government employment solutions that have not been very effective growing the U.S. labor force. In fact, the U.S. labor force is in a state of decline as evidenced by the eroding middle-class and the transformation from full-time to contingency workers.

35% of all Americans financially support the rest of the country. As of 1 July 2016, out of a U.S. population of 324 million, 112 million private sector workers support 32 million government workers and government contractors, 95 million able-bodied people who can work but chose not to work, 70 million who cannot work, and 15 million unemployed and underemployed.



The U.S. economy is not sustainable with only 35% supporting an overhead of 65%. The growing contingent labor force, which consists of mostly lower paid wage earners, makes the overhead burden even more precarious. More people with livable wages and greater discretionary income must be productively engaged in the private sector labor force for the U.S. economy to flourish.

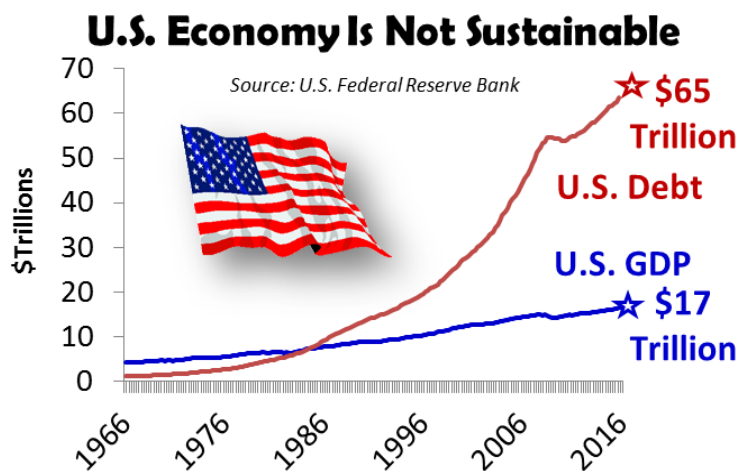
Jobenomics Overview and Strategic Outlook



Jobenomics deals with the economics of business and job creation. The Jobenomics National Grassroots Movement's goal is to facilitate an economic environment that will create 20 million net new U.S. middle-class jobs within a decade. The movement has reached millions of people via TV/radio, social media and comprehensive reports. Jobenomics reports include this quarterly employment analysis, a quarterly unemployment analysis, and specially reports on the U.S. labor force and emerging business trends and economic security. While Jobenomics addresses big business and government employment trends, its principal focus is on highly-scalable small and self-employed businesses that employ almost 80% of all Americans. Jobenomics has two city initiatives (New York City and Baltimore) and two state initiatives (Delaware and North Carolina) that are led by local leaders to mass-produce small businesses and jobs in their respective communities. Jobenomics is also advancing an Urban Mining project in order to help fund local Jobenomics Community-Based Business Generators.

The U.S. economy is not sustainable if Americans continue on their current path of over spending and under producing. Increased production depends on more business and job creation.

Over the last five decades, total debt (government, business, individual) has grown from a luxury for a few to an addiction to all. Compared to the current U.S. Gross Domestic Product (GDP is defined as the value of all goods and services) of \$17 trillion¹, U.S. debt has now reached an all-time high of \$65 trillion². Equally important is the rate of debt growth compared to GDP growth. Over the last half century, U.S. debt has grown at a rate 18 times faster than GDP and shows no signs of slowing.



The ideal rate for U.S. GDP growth is 2% to 3%. Anything below 2% is considered sclerotic growth and makes the economy vulnerable to financial downturns. During the post-WWII recovery, U.S. GDP grew at an average rate of 3.5% which created tens of millions of new jobs each decade. Since 2000, U.S. GDP averaged a sclerotic 1.76%. During the post-recession recovery period to today, U.S. GDP averaged only 2.0%. In Q1 2016, U.S. GDP grew by an abysmal 0.8%. Q2 2016 is estimated to be not much better at 1.2%.³

¹ U.S. Bureau of Economic Analysis, Real Gross Domestic Product [GDPC1], retrieved from FRED, Federal Reserve Bank of St. Louis, 9 July 2016, <https://fred.stlouisfed.org/series/GDPC1>, July 9, 2016

² Board of Governors of the Federal Reserve System (US), All Sectors; Debt Securities and Loans; Liability, Level [TCMDO], retrieved from FRED, Federal Reserve Bank of St. Louis, 9 July 2016, <https://fred.stlouisfed.org/series/TCMDO>,

³ U.S. Bureau of Economic Analysis, Gross Domestic Product: Second Quarter 2016 (Advance Estimate)

Most Americans assume that a good economy creates jobs. This is a backward assumption. The U.S. labor force produces goods and services that grow GDP, which is one of the primary indicators used to gauge the health of a country's economy. GDP is measured by either an income approach (compensation, profits, and taxes) or an expenditure approach (consumption, investment, government spending and net exports). Both approaches depend on robust goods-producing and service-providing jobs. However, jobs do not create jobs. Businesses do. Therefore, it is imperative to have a robust business sector that creates an ever increasing amount of good jobs to power a growing economy. When an economy grows at negative or sclerotic rates, unrest occurs and governments lose their sense of legitimacy as evidenced by what's happening globally today.

Labor Force Gains and Losses

1 July 2016

	Entered	Departed	Net Labor Force Gains-Losses
Last Month (June 2016)	287,000	(191,000)	478,000
Last Quarter (Q2 2016)	442,000	1,035,000	(593,000)
Last Year	2,451,000	838,000	1,613,000
Since 2010 (Jobenomics)	14,401,000	10,704,000	3,697,000
Since 2009 (Obama)	9,331,000	14,137,000	(4,806,000)
Since Year 2000	13,395,000	25,862,000	(12,467,000)

BLS Employment Report (CES0000000001) *BLS Not-in-Labor-Force Report (LNS15000000)*
Table B-1 *Seasonally Adjusted*

On 8 July 2016, the U.S. Bureau of Labor Statistics (BLS) Employment Situation Summary⁴ reported that 287,000 Americans entered the U.S. labor force on a seasonally adjusted basis.⁵ The BLS also reported that 191,000 fewer able-bodied Americans were recorded in the BLS “Not-in-Labor-Force” category, a category reserved for non-working able-bodied Americans, for a net workforce gain of 478,000 Americans. While the June report was positive, Q2 2016 did fair as well.

Over the last quarter (April, May and June), a total of 442,000 people entered the labor force and 1,035,000 fewer citizens departed, for a net loss of 593,000 people to the labor force. Labor force statistics are also shown covering the last year, the period since year 2010 (the Jobenomics starting point), since 2009 (the start of the Obama Administration) and since 2000.

Since 1 January 2000, 25,862,000 able-bodied workers departed the U.S. labor force versus 13,395,000 workers who joined the workforce for a net loss of 12,467,000 workers. This net loss does not include the number of unemployed (2.1 million more people are unemployed in 2016 than 2000) or population growth (42 million additional Americans today compared to 2000).

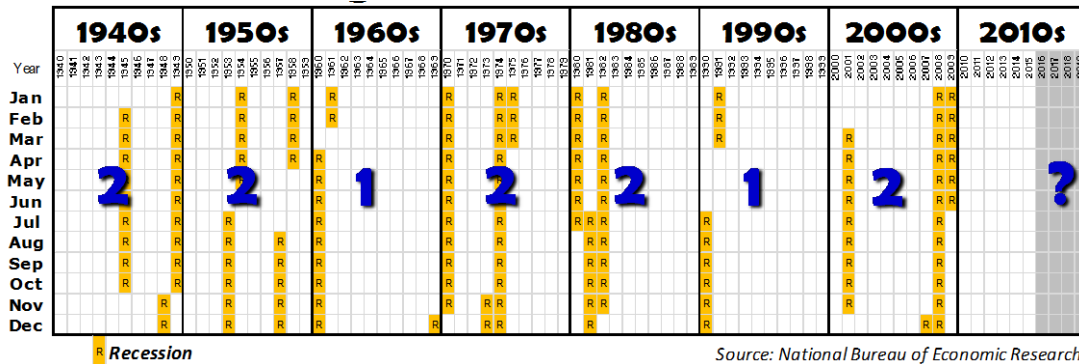
Annual Update: 2013 through First Quarter 2016, 29 July 2016,
<http://www.bea.gov/newsreleases/national/gdp/gdpnewsrelease.htm>

⁴ U.S. Bureau of Labor Statistics, Employment Situation Summary, <http://www.bls.gov/news.release/empsit.nr0.htm>

⁵ Normally Seasonally Adjusted Numbers are reported to compensate for seasonal fluctuations.

The U.S. economy is not sustainable if American businesses and labor force cannot generate sufficient goods and services to power economic growth. More business and job creation is needed to build a strong labor force, mitigate voluntary workforce departures, and to adequately prepare for the next financial crisis.

U.S. Average of 1.7 Recessions per Decade



Since the 1940s, the U.S. economy averaged 3 financial crises and 1.7 recessions per decade. Unlike many parts of the world, the United States has been recession-free this decade largely due to profligate government spending and the relative attractiveness of U.S. investment opportunities compared to the rest of the world.

The question is how long can the U.S. remain recession-free?

US Government Financial Bailouts, Buyouts & Stimuli Since 2008

The U.S. federal government and the U.S. Federal Reserve (the Fed or Central Bank) spent \$17 trillion dollars' worth of stimuli and incentive programs since the Great Recession as shown. The Fed is responsive for \$11 trillion of total. In addition to spending, the Fed has held interest rates to near-zero in hopes of invigorating the economy. The net result of government spending and a near-zero interest rate policy has not achieved robust GDP or labor force growth as anticipated. However, it did keep the economy from sliding into a depression and caused the U.S. stock markets to soar, greatly benefitting the top 1% while simultaneously eroding the American middle-class and labor force.

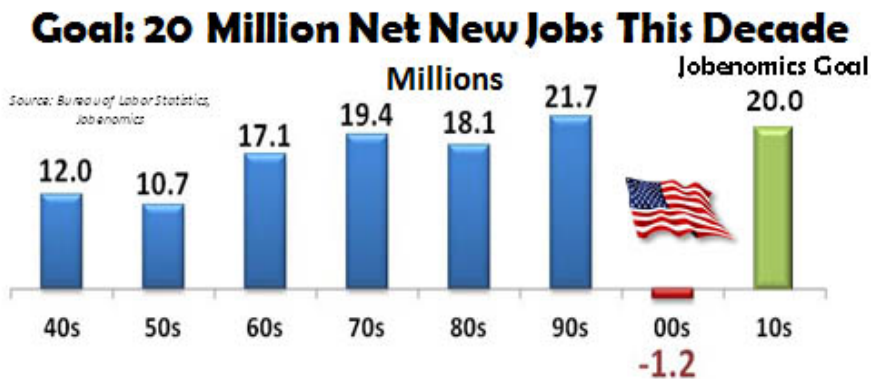
Total \$16.9 Trillion			
Federal Reserve	\$ 11,213	Treasury	\$2,910
Primary Credit Discount	\$ 111	Troubled Asset Relief Program (TARP)	\$700
Secondary Credit	1.00	Tax Break for Banks	\$29
Primary dealer and others	\$ 147	Stimulus Package (Bush)	\$168
ABCP Liquidity	\$ 146	Stimulus II (Obama)	\$787
AIG Credit	\$ 60	Treasury Exchange Stabilization	\$50
Commercial Paper Funding	\$ 1,200	Student Loan Purchases	\$60
Maiden Lane (Bear Stearns)	\$ 30	Citigroup Bailout Treasury	\$5
Maiden Lane II (AIG)	\$ 23	Bank of America Bailout Treasury	\$8
Maiden Lane III (AIG)	\$ 30	Support for Fannie/Freddie	\$400
Term Securities Lending	\$ 75	Line of Credit for FDIC	\$500
Term Auction Facility	\$ 375	Treasury Commitment to TALF	\$100
Securities lending overnight	\$ 10	Treasury Commitment to PPIP	\$100
Term Asset-Backed Loan Facility	\$ 1,000	Cash for Clunkers	\$3
Currency Swaps/Other Assets	\$ 606	FDIC	\$2,478
GSE Debt Purchases	\$ 200	Public-Private Investment (PPIP)	\$1,000
GSE Mortgage-Backed Securities	\$ 1,250	FDIC Liquidity Guarantees	\$1,400
Citigroup Bailout Fed Portion	\$ 220	Guaranteeing GE Debt	\$65
Bank of America Bailout	\$ 87	Citigroup Bailout FDIC Share	\$10
Commitment to Buy Treasuries	\$ 300	Bank of America Bailout	\$3
Quantitative Easing (QE1)	\$ 1,750	HUD	\$306
Quantitative Easing (QE2)	\$ 600	Hope for Homeowners (FHA)	\$300
Operation Twist	\$ 667	Neighborhood Stabilization (FHA)	\$6
Quantitative Easing (QE3)*	\$ 1,440	* \$40B/month thru 2015 (36 months)	
Treasury Buying Program (QE4)**	\$ 885	** \$45B/mon for 18 months & \$75B for 2014	

Source: Bloomberg, Jobenomics

Serendipitously, government spending managed to position the United States as the least ugly economy in the world. By being the least ugly international economy, U.S. stock, bond and real estate markets have been able to attract foreign and domestic investment, which has managed to keep GDP growing, albeit much too slowly.

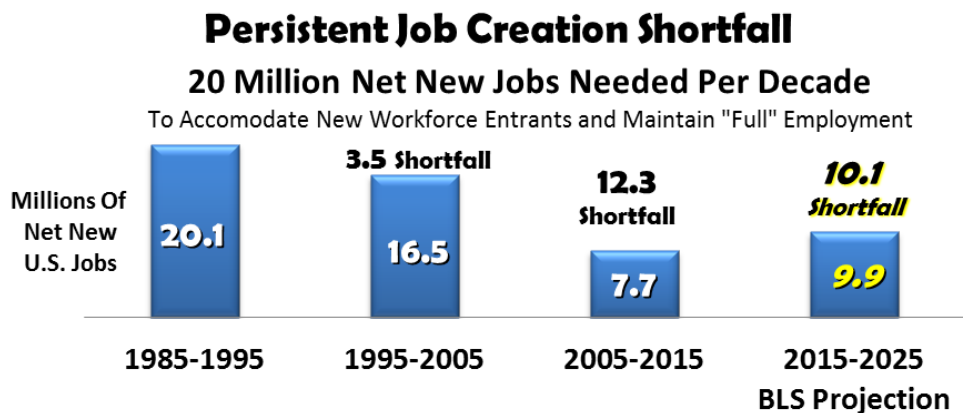
Unfortunately, the U.S. profligate government spending has reached its nadir and the relative attractiveness of U.S. market may be approaching its apex, the likelihood of a future U.S. recession within is relatively high. A recession would not only impact the U.S. economy, but would cause a U-turn in recent incremental U.S. employment gains.

The United States consistently produced tens of millions of new jobs for six consecutive decades from the 1940s through the 1990s. The bottom fell out in the decade of the 2000s with a net loss of 1.2 million jobs. Consequently, it is critical that a significant number of new jobs are created for the U.S. economy to prosper.



20 million net new jobs per decade is a goal that has been historically achieved. It is also the number needed to accommodate new labor force entrants, a growing population, and maintaining an unemployment rate of 5%, which is considered a normal rate of “full” employment. U.S. employment increased by 14.4 million so far this decade, which is positive, but is still a 26% shortfall in the number of new jobs needed to produce 20 million new jobs by 2020. From a labor force perspective, employment gains are only half the solution for prosperity. The other half deals with mitigating labor force losses that are examined in detail in the Jobenomics Unemployment Analysis.

Robust labor force growth is not forecasted by the U.S. Bureau of Labor Statistics. The BLS projects that the next decade will produce only 9.8 million new jobs, which is a shortfall of 10.2 million net new jobs needed per decade to accommodate new

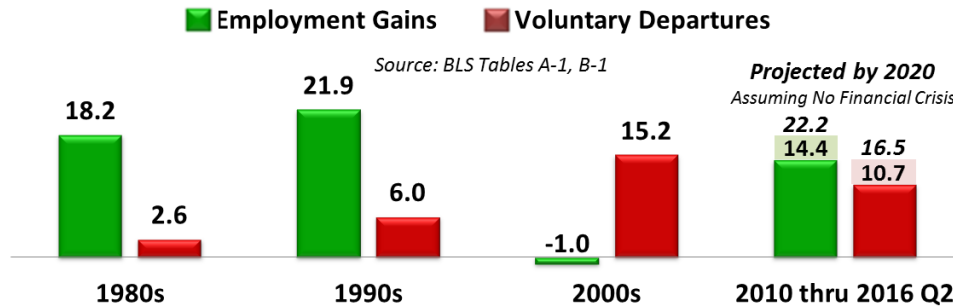


workforce entrants and maintain full employment. The BLS projects meager gains of 56,500 jobs in goods-producing industries, 9,263,600 jobs in services-providing industries, 26,900 jobs in

agriculture/forestry/fishing industries and 579,300 jobs in the non-agricultural self-employed workforce over the next decade.⁶

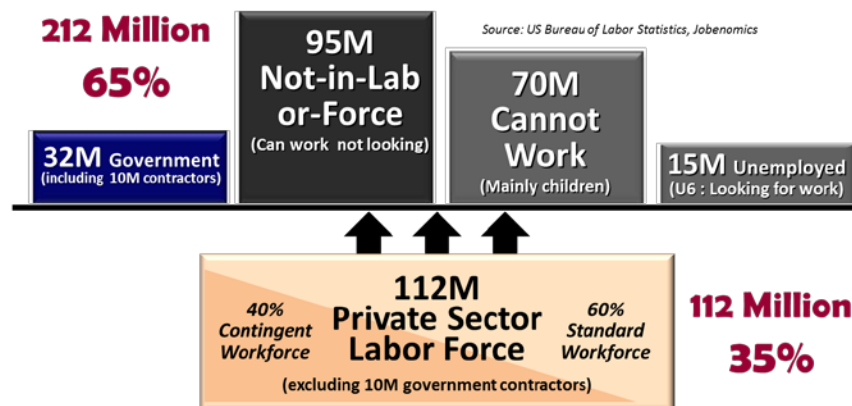
U.S. Labor Force Gains/Losses per Decade

1 January 1980 to 1 July 2016, Millions of People



Over the last four decades, the United States suffered a serious reversal in the number of job gains compared to job losses. In the 1980s and 1990s, by a factor of almost 5:1, more workers entered the U.S. labor force than departed. From 2000 to 2010, the U.S. workforce not only shrank by 1.0 million workers but 15.2 million able-bodied adults left the labor force, for a net total loss of 16.2 million workers, largely due to the 2001 Recession (caused by the collapse of the dot-com bubble) and the 2007-2009 Great Recession (precipitated by the sub-prime mortgage crisis). From 2010 to 2016, labor force gains and losses have been relatively equal with 14.4 million gains and 10.7 million losses. If a major domestic financial crisis or recession does not transpire by 2020, Jobenomics projects 22.2 million new workforce entrants versus 16.5 voluntary departures for a net labor force gain of 5.7 million. This meager labor force gain of 5.7 million is insufficient to grow the economy and reverse the decline in the American middle-class.

324 Million Total U.S. Population



Today, 35% of all Americans financially support the rest of the country. Out of a total population of 324 million Americans, 112 million private sector workers support 32 million government workers and government contractors, 95 million able-bodied people who can work but chose not to work, 70

⁶ U.S. Bureau of Labor Statistics, Employment Projections: 2014-24 Summary, Table 2. Employment by major industry sector, 8 Dec 2015, <http://www.bls.gov/news.release/ecopro.nr0.htm>

million who cannot work (caregivers, children, retired and institutionalized citizens), and 15 million unemployed and underemployed.

The growing contingent labor force, which consists of lower paid wage earners, makes the overhead burden even more precarious. More people with livable wages and greater discretionary income must be productively engaged in the private sector labor force for the U.S. economy to flourish. Of the 112 million workers in the private sector labor force, 70 million individuals work full-time, 26 million are part-timers (less than 35 hours per week) and 15 million are self-employed. The 41 million part-time and self-employed workers are part of the ever-growing contingent workforce that represents approximately 40% of today's workforce.

By 2030, or sooner, Jobenomics forecasts that contingency workers will be the dominant (over 50%) component of the U.S. workforce. This forecast is based on seven factors: (1) increasing labor force losses versus labor force gains, (2) adverse corporate hiring and employment practices, (3) revolution in energy and network technologies, (4) automation of manual and cognitive jobs, (5) impact of the emerging digital economy, (6) shift from full-time, to part-time and task-oriented labor, and (7) cultural differences of new labor force entrants.

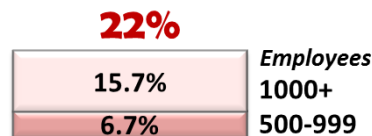
The U.S. economy cannot be sustained by 34% supporting an overhead of 66% as well as the growing contingent labor force that is replete with lower paid wage earners. More people with livable wages and greater discretionary income must be productively engaged in the private sector labor force for the U.S. economy to flourish.

Job creation involves business creation, especially small business creation. Jobs do not create jobs, businesses do, especially small businesses. American small businesses (less than 500 employees) created 77.7% of all new jobs this decade. Last month, June 2016, small businesses created 85.4% of all new jobs. Small businesses are important from a long-term unemployed and part-time worker point-of-view, both of whom face employment challenges. Small businesses tend to hire these demographics at a far greater rate than large businesses that can be choosy about whom they hire.

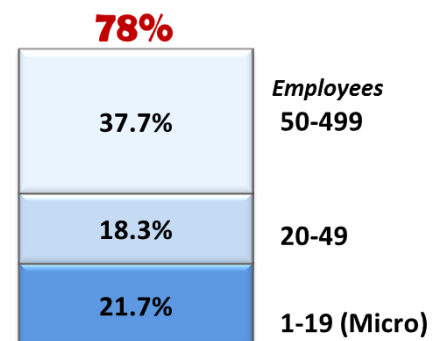
Today, small businesses employ 78% in the U.S. private sector with a total of 95 million employees, which is over 3.5 times the amount of large corporations with 500+ employees. Equally important, micro businesses with less than 19 employees employ 69% more than major corporations with 1000+ employees.

Percent of New U.S. Jobs Produced This Decade (1 January 2010 - 1 July 2016)

Source: ADP, Jobenomics



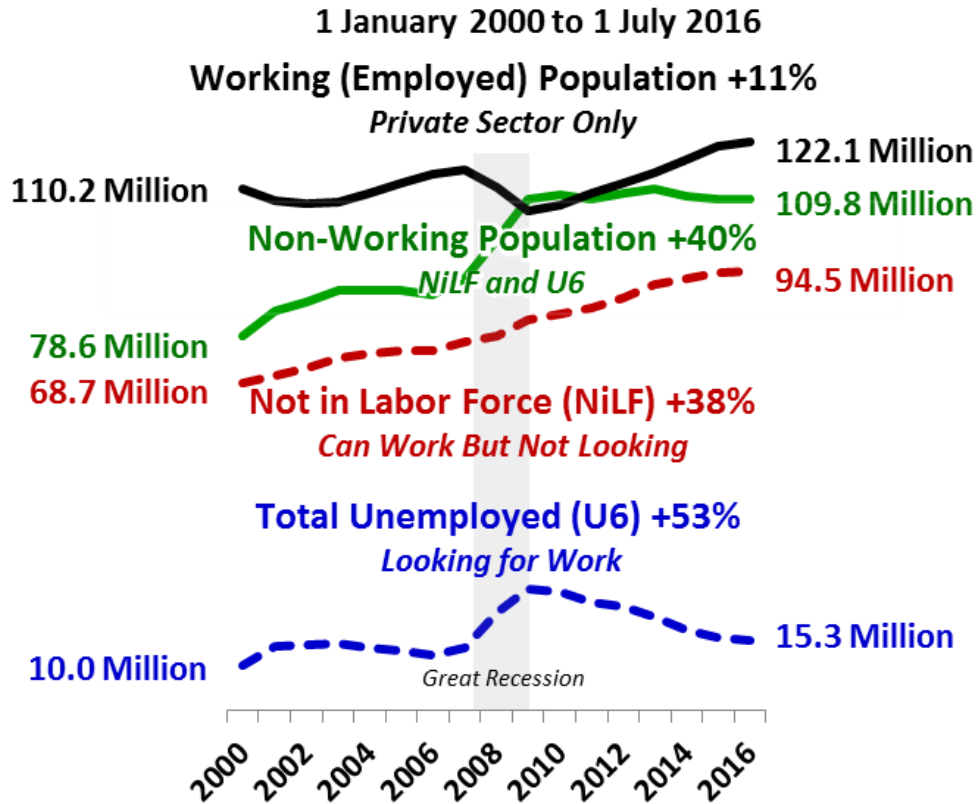
Big Business



Small Business

Without a viable small business creation and sustainment strategy, the U.S. economy is unlikely to prosper as it did in the 20th Century.

Working versus Non-Working Populations



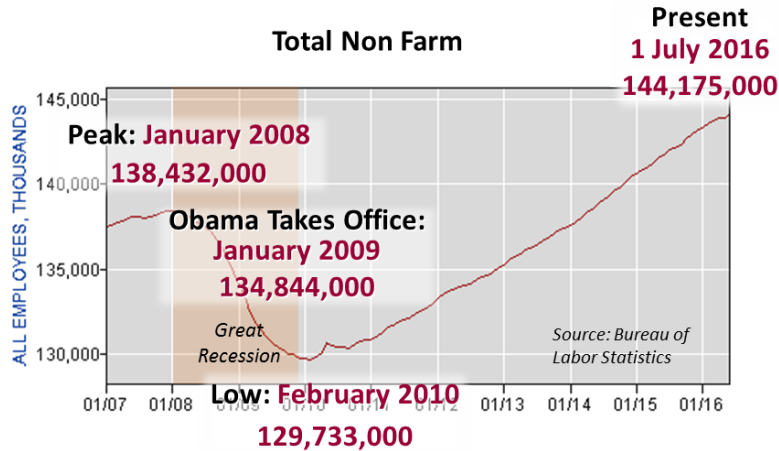
To get a strategic snapshot of the state of the U.S. labor force, one must compare the Working Population (Employed) against the Non-Working Population (Unemployed and Not-in-Labor-Force).

From 2000 through Q2 2016, the Working (Employed) population rose by 11% compared to the Non-Working Population rise of 40%. Jobenomics defines the Non-Working Population as Not-in-Labor Force (that rose by 38%) and Total Unemployed (that still 53% higher today than year 2000).

If these trends continue, Jobenomics predicts that the U.S. Not-in-Labor-Force will equal the Employed population by the mid-2020s, or sooner if the United States suffers a major financial crisis. From a Jobenomics perspective, small business expansion is the best antidote for mitigating any future financial crisis, as well as providing the biggest bang for the buck in strengthening the U.S. labor force, growing the economy and stemming the erosion of the middle-class.

Current U.S. Employment and Labor Force Statistics

Recent U.S. Employment History



Jobs Gained/Lost (Millions)	
Peak to Low	-8.7
Low to Present	14.4
Obama Tenure	9.3
Decade (10s)	14.4

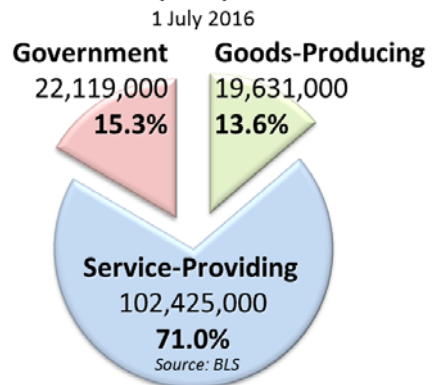
Prior to the Great Recession, peak employment was 138,365,000. When President Obama took office during the Great Recession, employment was 134,844,000 and continued its downward slide to a low of 129,733,000 in February 2010 for a net loss of 8.7 million jobs. Since then, the United States has recovered lost jobs and achieved a new employment peak of 144,175,000 for a net gain of 14.4 million jobs.

While the steady improvement in employment gains is positive news, employment growth has been very slow compared to past recoveries. As discussed throughout this report and the Jobenomics Unemployment Analysis, these employment gains are largely offset by (1) massive voluntary labor force departure of discouraged citizens who simply quit looking for work, (2) the transition from a standard full-time workforce to a part-time contingency workforce, and (3) population gains of over 22 million new American citizens since beginning of the Great Recession.⁷

Of the 144,175,000 employed Americans,

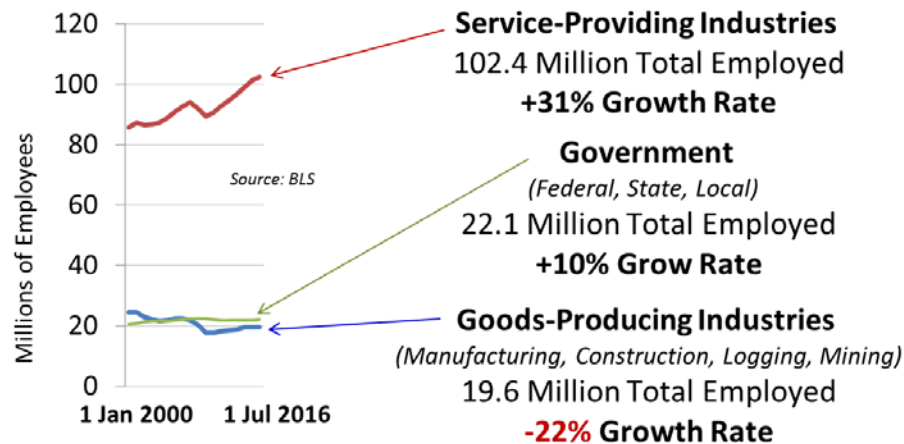
- 71.0% work in seven private sector service-providing industries (Professional & Business Services; Education & Health Services; Trade, Transportation & Utilities; Financial Activities; Leisure & Hospitality; Information; and Other Services),
- 15.3% work at three government levels (Federal, State and Local),
- 13.6% are employed in three private sector goods-producing industries (Manufacturing, Construction and Mining & Logging).

Total US Employment 144,175,000



⁷ Note: the U.S. population in 2008 was 301 million compared to 323 million today. If today's 143,774,000 peak employment was adjusted for population growth, it would equate to approximately 133,486,000, which is below the 2008 peak of 138,365,000. Calculation: Adjusted Peak Employment to 2008 Level=(143M x 301M)/323M=133,486,000.

U.S. Employment Trends since 2000



Since year 2000, U.S. employment and employment growth has been mainly in service-providing industries that have grown by 31% with 102.4 million Americans now employed. Government employs 22.1 million and has grown at a rate of 10% over the same period of time. However, government employment has decreased in the last several years and is likely to continue to do so due to budget constraints. U.S. goods-producing industries declined 22% since year 2000, now employing 19.6 million people—matching the goods-producing industry employment levels in June 1964 when the U.S. population was 180 million Americans. In 1964, 11% of the U.S. population was employed by goods-producing industries, compared to only 6% today.⁸

While the U.S. economy has enjoyed employment growth, as of July 2016, the United States produced only 75% (25% shortfall) this decade, as measured against the traditional benchmark of 250,000 jobs needed per month as advocated by most economists.

Total Jobs Creation in the 2010s

Employment <i>Source: BLS</i>	1 Jan 2010	1 Jul 2016	Change	% of New Jobs Created
Total US	129,774,000	144,175,000	14,401,000	100.0%
Total Private Sector	107,292,000	122,056,000	14,764,000	102.5%
Total Government	22,482,000	22,119,000	(363,000)	-2.5%

Monthly Average (78 Months) 184,628

Jobs Needed (Traditional Benchmark) 250,000

Shortfall of Jobs Needed 26%

The U.S. private sector created 14,764,000 jobs and government (Federal, State and Local) lost 363,000 jobs, for a net gain of 14,001,000 net new jobs this decade.

⁸ Calculation: Adjusted Goods-Producing Jobs to 1964 Population Level=19.6M/180M=10.9%, Today=19.6M/324M=6.0%

Private Sector and Government Jobs Creation in the 2010s

Employment <i>Source: BLS</i>	1 Jan 2010	1 Jul 2016	Change	% of New Jobs Created
Total Private Sector	107,292,000	122,056,000	14,764,000	100.0%
Private Sector Service-Providing	89,500,000	102,425,000	12,925,000	87.5%
Private Sector Goods-Producing	17,792,000	19,631,000	1,839,000	12.5%

Total Government	22,482,000	22,119,000	(363,000)	100.0%
Federal Gov't	2,831,000	2,782,000	(49,000)	13.5%
State Gov't	5,150,000	5,105,000	(45,000)	12.4%
Local Gov't	14,501,000	14,232,000	(269,000)	74.1%

Within the private sector, American service-providing industries created 12,925,000 jobs (87.5% of private sector jobs) compared to the goods-producing industries with 1,839,000 jobs (12.5%).

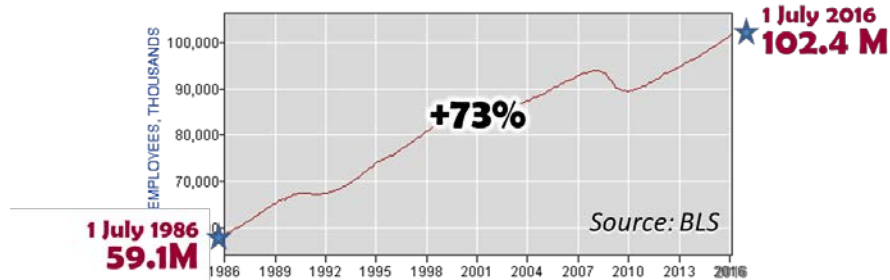
Within the government sector, Local government lost the majority of jobs (269,000 or 74.1% of total government job losses), which consisted mostly teacher, firefighter and police positions. Federal and State governments shed 49,000 (13.5%) and 45,000 (12.4%) jobs, respectively. Note: U.S. Armed Forces (which are also downsizing) are not included in these government figures.

Current employment, new jobs this decade and job losses for this decade are shown for each of the major U.S. industries/agencies. U.S. service-providing industries provide the vast amount of jobs (102M) and employment growth (12.9M) this decade. U.S. government agencies employ the second largest amount of people (22M) but downsized (0.4M) jobs this decade. U.S. goods-producing industries provide the least amount of jobs (19.6M) and are struggling to provide meaningful numbers of new jobs (1.8M).

Service-Providing Industry Sector Trends.

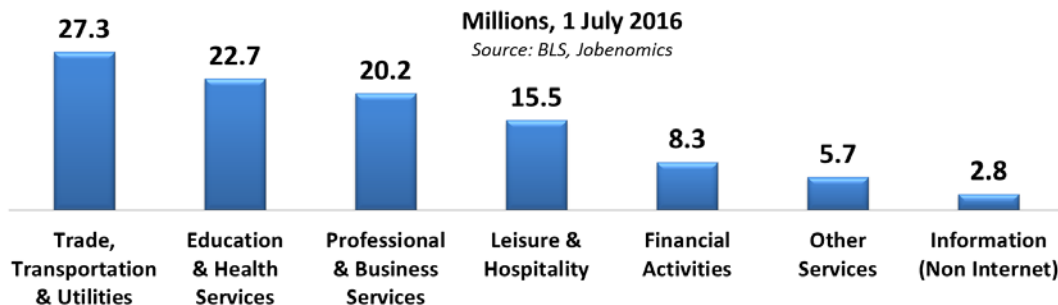
Service-providing industry sector employment is 102,425,000. Since 1 January 2010, this sector gained 12,925,000 jobs, a growth rate of 14.4%.

U.S. Service-Providing Industry Sector Trends Three Decades



The service-providing industry sector grew 73% over the last three decades.

U.S. Service-Providing Industry Supersector Employment Size



Today, the U.S. service-providing industry employs people across seven supersectors ranging from a high 27.3 million employees in the Trade, Transportation & Utilities supersector to a low of 2.8 million in the Information (Non Internet) supersector.

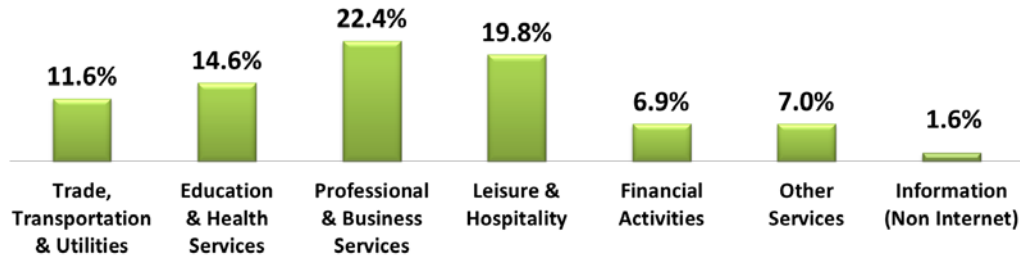
Since year 2010, the U.S. service-providing industry created 12,925,000 new jobs, which equates to 87.5% of all new jobs created by the private sector. The remaining 12.5% was created by private sector goods-producing industries. A breakdown of each service-providing supersector, ranked in order by the number of new jobs created between 1 January 2010 and 1 July 2016 (78 months) are:

- (1) **Professional & Business Services:** 3,683,000 new jobs or 28% of the total of new jobs produced by the U.S. service-providing industries
- (2) **Education & Health Services:** 2,884,000 new jobs or 22% of total
- (3) **Trade, Transportation & Utilities:** 2,850,000 new jobs or 22% of total
- (4) **Leisure & Hospitality:** 2,558,000 new jobs or 20% of total
- (5) **Financial Activities:** 537,000 new jobs or 4% of total
- (6) **Other Services:** 370,000 new jobs or 3% of total
- (7) **Information (Non-Internet):** 43,000 new jobs or 0.3% of total

U.S. Service-Providing Industry Supersector Employment Growth

1 January 2010 to 1 July 2016

Source: BLS, Jobenomics

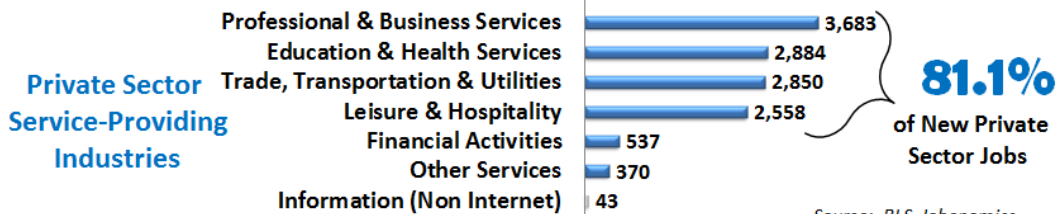


Of the service-providing industries, all seven have now gained jobs since the Great Recession. The four fastest growing industries are Professional & Business Services (22.4%), Leisure & Hospitality (19.8%), Education & Health Services (14.6%) and Trade, Transportation & Utilities (11.6%). These vitally important four sectors created 81.1% of all new jobs this decade.

U.S. Service-Providing Industry Supersector Trends This Decade

1 January 2010 to 1 July 2016

Thousands of Jobs



Source: BLS, Jobenomics

(1) Professional & Business Services supersector (3,683,000 new jobs) includes Professional and Technical Services, Management of Companies and Enterprises, and Administrative and Waste Services—all of which grew 20% or greater during this decade.

The Administrative and Waste Services sector created 1,802,000 new jobs since 2010. However, most of these jobs involved part-time contingent workforce positions. Temporary help workers grew by 53% creating 1,008,000 temporary jobs alone. Services to commercial buildings and residential dwellings, which are dominated by independent contractors, who are part of the contingent workforce, added and additional 321,000 jobs.

The Professional and Technical Services sector created

Professional & Business Services Trends This Decade

Source: BLS CES6000000001, Seasonally Adjusted

	1-Jan-10	1-Jul-16	New Jobs	% Growth
	Jobs (000s)		(000s)	
Professional and Business Services	16,475	20,158	3,683	22%
Professional and Technical Services	7,426	8,890	1,464	20%
Legal Services	1,109	1,124	14	1%
Accounting and Bookkeeping Services	898	1,017	119	13%
Architectural and Engineering Services	1,292	1437.5	146	11%
Specialized Design Services	116	143	27	23%
Computer Systems Design and Related Services	1,420	1,990	570	40%
Management and Technical Consulting Services	999	1,335	336	34%
Scientific Research and Development Services	617	673	56	9%
Advertising and Related Services	408	496	88	21%
Other Professional and Technical Services	568	675	107	19%
Management of Companies and Enterprises	1,848	2,266	418	23%
Administrative and Waste Services	7,200	9,002	1,802	25%
Administrative and Support Services	6,849	8,596	1,747	26%
Office Administrative Services	403	490	87	22%
Facilities Support Services	135	144	9	7%
Employment Services (Non-Temporary)	630	668	38	6%
Temporary Help Services	1,894	2,902	1,008	53%
Business Support Services	811	911	100	12%
Travel Arrangement and Reservation Services	188	205	17	9%
Investigation and Security Services	779	898	119	15%
Services to Buildings and Dwellings	1,739	2,060	321	18%
Other Support Services	269	319	49	18%
Waste Management and Remediation Services	351	405	54	15%

1,464,000 jobs. Computer and technical services were outstanding performers with growth rates of 40% and 34% creating 570,000 and 336,000 new jobs, respectively.

Management of Companies and Enterprises sector added 418,000 jobs. This sector is comprised of approximately 51,000 American private business firms. Some firms operate by holding securities and other equity interests of companies for the purpose of owning a controlling interest and influencing management decisions. Others oversee and manage establishments belonging to other companies or enterprises. These management companies typically administer strategic or planning decisions.

(2) Education & Health Services supersector (2,884,000 new jobs) includes Education Services and Healthcare and Social Assistance, growing at 14% and 15% since January 2010.

The Healthcare and Social Assistance sector added 2,640,000 jobs—the largest of any single private sector industry.

The Healthcare subsector is the second largest producer of jobs (Food Services and Drinking Places was first) with 1,882,000 new positions. Outpatient and home healthcare occupations grew at the fastest rates, while established medical offices and hospitals added the most staff. Nursing care and mental health facilities were the lowest performers due to the high cost of managed and skilled care facilities. However, Community Care Facilities that provide in-home residential care for the elderly grew at rate of 23% and added 165,000 new jobs. Jobenomics forecasts that a “direct-care” industry will continue to grow significantly in the future due largely due to retiring baby boomers who prefer to retire at home or cannot afford managed or skilled care.

Education & Health Services Trends This Decade

Source: BLS CES5000000001, Seasonally Adjusted

	1-Jan-10	1-Jul-16	New Jobs	% Growth
	Jobs (000s)		(000s)	
Education and Health Services	19,801	22,685	2,884	15%
Educational Services	3,108	3,533	424	14%
Healthcare and Social Assistance	16,692	19,153	2,460	15%
Healthcare	13,655	15,537	1,882	14%
Ambulatory Healthcare Services	5,882	7,119	1,237	21%
Offices of Physicians	2,302	2,605	303	13%
Offices of Dentists	815	935	120	15%
Offices of Other Health Practitioners	655	858	203	31%
Outpatient Care Centers	581	776	195	34%
Medical and Diagnostic Laboratories	223	259	35	16%
Home Healthcare Services	1,059	1,394	335	32%
Other Ambulatory Healthcare Services	247	293	46	18%
Hospitals	4,671	5,088	418	9%
Nursing and Residential Care Facilities	3,102	3,330	228	7%
Nursing Care Facilities	1,651	1,661	11	1%
Residential Mental Health Facilities	564	613	50	9%
Community Care Facilities For the Elderly	728	893	165	23%
Other Residential Care Facilities	161	163	2	1%
Social Assistance	3,038	3,616	578	19%
Individual and Family Services	1,640	2,208	569	35%
Emergency and Other Relief Services	139	156	16	12%
Vocational Rehabilitation Services	410	335	-75	-18%
Child Day Care Services	849	916	68	8%

The Social Assistance subsector created 578,000 jobs with Individual and Family Services providing 98% of the Social Assistance total. Individual and Family Services includes child and youth services, and services for the elderly and persons with disabilities. Vocational Rehabilitation Services was the worst performer with a loss of 75,000 jobs and a negative 18% growth rate. Vocational Rehabilitation Services are comprised of federal-state programs that help people who have physical or mental disabilities get or keep a job, or helping people with disabilities find meaningful careers. From a Jobenomics perspective, this trend must be reversed.

(3) Trade, Transportation & Utilities supersector (2,850,000 new jobs) includes Wholesale Trade, Retail Trade, Transportation and Warehousing and Utilities growing at 8%, 11%, 19% and 2% respectively.

In the Wholesale and Retail Trade sector, automotive dealers and nonstore (online and big box) retailers were the outstanding performers, with Electronic Markets and Agents and Dealers growing at 14%. Department Store jobs are down 143,000 jobs, or 10%,) but were more than replaced by warehouse clubs and supercenters (e.g., COSTCO and WalMart) that added 419,000 jobs (most of which were part-time contingent workers) for growth rate of 29% over the last 6 ½ years.

In Transportation subsector, Air, Rail, Water Transportation industries suffered downturns. Whereas Truck Transportation, Couriers and Messengers (e.g., FedEx and UPS), and Transportation Support Activities (mechanics, drivers, dispatchers, material movers) scored substantial gains.

Surprisingly, the highest performer in the entire sector was Warehousing and Storage subsector that provide 243,000 new jobs and posted a growth rate of 39%. The bulk new jobs included freight, stock and material movers and drivers. The proliferation self-storage businesses has significantly contributed to the growth of this industry.

Equally surprisingly, weakest performer was the Utilities sector that employs 565,000 with a net growth rate of only 2%. The Utilities sector comprises establishments engaged in the provision of the following utility services: electric power, natural gas, steam supply, water supply, and sewage removal.

Trade, Transportation & Utilities Trends This Decade

Source: BLS CES4000000001, Seasonally Adjusted

	1-Jan-10	1-Jul-16	New Jobs (000s)	% Growth
	Jobs (000s)			
Trade, Transportation and Utilities	24,473	27,323	2,850	12%
Wholesale Trade	5,475	5,925	450	8%
Durable Goods	2,727	2,948	221	8%
Nondurable Goods	1,943	2,062	119	6%
Electronic Markets and Agents and Brokers	805	915	110	14%
Retail Trade	14,325	15,952	1,628	11%
Motor Vehicle and Parts Dealers	1,617	1,993	376	23%
<i>Automobile Dealers</i>	1,004	1,287	283	28%
<i>Other Motor Vehicle Dealers</i>	130	149	19	15%
<i>Auto Parts, Accessories and Tire Stores</i>	483	556	73	15%
Furniture and Home Furnishings Stores	439	484	45	10%
Electronics and Appliance Stores	510	529	19	4%
Building Material and Garden Supply Stores	1,138	1,285	147	13%
Food and Beverage Stores	2,802	3,106	304	11%
Health and Personal Care Stores	983	1,051	68	7%
Gasoline stations	819	920	102	12%
Clothing and clothing accessories stores	1,333	1,378	46	3%
Sporting goods, hobby, book, and music stores	580	633	53	9%
General Merchandise Stores	2,921	3,196	275	9%
<i>Department Stores</i>	1,459	1,315	-143	-10%
<i>Other General Merchandise Stores</i>	1,462	1,881	419	29%
Miscellaneous Store Retailers	767	843	76	10%
Nonstore Fetailers	417	536	118	28%
Transportation and Warehousing	4,117	4,880	763	19%
Air Transportation	461	471	10	2%
Rail Transportation	211	215	4	2%
Water Transportation	63	63	0	1%
Truck Transportation	1,241	1,453	212	17%
Transit and Ground Passenger Transportation	419	472	53	13%
Pipeline Transportation	43	48	5	13%
Scenic and Sightseeing Transportation	28	29	1	3%
Support Activities for Transportation	538	647	109	20%
Couriers and Messengers	493	618	125	25%
Warehousing and Storage	621	864	243	39%
Utilities	556	565	9	2%

(4) Leisure & Hospitality Industry supersector (2,558,000 new jobs) includes Arts, Entertainment and Recreation, and Accommodation and Food Services that grew at 19% and 20% respectively.

The Arts, Entertainment and Recreation sector produced 352,000 new jobs. 65% of new jobs in this sector was created by the Amusements, Gaming and Recreation subsector.

The Accommodation and Food Services sector was dominated by increased employment at restaurant, bars and mobile food services.

The Food Services and Drinking Places subsector posted the largest number of new jobs, 2,021,000, of any subsector in America. The vast majority of the jobs are part-time contingent workers such as cooks, wait staff, bartenders and bussers. The rise in these occupations is largely due to a slowly growing economy which could rapidly reverse itself if a financial reset occurs.

Leisure & Hospitality Industry Trends This Decade

Source: BLS CES700000001, Seasonally Adjusted

	1-Jan-10	1-Jul-16	New Jobs (000s)	% Growth
	Jobs (000s)			
Leisure and Hospitality	12,944	15,502	2,558	20%
Arts, Entertainment and Recreation	1,891	2,243	352	19%
Performing Arts and Dpectator Dports	392	481	89	23%
Museums, Historical Sites and Similar Institutions	128	160	32	25%
Amusements, Gambling and Recreation	1,371	1,603	231	17%
Accommodation and Food Services	11,053	13,259	2,206	20%
Accommodation	1,749	1,933	184	11%
Food Services and Drinking Places	9,305	11,326	2,021	22%

(5) Financial Activities Industry supersector (537,000 new jobs) includes Finance and Insurance, and Real Estate and Rental and Leasing that grew at 7% and 9% respectively.

Finance and Insurance sector growth was dominated by insurance-related activities that contributed 67% of the new jobs in this sector. Commercial Banking was the worse performer losing 39,000 jobs largely due to automation and weak industry growth. Credit Intermediation had the highest growth at 19%. Intermediation involves the matching of lenders with savings to borrowers who need money, loan or mortgage. The rise of corporate and individual debt, such as school loans, is fueling the rapid rise of this area.

Financial Activities Industry Trends This Decade

Source: BLS CES550000001, Seasonally Adjusted

	1-Jan-10	1-Jul-16	New Jobs (000s)	% Growth
	Jobs (000s)			
Financial Activities	7,743	8,280	537	7%
Finance and Insurance	5,784	6,147	362	6%
Monetary Authorities - Central Bank	21	18	-3	-13%
Credit Intermediation and Related Activities	2,551	2,599	48	2%
Depository Credit Intermediation	1,734	1,688	-45	-3%
Commercial Banking	1,306	1,267	-39	-3%
Nondepository Credit Intermediation	559	602	44	8%
Activities Related To Credit Intermediation	259	308	49	19%
Securities, Commodity Contracts, Investments, Funds, Trusts	852	925	73	9%
Insurance Carriers and Related Activities	2,361	2,605	244	10%
Real Estate and Rental and Leasing	1,959	2,133	174	9%
Real Estate	1,411	1,556	145	10%
Rental and Leasing Services	522	554	31	6%
Lessors of Nonfinancial Intangible Assets	26	23	-3	-10%

In the Real Estate and Rental and Leasing sector, Real Estate subsector (agents, brokers, property managers and office staff) contributed 145,000 out the total of 174,000 jobs in this sector. Lessors of Nonfinancial Intangible Assets (e.g., patents, trademarks, brand names, franchise agreements) was the worst performer, losing 10% of its workforce during this decade. Jobenomics considers this significant since it a signal of declining business and workforce innovation and entrepreneurialism.

(6) Other Services Industry supersector (370,000 new jobs) grew at 7% respectively.

The Personal and Laundry Services subsector added 167,000 jobs. Personal services included occupations like pet-care, photofinishing and parking attendants. Examples of Laundry Services include washing, drycleaning and linen and uniform supply services.

Other Services Industry Trends This Decade

Source: BLS CES8000000001, Seasonally Adjusted

	1-Jan-10	1-Jul-16	New Jobs (000s)	% Growth
	Jobs (000s)			
Other Services	5,320	5,690	370	7%
Repair and Maintenance	1,132	1,290	158	14%
Personal and Laundry Services	1,264	1,431	167	13%
Membership Associations and Organizations	2,923	2,970	47	2%

The Repair and Maintenance subsector added 158,000 jobs mainly in the computer, office machine, communication equipment, industrial machinery and other electronic and precision equipment related areas.

Membership Associations and Organizations, which employ almost 3 million people, grew at only 2%.

(7) Information Industry supersector (42,000 new jobs) is comprised of establishments engaged in: producing and distributing information and cultural products, providing the means to transmit or distribute these products as well as data or communications, and processing data. The Information sector groups three types of establishments: (1) those engaged in producing and distributing information and cultural products; (2) those that provide the means to transmit or distribute these products as well as data or communications; and (3) those that process data. Cultural products are those that directly express attitudes, opinions, ideas, values, and artistic creativity; provide entertainment; or offer information and analysis concerning the past and present. Included in this definition are popular, mass-produced, products as well as cultural products that normally have a more limited audience, such as poetry books, literary magazines, or classical records. Internet-related activities are excepted and accounted in other industries

Advanced web-based and digital economy services are replacing the traditional publishing, broadcasting and telecom industries, which downsized by 194,000 jobs this decade.

Information Industry Trends This Decade

Source: BLS CES5000000001, Seasonally Adjusted

	1-Jan-10	1-Jul-16	New Jobs (000s)	% Growth
	Jobs (000s)			
Information	2,744	2,787	43	2%
Publishing Industries, Except Internet	770	728	-42	-5%
Motion Picture and Sound Recording Industries	364	421	58	16%
Broadcasting, Except Internet	294	278	-16	-5%
Telecommunications	934	798	-136	-15%
Data Processing, Hosting and Related Services	246	300	55	22%
Other Information Services	137	262	125	92%

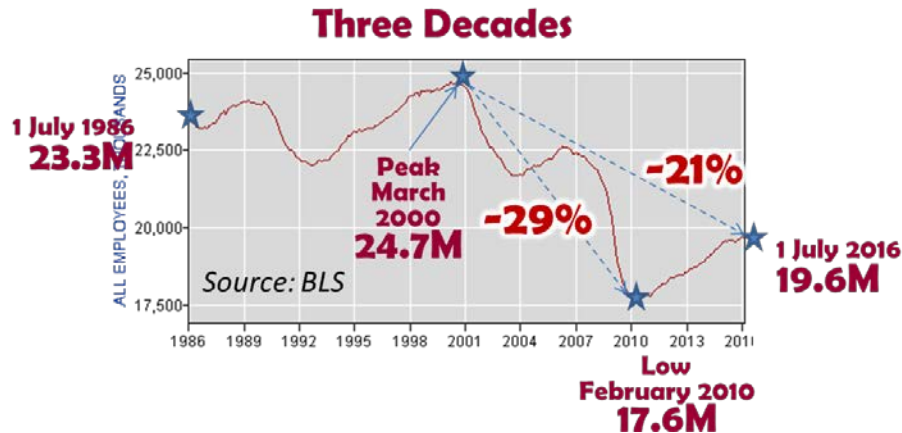
Increased popularity in Motion Picture and Music Industries added 58,000 jobs.

Industries known as Internet service providers and web search portals, data processing industries, and the information services industries provided the fast growth in the supersector with Information Services sector growing a rate of 92%—the highest growth rate of any sector.

Goods-Producing Industry Sector Trends.

Goods-producing industry sector employment currently is 19,631,000. Since January 2010, this sector gained 1,839,000 jobs, a growth rate of 10.3%.

U.S. Goods-Producing Industry Sector Trends



Over the last three decades, the U.S. goods-producing industry sector declined 21% since its 24.7 million peak in March 2000 (all-time post-WWII peak was 25.2 million in August 1979), which is a slight improvement over its recent low of 17.6 million in February 2010.

U.S. Goods-Producing Industry Sector Employment Size

Millions, 1 July 2016

Source: BLS, Jobenomics



Today, the goods-producing sector employs a total of 19,631,000 people across three industries: Construction, Manufacturing and Mining & Logging.

Since year 2010, the U.S. goods-producing sector created 1,839,000 new jobs, which equates to 12.5% of all new jobs created by the private sector. Employment statistics for the goods-producing industry sector are ranked by the number of new jobs created, from highest to lowest, between 1 January 2010 and 1 July 2016 (78 months):

- (1) **Construction:** 989,000 new jobs or 54% of the total of 1,891,000 new jobs produced by the U.S. goods-producing industries
- (2) **Manufacturing:** 821,000 new jobs or 45% of total
- (3) **Mining & Logging:** 29,000 new jobs or 2% of total (Note: this sector has lost jobs for 21 straight months, down from its September 2014 peak of 241,000 new jobs created this decade.)

U.S. Goods-Producing Industry Sector Employment Growth

1 January 2010 to 1 July 2016

Source: BLS, Jobenomics

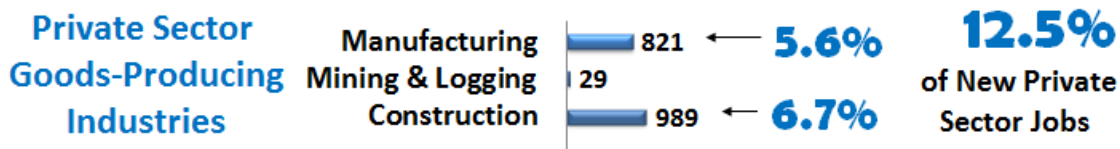


The fastest growing industry in the goods-producing sector is Construction (17.5%) followed by Manufacturing (7.2%) and Mining & Logging (4.4%). This is the second quarter since the Great Recession that Construction has posted stronger gains than the Mining & Logging industry. The explosive growth in the Mining & Logging industry was largely due to unconventional oil and natural gas extraction and related exploration and support activities. Unfortunately due to low oil prices and the downturn in the fracking industry, the unconventional oil and natural gas extraction and related exploration and support industries lost almost 212,000 jobs since its peak in September 2014. Jobenomics does not see an oil price increase for a least a year, but is optimistic that the unconventional oil and gas industry, dominated by small businesses and contingent workers, are resilient and will be able to reconstitute quickly when energy economic conditions improve. In addition, new U.S. industries, like Liquidified Natural Gas (LNG), will provide new employment opportunities for the unconventional oil and gas sector.

U.S. Goods-Producing Industries Trends This Decade

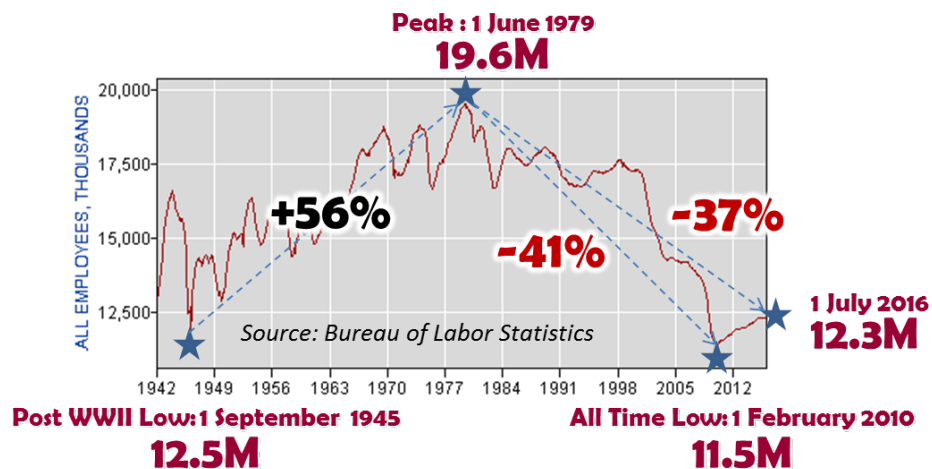
1 January 2010 to 1 July 2016

Thousands of Jobs



(1) Manufacturing Supersector Assessment. Manufacturing currently employs 12,296,000 people, which is not statistically significant from manufacturing's low employment point of 11,460,000 jobs in January 2010.

U.S. Manufacturing Employment since WWII



While the U.S. manufacturing industry added 821,000 jobs since the beginning of this decade, 5.6% of all new jobs created, it has a long way to go to achieve its peak level of 19.6 million in June 1979. Since peak, the U.S. manufacturing has declined by 37%.

U.S. Manufacturing Employment Last 12 Months



7 Gains, 5 Losses: Net Loss -29,000 Jobs

Over the last 12 months, manufacturing had 7 up-months and 5 down-months in terms of employment with a net decrease of 29,000 jobs.

As of the most recent BLS Job Openings and Labor Survey⁹, U.S. manufacturers have 415,000 open jobs (6.8% out of a total of 6,076,000 unfilled U.S. jobs)—largely due to a lack of skills.

Notwithstanding U.S. political rhetoric about increasing exports, re-shoring manufacturing jobs and increased labor productivity, Jobenomics forecasts limited upside employment potential in manufacturing due to excessive government regulation, improved automation, robotics, competitive foreign labor rates, and a lack of high-tech manufacturing skills in our civilian labor force.

From a wage perspective, manufacturing is no longer the high paying industry sector that it used to be, nor will it be in the future. According to US Berkeley Labor Center¹⁰ and the National Employment Law Project¹¹, contrary the public perception that manufacturing jobs are “good jobs”, manufacturing wages now rank in the bottom half of all jobs in the United States and are not even keeping up with inflation. In the largest segment of the American manufacturing base, automotive manufacturing, wages have declined further, falling three times faster than manufacturing as a whole and nine times faster than all occupations.

From a Jobenomics perspective, while manufacturing is critical element of the American economy, it should not be perceived as either a major employment or wage growth area. Furthermore, Jobenomics is concerned by the amount political and public emphasis placed on manufacturing growth as the primary sector for job creation even if America re-shores manufacturing jobs from foreign countries. This is not to imply that re-shoring should not occur, but even if it does technology

⁹ BLS, Table 7. Job openings levels and rates by industry and region, not seasonally adjusted, <http://www.bls.gov/news.release/jolts.t07.htm>

¹⁰ UC Berkeley Labor Center, Producing Poverty: The Public Cost of Low-Wage Production Jobs in Manufacturing, May 2016, <http://laborcenter.berkeley.edu/pdf/2016/Producing-Poverty.pdf>

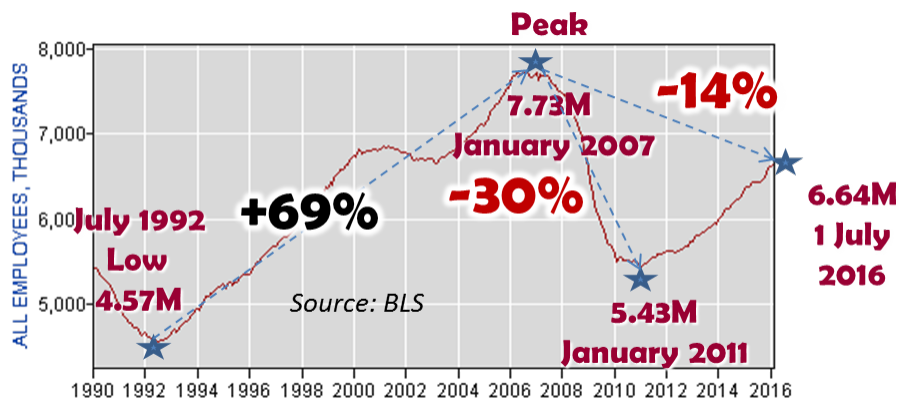
¹¹ National Employment Law Project, Manufacturing Low Pay: Declining Wages in the Jobs That Built America’s Middle Class, November 2014, <http://www.nelp.org/content/uploads/2015/03/Manufacturing-Low-Pay-Declining-Wages-Jobs-Built-Middle-Class.pdf>

is transforming manufacturing processes to be must more efficient and cost effective by automating current manual and cognitive work across the entire supply chain.

While manufacturing is vitally important to our nation, political emphasis needs to be on the high growth industries in the service sector. Manufacturing emphasis should be on protecting gains and focusing on next-generation manufacturing technology, processes and recapitalization as opposed to looking to this sector as a principle supplier of “good” jobs. While Jobenomics enthusiastically supports on-shoring or re-shoring manufacturing to the United States, this practice should be done for self-sufficiency and security reasons rather than a pure jobs or wages perspective.

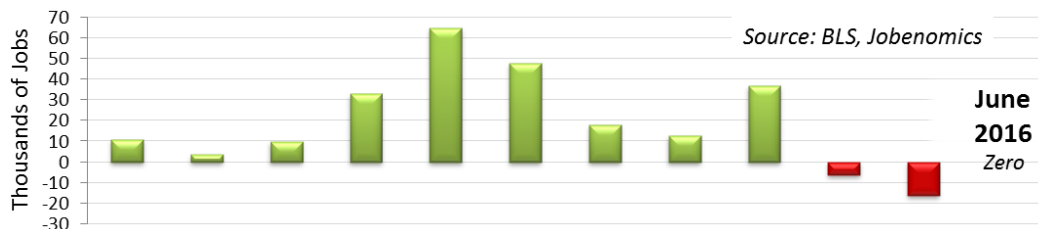
(2) Construction Supersector Assessment. Even though the construction industry is showing signs of employment growth, the construction sector continues to struggle after a rapid rise (69%) during the go-go years in the 1990s and the housing bubble in the early 2000s.

U.S. Construction Industry Employment



In January 2007, peak construction employment was 7,725,000. Today, it is 6,643,000, a loss of 14%. The good news is that construction employment stopped its decline and increased from its post-recession low of 5,432,000 in January 2011. Since the beginning of this decade, the construction industry created 6.7% of all new jobs created in the United States.

U.S. Construction Industry Employment Last 12 Months

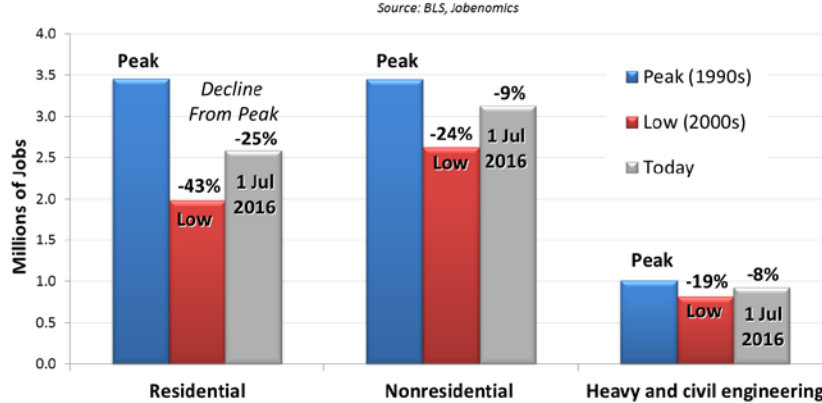


9 Gains, 2 Losses, 1 Zero Gain: Net Gain +217,000 Jobs

Over the last 12 months, construction had 9 gain months, 2 loss months and 1 zero gain month in terms of employment with a net increase of 217,000 jobs. As significant as this increase is, 217,000 jobs equates 11% of a total of 2,681,000 new jobs produced across all private sector industries over the last year.

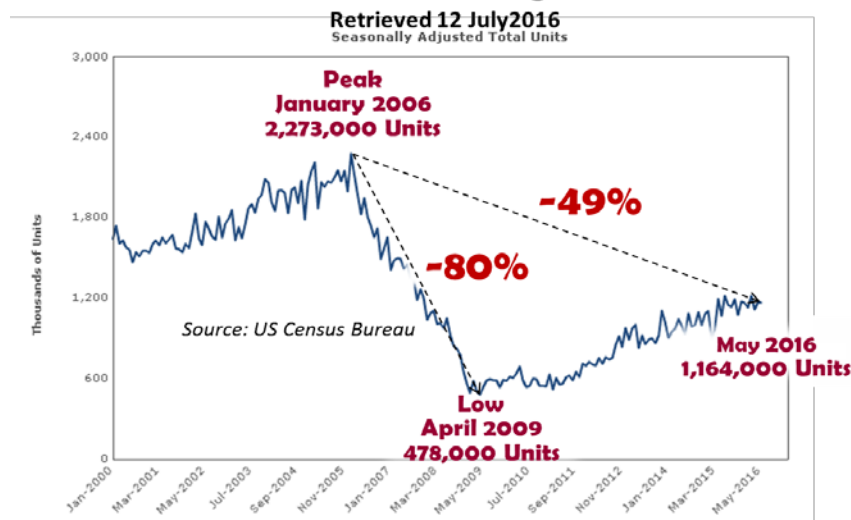
As of the most recent BLS Job Openings and Labor Survey, U.S. construction companies have 200,000 open jobs (3.3% out of a total of 6,076,000 unfilled U.S. jobs).

U.S. Construction Industry Recovery From Peak Employment, to Great Recession Low, thru Q2 2016



Residential construction employment has been the hardest hit segment with a 43% decrease from its pre-recession peak (3,451,000) to its post-recession low (1,982,000). Today, residential construction employment is still down from its peak by 25% with a total employment of 2,586,000. Nonresidential construction fared slightly better with losses of 24% from peak and 9% today with 3,125,000 workers. The heavy and civil engineering sector fared the best losing 19% from peak and down only 8% today with a total of 933,000 employed.

New U.S. Residential Construction Annual Rate for Housing Units Started



Residential construction usually leads economic recoveries. However, this recovery by residential construction has been slow to respond and still has a long way to go. As shown, according to U.S. Census Bureau Data, new residential starts dropped from a peak 2,273,000 in 2006 to a low of 478,000 in April 2009.¹² New residential construction starts were 1,164,000 in May 2016, which

¹² U.S. Census Bureau, Business and Industry, Time Series/Trend Charts, New Residential Construction, Annual Rate for Housing Units Started, http://www.census.gov/construction/nrc/historical_data/

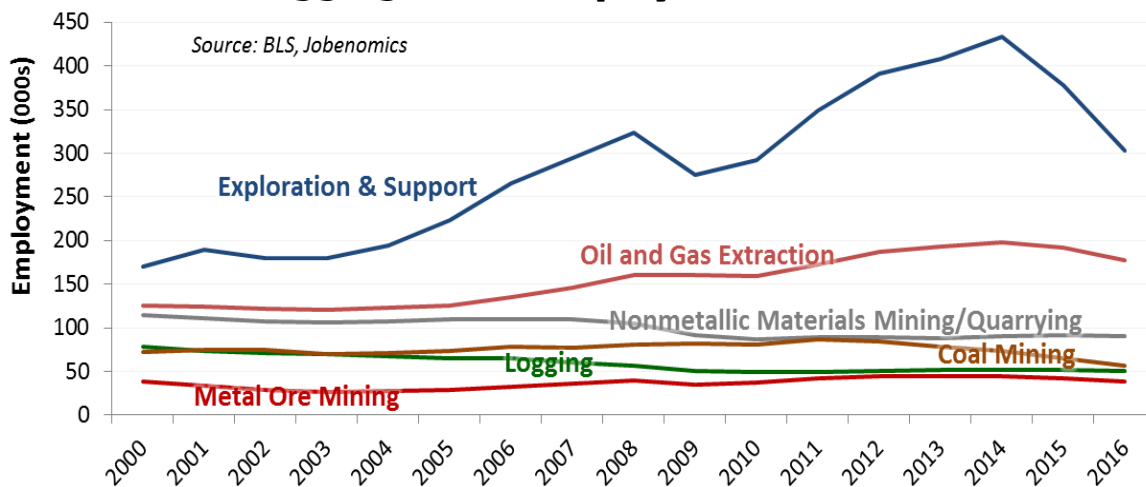
represents an improvement from a 80% decrease in April 2009 to a 49% decrease today from the January 2006 peak. If Jobenomics is correct about the possibility of a financial crisis or recession in the next few years, residential construction will be the first to suffer employment losses.

The Census Bureau also reports¹³ that U.S. home ownership rates have dropped to its lowest level since 1989 and down 5.5% from its high in 2004. This drop is due to less affordable housing, more restrictive lending, fewer first-time buyers who are renting rather than buying, and people who have dropped out of the housing market. On the other hand, many economists believe that the residential housing market has bottomed as indicated by the upward trend of housing unit starts from April 2009 to today. Bullish economists also point to decreasing unemployment rates and “pent up demand” as reasons to expect a construction boom that could create as many as 250,000 construction jobs if residential starts reach peak levels in the mid-2000s.

Despite these positive trends, Jobenomics forecasts that the residential construction industry will not produce a significant number of new jobs for the remainder of this decade due to global economic uncertainty, the large number of foreclosures/underwater mortgages still on the market, large numbers of affordably-priced existing homes for sale, an exodus of abled-bodied citizens voluntarily leaving the labor force, the likelihood of an interest rate hike by the Federal Reserve, and changing attitudes to the value of homeownership. Due to the uncertain economy and government deficits, commercial and heavy construction are also unlikely to produce significantly higher numbers of domestic jobs.

(3) Mining & Logging Supersector Assessment. From 1 January 2010, mining increased employment from 663,000 jobs to a peak of 904,000 jobs by September 2014 , an increase of 36%. However, since the September 2014 peak, the U.S. Mining & Logging industry lost a total of 212,000 jobs over the last 21 months largely due to depressed commodity prices and foreign competition.

U.S. Mining (Oil, Gas, Minerals, Coal) & Logging Sector Employment Trends



¹³ U.S. Census Bureau, Table 14. Homeownership Rates for the U.S. and Regions: 1965 to Present, <http://www.census.gov/housing/hvs/data/histtabs.html>

Mining exploration and support employment has more than doubled in the last decade. However, over the last nine months, the high-flying Exploration & Support segment lost 187,200 jobs (21% drop) since September 2014 largely due to fracking industry downturn and drop in oil prices.

Oil and gas extraction companies suffered a loss of 28,500 jobs (14% drop) since October 2014 largely due to drop in oil prices and competition in the unconventional oil and gas sector from foreign oil producers, namely OPEC, Russia and the newly unsanctioned state-run Iranian producers.

Nonmetallic materials mining and quarrying companies have been in decline since January 2000 with a loss of 23,500 jobs (22%) largely due to imports from foreign producers.

Metal ore mining has undergone a similar decline with the loss of 6,900 jobs (15% drop) due to stringent EPA environmental regulations and lower commodity prices. However, this may change as commodity prices (gold, silver, copper) increase as well as worldwide demand for these commodities increase.

Coal mining and logging are not likely to increase anytime soon due to environmental pressure and the emphasis on clean renewable technology. Coal mining has dropped 41% (loss of 37,000 jobs) from its January 2012 peak, largely due to Presidential renewable energy initiatives, such as the Clean Power Plan, and increasing stringent Environment Protection Agency regulations targeted at coal-fired power plants.

Logging has lost 29,700 (15% drop) since January 2000 largely due to the downturn in the housing sector, new environmental restrictions on logging in federal forests and the rise of environmentalism.

Government Employment Sector. Total government sector employment currently is 22,082,000. Since 1 January 2010, government has lost 400,000 jobs, a negative 1.8% growth rate.

U.S. Government Employment This Decade

Employment <i>Source: BLS</i>	1 Jan 2010	1 Jul 2016	Change	%
Local	14,501,000	14,232,000	(269,000)	74.1%
State	5,150,000	5,105,000	(45,000)	12.4%
Federal	2,831,000	2,782,000	(49,000)	13.5%
Total	22,482,000	22,119,000	(363,000)	100%

The government sector continued to lose jobs with 74.1% of all job losses occurring within local government, 12.4% at the state level, and 13.5% in the federal government (not including military, which is also downsizing). Jobenomics predicts that government job losses will continue to decline due to the effects of debt and deficit spending. In addition, if the U.S. economy suffers an economic disruption due to either domestic or foreign events, government spending will likely decrease further.

U.S. Government Employment Trends

Source: BLS CES900000001, Seasonally Adjusted

	1-Jan-10		1-Jul-16		New Jobs (000s)	% Growth
	Jobs (000s)	% of Total	Jobs (000s)	% of Total		
Government	22,482	100%	22,119	100%	-363	-2%
Federal, except U.S. Postal Service	2,831	12.6%	2,782	12.6%	-49	-2%
Federal, excluding U.S. Postal Service	2,170	76.7%	2,173	78.1%	3	0%
U.S. Postal Service	661	23.3%	608	21.9%	-53	-8%
U.S. Armed Forces	<i>Not Included</i>					
State	5,150	22.9%	5,105	23.1%	-45	-1%
State government, excluding education	2,791	54.2%	2,672	52.3%	-120	-4%
State government education	2,359	45.8%	2,434	47.7%	75	3%
Local	14,501	64.5%	14,232	64.3%	-269	-2%
Local government, excluding education	6,430	44.3%	6,392	44.9%	-38	-1%
Local government education	8,072	55.7%	7,835	55.1%	-237	-3%

This chart examines government trends for this decade. Out of total of the 144,175,000 nonfarm civilian labor force, there are 22,119,000 government employees, or 15% of the labor force.

Government downsizing has been relatively equal over the last 6 ½ years with the Federal government employees staying constant at 12.6% of all U.S. government employees, State government employees growing slightly from 22.9% in 2010 versus 23.1% today, and Local government employees decreasing very slightly from 64.5% in 2010 to 64.3% today.

At the Federal level, 49,000 jobs were lost during the period with only 3,000 jobs lost in regular (non-Postal Service) employment. The U.S. Postal Service was the biggest loser with an 8% downturn and the loss of 53,000 jobs. To some degree this downturn was expected with the rise of commercial carriers, like FedEx and UPS, and the country's transition from regular mail to e-mail.

Federal government statistics include only noninstitutional personnel. The U.S. Armed Force is one of the largest institutionalized groups with approximately 2,882,000 active (1.3 million), Guard (0.45 million), selected reserve (0.36 million) and Department of Defense civilians (0.79 million). Over the last four decades, the active duty component has downsized from a peak of 3.5 million to 1.3 million today, with further cuts on the horizon.

At the State level, regular State government employees lost 120,000 jobs (-4%) and State government education employees (State university professors and staff) lost 75,000 jobs (-3%). During the time period, State government education increased from 45.8% of the State government workforce to 47.7% today.

At the Local level, regular Local government employees lost 38,000 jobs (-1%) and Local government education employees (teachers and staff) lost 237,000 jobs (-3%). During the time period, Local government education decreased from 55.7% of the Local government workforce to 55.1% today.

Small Business Statistics and Trends

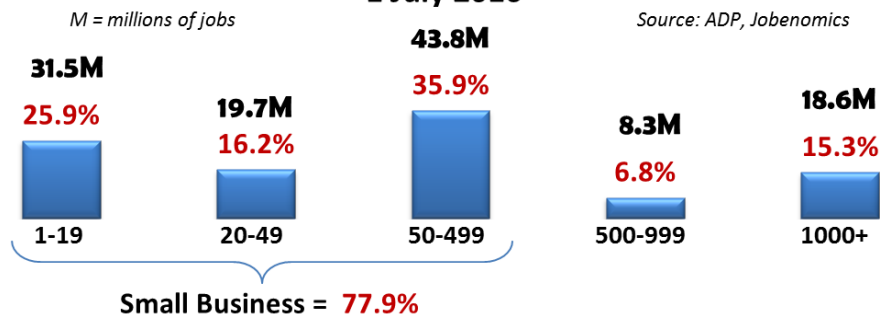
Private sector businesses employ 85% of the U.S. workers (122 million workers out of a 144 million nonfarm civilian labor force within a total population of 324 million).

There are 28.4 million U.S. small businesses with less than 500 employees compared to 17,700 big businesses with over 500 employees.¹⁴ Of the 28.4 million small businesses, 5.7 million had employees and 22.7 million were nonemployers (incorporated and unincorporated self-employed, sole proprietorships, etc.).

As reported by the ADP National Employment Report (a monthly survey of 400,000 U.S. businesses by the ADP Research Institute in close collaboration with Moody's Analytics), small business is the dominant employer and job creator in the United States.

U.S. Private Sector Employment by Company Size

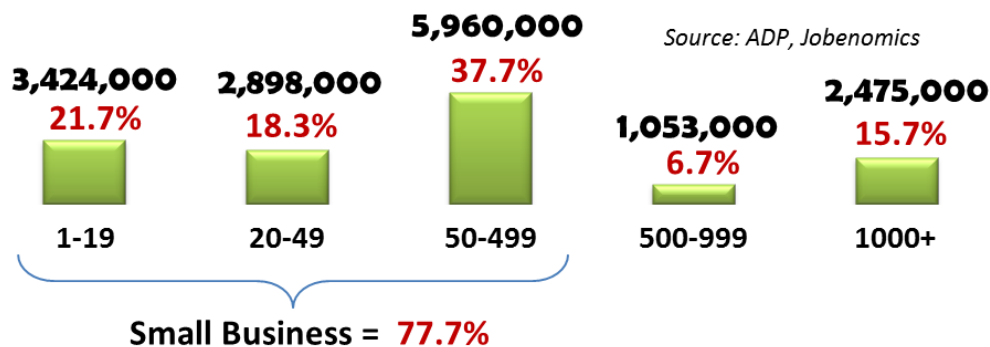
1 July 2016



Today, small businesses (companies with less than 500 employees as defined by the U.S. Small Business Association) employ 77.9% of all private sector Americans with a total of 95,033,000 employees—over 3.5 times the amount of large businesses with more than 500 employees. Micro and self-employed businesses with 1-19 employees employ 69% more than major corporations with over 1000 employees (31.5 million versus 18.6 million).

U.S. Jobs Created This Decade by Company Size

1 January 2010 to 1 July 2016 (78 Months)

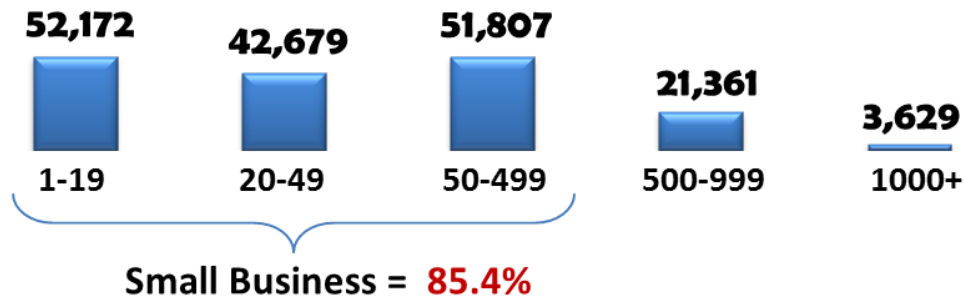


¹⁴ U.S. Small Business Association (SBA), Office of Advocacy, Frequently Asked Questions, retrieved 19 October 2015, https://www.sba.gov/sites/default/files/FAQ_March_2014_0.pdf & Small Business Profiles Offer Valuable Insight into States' Economies, February 2015, https://www.sba.gov/sites/default/files/Small_Business_Advocate_Feb_2015.pdf

U.S. Jobs Created Last Month by Company Size

June 2016

Source: ADP, Jobenomics



Since the beginning of this decade, small business produced 77.7% of all new American jobs. In June 2016, small businesses created 85.4% of all new American jobs. This is an amazing statistic considering the adverse lending environment by financial institutions, mounting government regulation, and the limited amount of U.S. government spending on small business creation as contrasted to government incentives and low interest loans afforded to big business.

According to the Kaufmann Foundation, a leading U.S. foundation focused on education and entrepreneurship, “business startups account for about 20% of US gross (total) job creation while high-growth businesses (which are disproportionately young) account for almost 50% of gross job creation.”¹⁵ Kaufmann’s Startup Activity Index in 2015 was the largest year-over-year increase in the United States in the last two decades, reversing a downward trend starting in 2010.

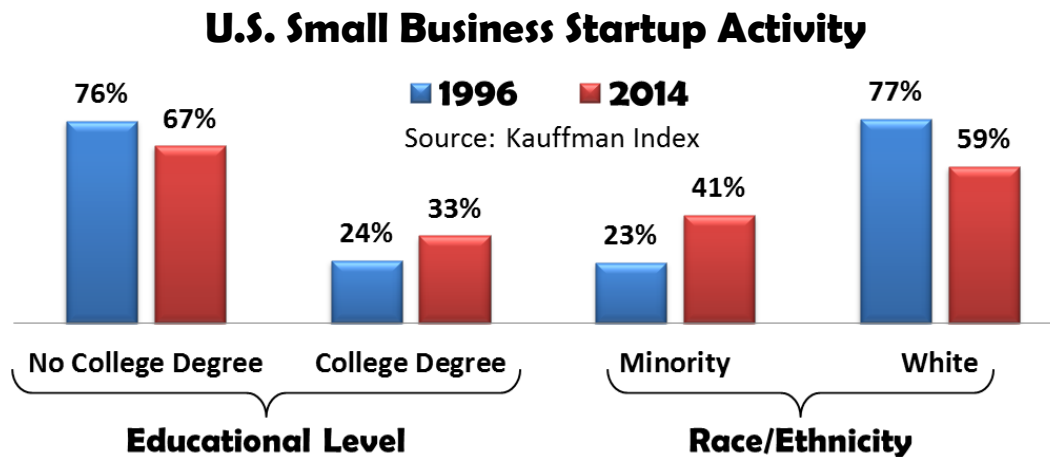
Contrary to popular opinion that most entrepreneurs are young, Kaufmann’s research indicates that peak entrepreneurship occurs between ages 30 to 40. Financial strength of older Americans, rather than financial weakness of younger Americans, makes a huge difference in startup activity.¹⁶

Demographics are one of the most important factors affecting entrepreneurship, job creation and innovation. Quoting from Kaufmann’s 2015 report, 63.2% of new entrepreneurs were male and 36.8% were female, a two-decade female low that was 43.7% in 1997. Younger entrepreneurs (ages 20 to 34) have also been on the decline, down from 34.3% in 1997 to 24.7% percent in the 2015 Index. On the other hand, the older population (ages 55 to 64) has increased from 14.8% to 25.8% over the same timeframe. New entrepreneurs in the United States are becoming increasingly diverse, with more than 40% of new entrepreneurs being comprised of Hispanic, Asian, Black and other non-white entrepreneurs. Hispanics and Asians account for 22.1% and 6.8%, up from 10.0% and 3.4% in the 1997 Index. Immigrant entrepreneurs account for 28.5% of all new entrepreneurs up from

¹⁵ Kauffman Foundation, Entrepreneurship Policy Digest, The Economic Impact of High-Growth Startups, 8 June 2016, http://www.kauffman.org/what-we-do/resources/entrepreneurship-policy-digest/the-economic-impact-of-high-growth-startups?utm_source=newsletter&utm_medium=email&utm_campaign=ideasatwork06_09_16&_cldee=Y3ZvbGxtZXJAam9iZW5vbWljcy5jb20%3d; and The Journal of Economic Perspectives, The Role of Entrepreneurship in US Job Creation and Economic Dynamism, Summer 2014, <http://pubs.aeaweb.org/doi/pdfplus/10.1257/jep.28.3.3>

¹⁶ Kauffman Foundation, The Age of the Entrepreneur: Demographics and Entrepreneurship, March 2013, <http://i4j.info/wp-content/uploads/2013/05/i4jDaneStanglerDemographicsandEntrepreneurship-1.pdf>

13.3%. Immigrants continue to be almost twice as likely as the native-born to become entrepreneurs.¹⁷



U.S. small business startup data shows that substantially more business startups are led by entrepreneurs without less than a college degree. In 1996 and 2014 respectively, 76% and 67% of new start entrepreneurs had less than a college degree.

In 1996 and 2014 respectively, 77% and 59% of new starts were White entrepreneurs and 23% and 41% were Minorities. However, Whites have almost twice as many employed in the U.S. labor force (98 million versus 50 million). If adjusted for workforce size, Minorities would constitute approximately 72% of small business new starts. As percentage of all new starts from 1996 to 2014, Hispanic activity increased by 122%, followed by Asians with 100%, Blacks with 10% and Whites with a net loss of 23%.¹⁸

Based on the above, Jobenomics safely asserts that (1) small businesses produce almost 80% of all new jobs since the Great Recession, (2) small businesses employ about 80% of all Americans, (3) the self-employed and micro businesses employ more people than large corporations, (3) the downward trend in female and young entrepreneurs needs to be reversed, (5) legal immigrant entrepreneurialism should be encouraged, and (6) more startups businesses should be facilitated by non-college degree and minority entrepreneurs. These six factors underpin Jobenomics state and city initiatives described in detail later in this analysis.

Dynamics of Churn: Business and Employment Gains and Losses. Business churn is determined by the number of company births compared the number of company deaths. Employment churn is determined by the number of job gains created by expanding or opening (startups) businesses compared to job losses generated by contracting or closing businesses. Planning, managing and supporting healthy dynamics is paramount to economic and labor force prosperity.

¹⁷ Kauffman Foundation, The Kauffman Index of Startup Activity: 2015, National Trends, http://www.kauffman.org/~media/kauffman_org/research%20reports%20and%20covers/2015/05/kauffman_index_startup_activity_national_trends_2015.pdf

¹⁸ Kauffman Index, Entrepreneurial Demographics, National, <http://www.kauffman.org/microsites/kauffman-index/profiles/entrepreneurial-demographics/national?Demographic=VeteranStatus&Report=StartupActivity>

Churn Dynamics: Q2 2014 through Q2 2015

Source: BLS Business Employment Dynamics Summary, January 2016

Job Dynamics	Business Dynamics	Q2 2014	Q3 2014	Q4 2014	Q1 2015	Q2 2015
Gains	Expanding	6,128,000	5,905,000	6,279,000	5,666,000	6,220,000
	Opening	1,339,000	1,330,000	1,379,000	1,281,000	1,334,000
		7,467,000	7,235,000	7,658,000	6,947,000	7,554,000
Losses	Contracting	5,362,000	5,523,000	5,322,000	5,558,000	5,541,000
	Closing	1,222,000	1,187,000	1,241,000	1,163,000	1,184,000
		6,584,000	6,710,000	6,563,000	6,721,000	6,725,000
Net Employment Change		883,000	525,000	1,095,000	226,000	829,000

The latest BLS Business Employment Dynamics Summary shows the dynamics of churn from Q2 2014 through Q2 2015—a period of job and business expansion.¹⁹ As shown, during this period, expanding/opening businesses average approximately 700,000 more jobs per quarter than contracting/closing businesses. During this same period, business births averaged approximately 220,000 per quarter versus business deaths of 195,000 per quarter (not shown).²⁰

From a Jobenomics perspective, the United States does a poor job planning, managing and supporting business and employment churn dynamics. For the most part, U.S. policy-makers and decision-leaders rely on the principle of free-market dynamics coupled with a laissez-faire approach to business and job creation. To a greater degree than big business, small business is struggling from the laissez-faire U.S. approach to business and job creation. By in large, small business is largely ignored by policy-makers.

After several dozen meetings on Capitol Hill with senior elected officials as well as meeting with campaigns staff of a half dozen candidates for President, in both parties, Jobenomics concludes that the Washington establishment's approach to small business and job creation is between lackluster and nonexistent. The reasons are many. Too few politicians have a business background. Those that do are usually from big business. Whereas entrepreneurs embrace risk, policy-makers are risk adverse. Perhaps the biggest reason is due to money. Small businesses generally do not have well-funded Political Action Committees or lobbyists.

A common perception amongst policy-makers is that small businesses are much more fragile and more susceptible to churn than big business. Hence, they are a much riskier proposition from a political and business perspective. Jobenomics asserts that this perception is unfounded. In 2014, 79% of all startups survived the first year. About half of all new small businesses survive five years or more, and about one-third of these start-ups survive ten years or more.

¹⁹ BLS, Business Employment Dynamics Summary, 27 January 2016, <http://www.bls.gov/news.release/cewbd.nr0.htm>

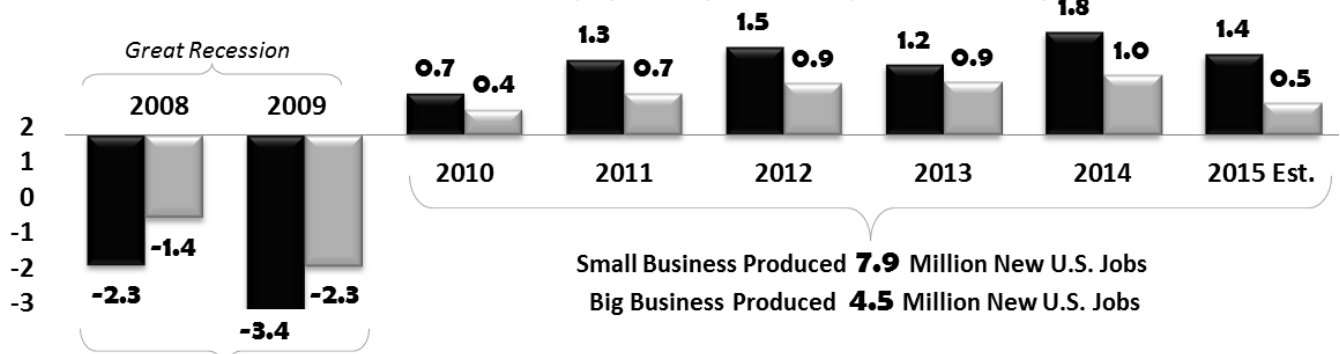
²⁰ BLS, Business Employment Dynamics Summary, 27 January 2016, Table 8, Private sector establishment births and deaths, seasonally adjusted, <http://www.bls.gov/news.release/cewbd.t08.htm>

The fact that half of the startups survive five years or more and one-third of start-ups survive ten years or more is a significant statistic given the lack of government and private sector support for American small business creation. Given the proper support for startup companies and self-employed businesses, the small business employment could be significantly improved by increasing the numbers of businesses started and reducing the rate of small business failures.

U.S. Business Churn since the Great Recession

■ Small Business (1 to 499 Employees) ■ Big Business (500+ Employees)

Source: BLS Business Employment Dynamics Data, Jobenomics Analysis



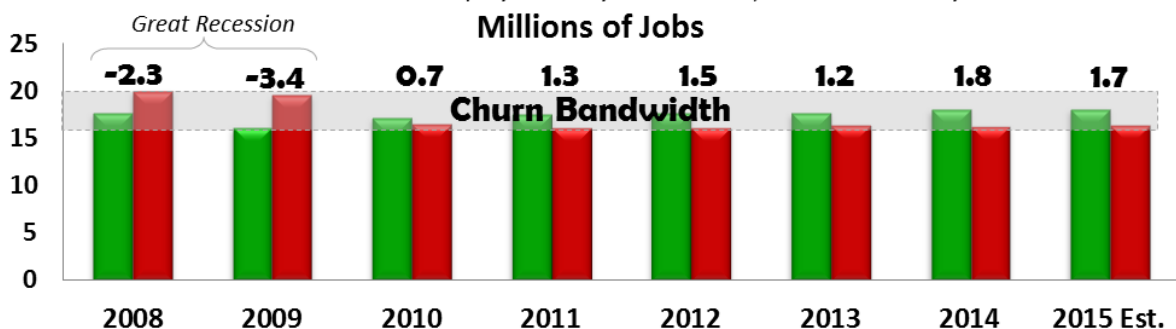
Small Business Loss **5.7** Million Jobs
Big Business Loss **3.7** Million Jobs

During the Great Recession, small business lost 35% more jobs than big business (5.7M versus 3.7M respectively for a total of 9.4M jobs). However, during the post-recession recovery, small business gained 79% more jobs than big business (7.9M versus 4.4M respectively for a total of 12.7M jobs).²¹ Had the U.S. government paid more attention to small businesses, as it did for major financial institution and corporations with its generous handouts of \$17 trillion since the Great Recession, as many as 10 million more Americans would be employed today, as estimated by Jobenomics.

Small Business (1-499 Employees) Churn Dynamics

■ Job Gains ■ Job Losses

Source: BLS Business Employment Dynamics Data, Jobenomics Analysis



This chart examines small business (less than 500 employees) churn during and after the Great Recession. The highlighted area shows that the churn bandwidth is relatively small, ranging from a

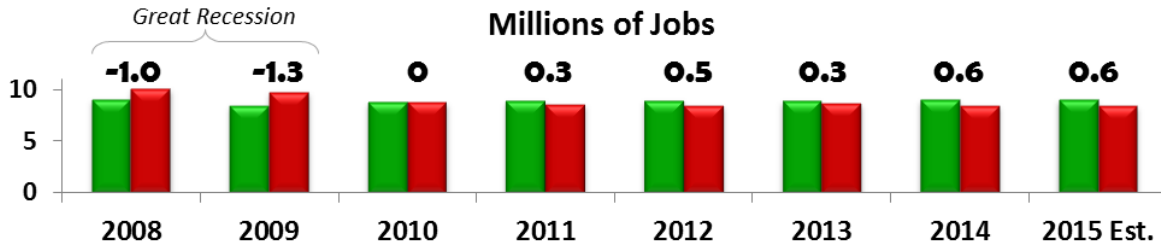
²¹ This graphic is based on calendar years. Technically, the Great Recession started in December 2007 and ended in June 2009. BLS BED data is only current through Q2 2015, so 2015 estimates were calculated by doubling the earlier quarters.

difference between 0.7 and 3.4 million job losses or gains in any one year. Given the power and size of the U.S. economy, coupled with the agility of the small business community, several million jobs could be easily generated each year. Today, there are 6.1 million open jobs that could be filled by small and self-employed businesses. In addition, the emerging digital economy (e-commerce, mobile-commerce) could generate millions of new jobs.

Micro Business (1-19 Employees) Churn Dynamics

■ Job Gains ■ Job Losses

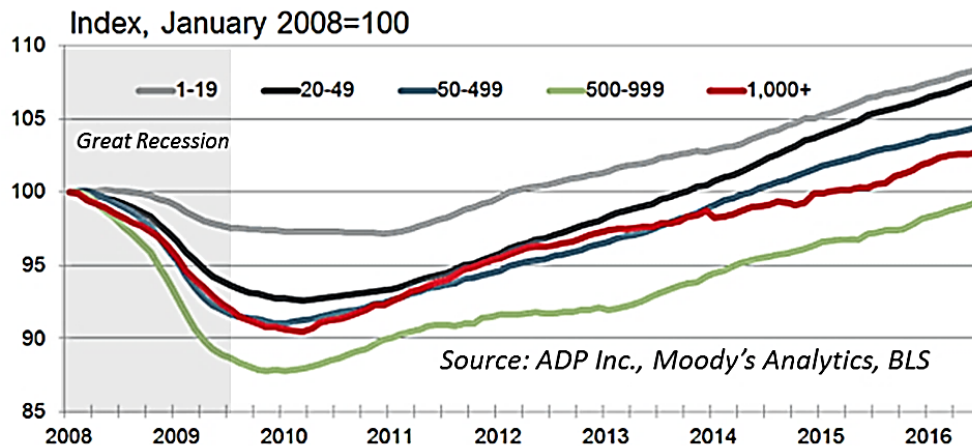
Source: BLS Business Employment Dynamics Data, Jobenomics Analysis



Micro and Self-Employed Businesses. Micro businesses employ 1 (self-employed) to 19 people and produced about 21.7% of all new jobs this decade. In addition to providing regular jobs, micro and self-employed businesses have traditionally been the primary source of employment for entry-level workers, the long-term unemployed and contingent workers.

Post-Recession Employment by Company Size

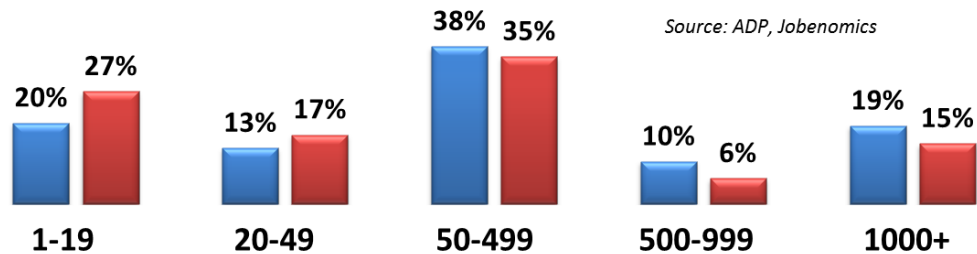
Total Non Farm Employment (in thousands)



It is a common misconception that small businesses, especially micro and self-employed businesses, are the most fragile. This ADP chart indicates that micro and other small businesses have been the most efficient job creators of the five business categories following the Great Recession. According to ADP data, as shown above, medium-sized businesses (500 to 999 employees) and large corporations (1000+ employees) suffered greater downturns and slower recoveries than their smaller counterparts. As stated earlier, Jobenomics contends that medium and large business focus is on international and financial plays as opposed to growing by indigenous growth. Generally speaking, small businesses grow via profitable, labor-related domestic operations.

Goods-Producing and Service-Providing Industry Employment by Company Size 1 July 2016

■ Goods Producing Industries
 ■ Service Providing Industries

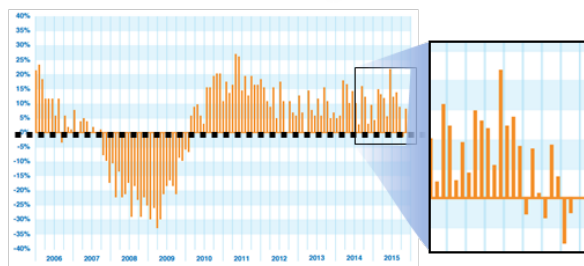


It is also a common misconception that small businesses are only involved in service-providing industries whereas large major corporations dominate goods-producing industries. ADP data indicates that small business has a major role in goods-producing and service-providing industries.

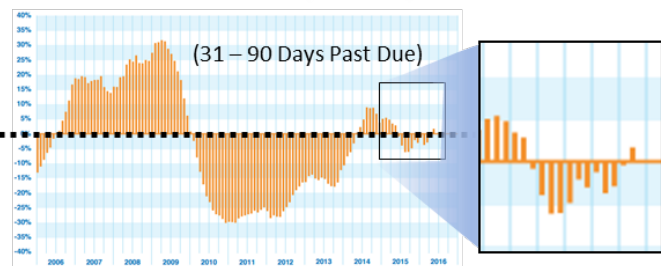
Thomson Reuters/PayNet Indices provide valuable insight into the health of small businesses. The Thomson Reuters/PayNet Small Business Lending Index²² measures the volume of new commercial loans and leases to small businesses. To create the Small Business Lending Index, PayNet tracks the borrowing activity by millions of U.S. small businesses as reported by the largest lenders. The Thomson Reuters/PayNet Small Business Delinquency Index²³ measures small business financial stress and provides early warning of future insolvency.

Thomson Reuter-PayNet Small Business Indices

Small Business Lending Index
Positive Lending Indicator



Small Business Delinquency Index
Low Delinquency Indicator



January 2006 thru May 2016

The Small Business Lending Index indicates that new loan originations to small businesses have increased slowly since the end of the recession but decreased during the latter part of 2016. The Small Business Delinquency Index shows that loan delinquencies (31 to 90 days past due) recovered from recession lows but are recently showing negative trends. Small business creditworthiness is critical to business expansion and job creation.

²² Thomson Reuters/PayNet Small Business Lending Index,
<http://paynetonline.com/SmallBusinessInsights/ThomsonReutersPayNetSmallBusinessLendingIndex.aspx>

²³ Thomson Reuters/PayNet Small Business Delinquency Index,
<http://paynetonline.com/SmallBusinessInsights/ThomsonReutersPayNetSmallBusinessDelinquency.aspx>



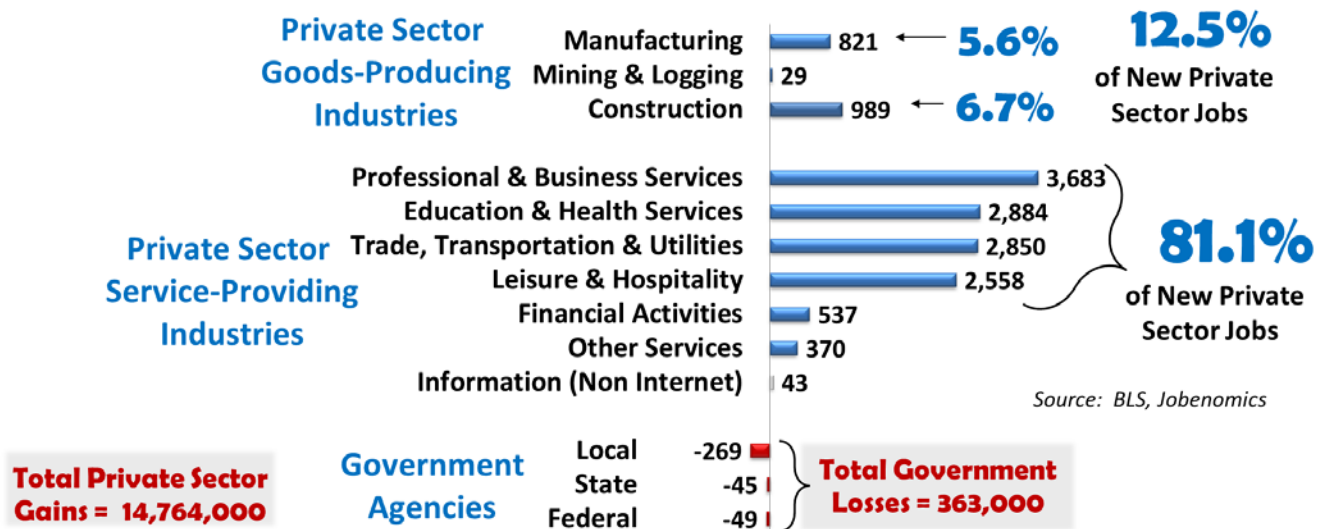
In conclusion, small businesses are the primary engine of the U.S. economy and labor force. It is time that this engine needs a tune-up by the U.S. government and private sector leaders. In today's world of global competition and sclerotic GDP growth, small business creation and sustainment is paramount. The American laissez-faire approach to small business creation, and its massive potential for job creation, must be changed in order to achieve economic prosperity and competitiveness.

Fastest Growing Private Sector Industries and Occupations

Since 2010, all ten U.S. private sector industries have created jobs, whereas all three levels of government (Federal, State and Local) government lost jobs.

Industry Employment Growth This Decade (2010s)

Thousands of Jobs (000s)
1 January 2010 to 1 July 2016



81.1% of all net new jobs this decade were produced by four service-providing industries (Professional & Business Services; Education & Health Services; Trade, Transportation & Utilities; and Leisure & Hospitality), while the other three service-providing industries (Financial Activities, Other Services and Non-Internet Information) created only 6.4% combined. Manufacturing and Construction contributed 5.6% and 6.7% to U.S. employment growth, respectively.

The latest BLS Employment Projections: 2014-24 Report, released 8 December 2015, projects a slowdown of labor force growth (largely due to an aging population, moderate GDP growth of 2.2% annually over the decade, productivity growth of 1.8% annually over the decade, a 2024 unemployment rate essentially the same as today, and moderated economic growth that will generate 9.8 million new jobs.²⁴

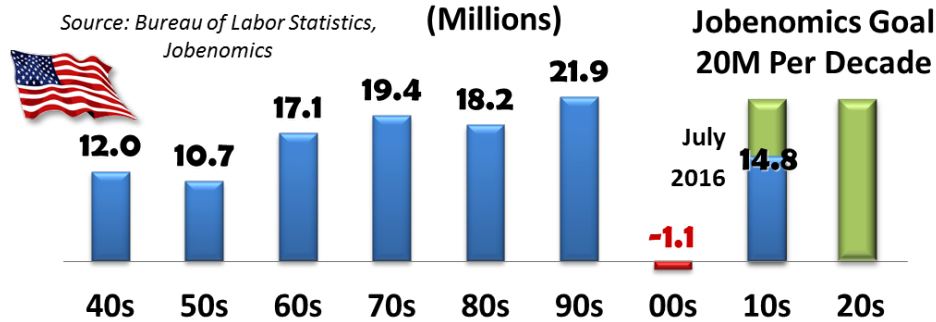
If this forecast is correct the United States is significant trouble. 9.8 million new jobs is only ½ the number of jobs needed to effectively grow the economy. Moreover, this projection is based on no significant financial crises during the decade as indicated by the Report's status quo assumptions.

The United States consistently produced tens of millions of new jobs for six consecutive decades from the 1940s through the 1990s. The bottom fell out in the decade of the 2000s with a net loss of 1.2

²⁴ BLS, Employment Projections: 2014-24 Summary, <http://www.bls.gov/news.release/ecopro.toc.htm>

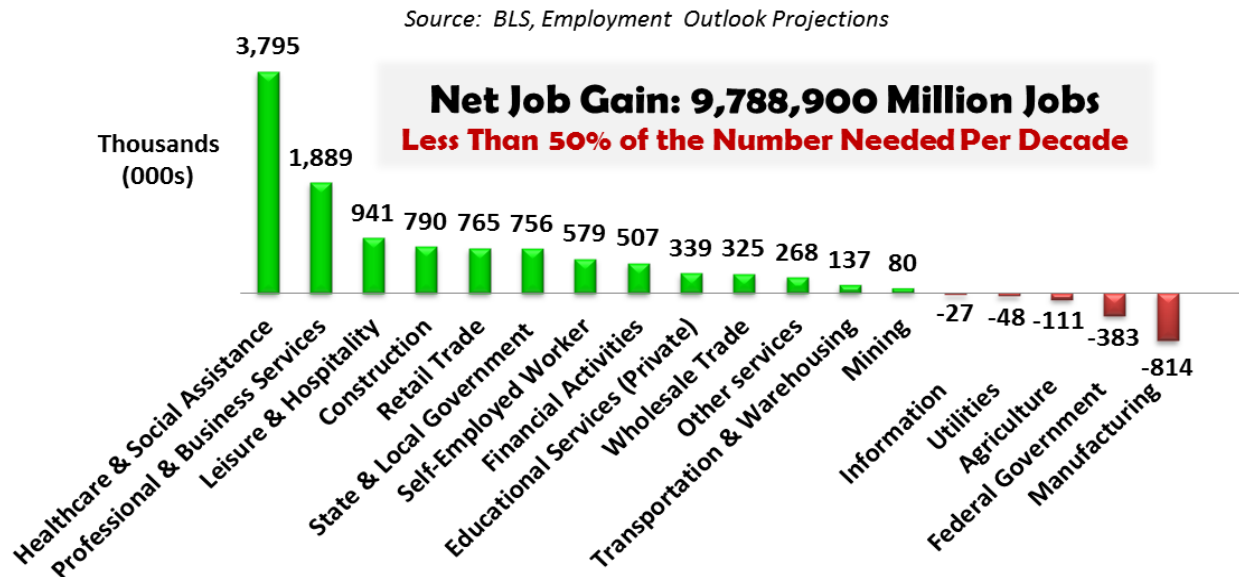
million jobs. Consequently, it is critical that a significant number of new jobs are created each decade for the next several decades (2010s/2020s) to recover from the historic U.S. employment downturn in the 2000s and for the U.S. economy to prosper.

Goal: 20 Million Net New U.S. Jobs per Decade



20 million net new jobs per decade is a goal that has been historically achieved. It is also the number needed to accommodate new labor force entrants, a growing population, and maintaining an unemployment rate of 5%, which is considered a normal rate of unemployment. U.S. employment increased by 14.8 million so far this decade, which is positive, but is still a 26% shortfall in the number of new jobs needed to produce 20 million new jobs by 2020. If one assumes that the BLS Employment Projection of 9.8 million new jobs by 2024 is correct, the shortfall is likely to drop to a 40% shortfall, which would be devastating to the economy.

Fastest Growing Occupational Groups: 2014 to 2024



Due to the aging population and greater numbers of able-bodied Americans voluntarily departing the U.S. labor force²⁵, 3.8 million of the 9.8 million new U.S. jobs (39%) will entail Healthcare and Social Assistance occupations, followed by 1.9 million (19%) in Professional & Business Services and 0.9 million (9%) in Leisure & Hospitality (9%). Manufacturing is projected to be the biggest loser with a

²⁵ See Jobenomics Unemployment Analysis Q1 2016 for a detailed discussion on voluntarily U.S. labor force departures.

loss of 814,000 jobs. Manufacturing currently employs 12,296,000 people. If the BLS projection is accurate, manufacturing employment will decline to 11,482,000, which is very close to its historical low employment point of 11,460,000 jobs in January 2010.

The Quarterly Census of Employment and Wages, conducted by the U.S. Census Bureau and interpreted by the BLS, reports on employment and wages by state (including 5 territories and District of Columbia and the 384 Metropolitan Statistical Areas (MSAs)).²⁶ The top five in each category are shown. The disparity between the best and worst locations for jobs and wages is significant.

Best and Worst Locations for Jobs and Wages

Source: Quarterly Census of Employment and Wages, Q3 2015

	Number of Jobs		Average Weekly Wage	
Top 5 States & Territories	California	14,085,736	District of Columbia	\$1,480
	Florida	9,879,901	Massachusetts	\$1,196
	New York	7,692,772	New York	\$1,190
	Texas	6,973,136	Connecticut	\$1,156
	Illinois	5,096,435	California	\$1,114
Bottom 5 States & Territories	South Dakota	347,349	Montana	\$735
	Alaska	267,151	Idaho	\$720
	Vermont	254,863	Mississippi	\$691
	Wyoming	219,197	Virgin Islands	\$648
	Virgin Islands	26,160	Puerto Rico	\$483
Top 5 Metropolitan Statistical Areas	New York-Newark-Jersey City, NY-NJ-PA	7,724,426	San Jose-Sunnyvale-Santa Clara, CA	\$2,133
	Los Angeles-Long Beach-Anaheim, CA	5,091,720	San Francisco-Oakland-Hayward, CA	\$1,499
	Chicago-Naperville-Elgin, IL-IN-WI	3,889,330	Bridgeport-Stamford-Norwalk, CT	\$1,448
	Dallas-Fort Worth-Arlington, TX	2,898,308	Seattle-Tacoma-Bellevue, WA	\$1,327
	Houston-The Woodlands-Sugar Land, TX	2,515,821	Boston-Cambridge-Newton, MA-NH	\$1,293
Bottom 5 Metropolitan Statistical Areas <small>(excluding PR that occupied the Bottom 5)</small>	Lewiston, ID-WA	21,067	Laredo, TX	\$575
	Sebring, FL	18,935	McAllen-Edinburg-Mission, TX	\$556
	The Villages, FL	15,808	El Centro, CA	\$546
	Carson City, NV	11,268	Brownsville-Harlingen, TX	\$541
	Hinesville, GA	9,626	Jacksonville, NC	\$525

The main takeaway from the Quarterly Census of Employment and Wages Report is geographical polarization. The United States is becoming increasingly polarized in terms of jobs and wages according to location. Urban areas offer more career and income opportunities than rural areas. High tech and financial cities are superior to old manufacturing cities that will continue to slide in decay. From a Jobenomics perspective, these trends can and should be reversed before geographic polarization solidifies job polarization that is already creating grave disparities between the rich and poor, the skilled and unskilled, and a standard full-time and non-standard part-time contingent workforce.

As evidenced by recent protests and violence, the United States has already reached point of restiveness and anger due to geographic and job polarization—for plausible reasons. As discussed in

²⁶ BLS, Quarterly Census of Employment and Wages, Q2 2015, retrieved 11 April 2016, Private, Total, All Industries, http://www.bls.gov/cew/apps/data_views/data_views.htm#tab=Tables



detail the Jobenomics Unemployment Analysis, 72% of the 160 million American wage earners made below median wage of \$54,964. If one adds the 95 million able-bodied adults that have departed the labor force and have no reported income, the percentage of below average income Americans jumps to 82%. Plus there is an additional 70 million Americans cannot work, such as children, retired and disabled citizens. In other words, the United States has reached a point where 45 million Americans receive above median wage and 279 million Americans report below median wage or no wage at all.

Non-Standard Contingent Workforce Challenge

The Bureau of Labor Statistics (BLS) defines the contingent workforce as the portion of the labor force that has “nonstandard work arrangements” or those without “permanent jobs with a traditional employer-employee relationship”.

The “contingent” workforce could be the predominant source of employed U.S. labor by 2030, or sooner, depending on economic conditions and seven ongoing labor force trends. Today, Jobenomics estimates the contingent workforce to be 60,000,000 employed Americans or 40% of the total employed workforce. By 2030, this will rise to 80,000,000, or 50%, of the total employed workforce.

U.S. Contingent Workforce Size Estimates 1998 to 2030

	BLS/GAO 1995 CWS	BLS/GAO 1999 CWS	BLS/GAO 2005 CWS	GSS 2006	GSS 2010	Jobenomics 2016 Est.	Jobenomics 2030 Est.
Employed	123,208,000	131,494,000	138,952,000	143,150,000	138,438,000	149,703,000	160,000,000
Contingent	39,549,768	39,448,200	42,519,312	50,531,950	55,790,514	59,881,200	80,000,000
Workforce	32.1%	30.0%	30.6%	35.3%	40.3%	40.0%	50.0%

Source: GAO Contingent Workforce Report (GAO-15-168R), Tables 3 & 4, 20 April 2015

Source: Jobenomics

Jobenomics’ 2016 estimate of 40% for core and non-core contingency workers is roughly equivalent to the GAO’s high water mark of 40.4% of the U.S. labor force in 2010²⁷ and Bloomberg’s contingency workforce estimate of 40% for 2020.²⁸ Jobenomics’ 2016 estimate is similar to estimates from other developed economies. For example, in Japan, contingent workers (non-regular workers) accounted for up to 50% of younger Japanese workers and 40% of the total Japanese labor force in 2014, up from 10% in 1990.²⁹

Defining the Contingent Workforce. To understand the contingent labor force, it is necessary to first know what U.S. government agencies (Bureau of Labor Statistics, Census Bureau, Government Accountability Office and others) say about part-time, temporary, nonstandard, independent, or workers with “alternative” work agreements, who are collectively defined as contingent workers.

According to an April 2015 study by the Government Accountability Office (GAO), compared to the standard workforce, the size, character, earnings and benefits of today’s contingent workers are largely unknown to U.S. Department of Labor and U.S. policy-makers. Quoting the GAO, “there is a lack of consensus on how to define contingent work, in part because researchers focus on different aspects of the labor market. Some definitions focus on job tenure or the precariousness of work, while some focus on employer-employee relationships. Available data thus produces varying estimates of the size of this workforce, depending on definition. Available data also does not fully

²⁷ U.S. Government Accountability Office, Contingent Workforce: Size, Characteristics, Earnings, and Benefits, 20 April 2015, <http://www.gao.gov/products/GAO-15-168R>

²⁸ Bloomberg Businessweek, 20-25 October 2014 Edition, Companies/Industries, Page 20

²⁹ Asia-Pacific Journal, Scott North, "Limited Regular Employment and the Reform of Japan's Division of Labor", The Asia-Pacific Journal, Vol. 12, Issue 15, No. 1, April 14, 2014, <http://www.japanfocus.org/-Scott-North/4106/article.html>

enable analysis of trends in the size of the contingent workforce or the effects of economic cycles, such as the recent recession.”³⁰

As a result, there is no government consensus on the magnitude of the contingent workforce. Estimates vary from a low as 5% to a high of 40% of the total U.S. employed workers in 2016. Jobenomics asserts that 40% is the most reasonable estimate. Jobenomics also asserts that this percentage will continue to increase and exceed 50% of the employed labor force by 2030, or sooner, based on seven labor force trends, described herein, and the state of the economy. Unlike standard employment growth, contingent employment will increase whether the economic conditions are positive, neutral or negative. Neutral and negative economies usually reduce full-time labor and increase part-time contingent labor and task-oriented work.

Generally speaking, policy-makers view the contingent workforce a relatively insignificant portion of the U.S. labor force. They also view contingent workers more as a governmental liability than a public asset. The prevailing view of policy-makers is that most contingent workers receive lower wages and fewer employer-provided retirement and health benefits compared to standard workers. As a result, these workers are compelled to turn to government welfare and other means-adjusted programs for assistance. While this is true for the low-end of the contingency workforce, it is not necessarily the case for top-end contingency workers who chose nonstandard work as a matter of choice.

Largely due to the current standard workforce focus of labor force survey questions, policy-makers are unaware of the fact that contingent work is no longer an aberration, but a key component of the labor force (60 million contingent workers versus 90 million standard workers). In addition, a growing number of contingent workers do want full-time jobs and traditional careers. 90% of independent contractors and self-employed workers reported in the last BLS Contingent Workforce Survey that they would not prefer a different type of employment from the one they have.³¹ Uber drivers, apps developers, fracking industry wildcatters and knowledge workers are just some of many examples of the upside of the growing contingent workforce in occupations that did not even exist a decade ago.

The Bureau of Labor Statistics (BLS) defines the contingent workforce as the portion of the labor force that has “nonstandard work arrangements” or those without “permanent jobs with a traditional employer-employee relationship”. The BLS further makes a distinction between contingent and alternative employment agreements. According to a BLS special supplemental survey conducted in February 2005 (the last contingent workforce survey conducted by the BLS), “Contingent workers are persons who do not expect their jobs to last or who reported that their jobs are temporary. They do not have an implicit or explicit contract for ongoing employment. Alternative employment arrangements include persons employed as independent contractors, on-call workers, temporary help agency workers, and workers provided by contract firms.”³²

³⁰ U.S. Government Accountability Office, GAO-15-168R, Contingent Workforce: Size, Characteristics, Earning and Benefits, 20 April 2015, <http://www.gao.gov/assets/670/669766.pdf>

³¹ Ibid, Job Satisfaction, Table 12: Estimated Percentage of Workers Who Want a Different Type of Employment, 2005

³² U.S. Bureau of Labor Statistics, Contingent and alternative employment arrangements, retrieved 23 January 2016, <http://www.bls.gov/cps/lfcharacteristics.htm#contingent>, and <http://www.bls.gov/news.release/pdf/conemp.pdf>

A 2015 GAO report, entitled the “Contingent Workforce: Size, Characteristics, Earnings, and Benefits”, grouped contingency workers into two categories: core and non-core. The core category includes agency temps, direct-hire temps, on-call workers and laborers and contract company workers who are characterized as low wage earners who are subjected to nonstandard work arrangements out of necessity. Core workers cede control over their work making them economically dependent on employers. Consequently, a disproportionate number of these involuntary core workers are subject to exploitation in terms of wages and benefits. The non-core category includes independent contractors, self-employed workers and standard part-time workers who work fewer than 35 hours per week as a matter of choice and are economically independent by volition.

From a social science perspective, the major difference between core and non-core work involves social compact, an implicit contract for remuneration and protection in exchange for surrendering personal liberties. Relational employer-employee social compacts that evolved over the 20th Century are now less enforceable in today’s transactional society. Relational social compacts emphasize mutual-interests whereas transactional social compacts promote self-interests. Relational compacts better accommodate low-skilled, risk-adverse, vulnerable core contingent workers who are dependent on near-term wages and benefits. Transactional compacts favor skilled non-core contingent workers who tend to be more self-directed, entrepreneurial and self-supporting.

Consequently, Jobenomics believes that America needs a dual contingent workforce strategy to (1) minimize low-end core contingent workers and (2) maximize top-end non-core contingent workers with emphasis on individuals and occupations with the highest need and potential.

According to many labor force experts, new workforce entrants (e.g., Generation Z “Screenagers”, and Generation Y “Millennials”) prefer contingent work over standard work for a number of reasons including self-direction, variety, flexibility, skill development, as well as a general disillusionment with traditional corporate social compacts and promises that have proven to be short-lived with older generations. Millennials also understand that standard workforce growth is highly dependent on a growing economy, whereas contingent workforce growth is more resistant to economic fluctuations.

The rise of the contingent workforce is not unique to the United States. Furthermore, contingent work is being embraced by foreign policy-makers to a greater extent than in America. Japan serves as an example. Japanese contingent workers (called non-regular workers) accounted for up to 50% of younger Japanese workers and 40% of the total Japanese labor force in 2014, up from 10% in 1990.³³ In 2015, Japanese Prime Minister Shinzo Abe announced policies to make it easier for companies to dismiss standard workers in favor of contingency workers in order to make Japanese companies more competitive. An aging Japanese population will also fuel contingent work growth in Japan as retired workers and older women are seeking part-time work to supplement income in a struggling national economy.

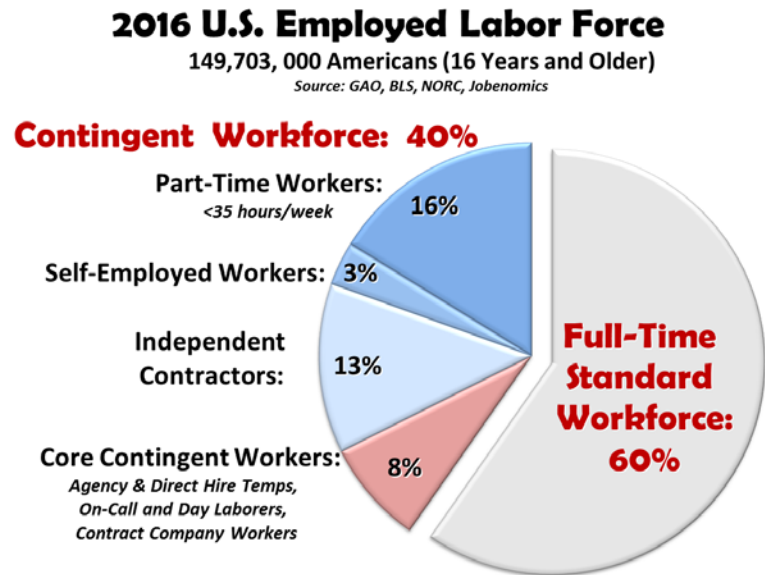
Policy-makers in other parts of Asia and many countries in Western Europe are also actively preparing for the possibility of contingent work becoming the dominant element of their national labor force.

³³ Asia-Pacific Journal, Scott North, "Limited Regular Employment and the Reform of Japan's Division of Labor", The Asia-Pacific Journal, Vol. 12, Issue 15, No. 1, April 14, 2014, <http://www.japanfocus.org/-Scott-North/4106/article.html>

China’s 13th Five-Year Plan, a roadmap for the nation’s development from 2016 to 2020, emphasizes the need to create a policy environment that can foster homegrown contingent workforce development and investment with emphasis on micro and self-employed businesses engaged in the emerging digital economy (e-business and e-commerce).

Estimating the Size of the Contingent Workforce. Out of approximately 150 million (nonfarm and farm) employed American workers in 2016, 60 million people are in the contingent workforce (part-time, self-employed, contracted workers, temps and day laborers).

According to a recently released Harvard study, from February 2005 to November 2015, almost all employment growth (9.7 million) in the U.S. labor force occurred in the contingent workforce (9.4 million) as opposed to the standard labor force.³⁴



To understand size of the U.S. labor force and its contingent workforce component, one must have a basic knowledge on how data is collected by the government.

The two primary sources of data are from joint Census Bureau/BLS household surveys and BLS industry surveys. The “Household” survey collects data via the Current Population Survey (CPS) and the “Establishment” payroll survey via the Current Employment Survey (CES).³⁵

- CPS Household data is collected monthly from a sample from over 60,000 American households and includes comprehensive data on the labor force, the employed, and the unemployed classified by such characteristics as age, sex, race, family relationship, marital status, occupation and industry attachment. The CPS also provides data on the characteristics and past work experience of those not in the labor force. The CPS includes all workers, nonfarm and farm, and estimates current employment at 150 million.
- CES Establishment data is collected monthly from a sample of approximately 143,000 businesses and government agencies representing approximately 588,000 worksites throughout the United States. The primary statistics derived from the CES survey are monthly estimates of employment, hours, and earnings for the nation, states, and major metropolitan areas. CES produces estimates on the number of employees on nonfarm payrolls, average hourly earnings, average weekly

³⁴ Harvard University and NBER, The Rise and Nature of Alternative Work Arrangements in the United States, 1995-2015, Lawrence F. Katz and Alan B. Krueger, 29 March 2016, https://krueger.princeton.edu/sites/default/files/akrueger/files/katz_krueger_cws_-_march_29_20165.pdf

³⁵ U.S. Bureau of Labor Statistics, Household vs. Establishment Series, <http://www.bls.gov/lau/lauhvse.htm#hvse>

earnings, and average weekly hours.³⁶ The CES includes only nonfarm workers and estimates current employment at 144 million.

CPS and CES data are reported in the BLS monthly Employment Situational Report and various BLS Supplements to the Current Population Survey. The monthly BLS Employment Situational Report is a widely read government report used for policy-making in the United States. BLS Supplements are also important since they provide a significant level of detail for public and private analyses. It is important to recognize that these BLS reports and supplements are focused mainly on standard workers who are employed by nonfarm, industry-centric and employer-providing firms. Agricultural (farms and ranches) and nonstandard (contingent) worker data is sparse and episodic due to historical precedent and budgetary constraints.

The BLS Employment Situational Report's focal point is on the "civilian noninstitutional population" that consists of three main categories: "Employed", "Unemployed" and "Not in Labor Force". To be Employed, one must have a job. To be Unemployed, one must be looking for a job. To be Not-in-Labor-Force, one must be an able-bodied adult who is neither employed nor unemployed.

The overwhelming amount of BLS statistical labor force data is centered on statistics relating to the 144 million nonfarm Employed Americans, who are accounted in three general sectors (private sector goods-producing, private sector services-providing and government) that are subdivided into 13 industry groups and further subdivided into 130 industries. Since the BLS defines contingent workers as those without "an explicit or implicit contract for long-term employment", their focus is on the temporary nature of work. Consequently, those that chose not to work or work outside traditional labor occupations receive less scrutiny.

Jobenomics applauds the work the BLS accomplishes with standard industries, but believes that the U.S. government should allow the BLS to evaluate at super sectors, like energy and healthcare, and major trends, like the contingent workforce and Not-in-Labor-Force group, with the same intensity.

To a lesser degree, BLS Employment Situational Report contains data on 15 million Unemployed Americans who are accounted in six unemployment categories from U1 Long-Term Unemployed to U3 Officially Unemployed to U6 Unemployed and Underemployed. To a minimal degree, the BLS reports on the 95 million people who are categorized in a single Not-in-Labor-Force category that is reserved for able-bodied Americans who can work but chose not to work for a variety of reasons. Jobenomics sees the evergrowing Not-in-Labor-Force, which has grown by 25.9 million Americans since year 2000, as impactful to the U.S. labor force as the rise in the contingent labor force. The Unemployed and Not-in-Labor-Force is addressed in detail in the Jobenomics U.S. Unemployment Analysis.

The CPS is also used to collect data for a variety of other studies. Supplements cover a wide variety of topics depending on the needs of the supplement's government sponsor, including a BLS sponsored

³⁶ BLS, CES Survey Frequently Asked Questions, <http://www.bls.gov/web/empsit/cesfaq.htm>

Contingent Workforce Supplement (CWS).³⁷ A total of five CWSs were conducted by the BLS in 1995, 1997, 1999, 2001 and 2005. Since the 2005 CWS, the BLS has repeatedly requested that the CWS be reinstated but until recently has not been unsuccessful in doing so.³⁸ After a 10-year hiatus, the BLS will now resume the CWS. In the FY2016 Budget, out of a total BLS budget of \$637.4 million, the BLS was granted \$1.6 million and 3 full-time equivalent personnel to conduct a CWS every two years.³⁹

Even though the CWS budget is only ¼ of 1% of the overall BLS budget, Jobenomics contends that resumption of the CWS will be a vitally important first step to laying a framework in understanding the contingent workforce’s size, character and impact on the U.S. labor force and economy. However, Jobenomics is concerned that the BLS has historically been constrained by key worker protection laws that focus surveys on employees of standard companies as opposed to non-core contingent workers who are not classified as employees. Without a complete analysis of the entire contingent workforce spectrum (core and non-core, standard and nonstandard, or contingent and alternative work arrangements), it will be impossible for policy-makers to assess the degree of influence that the contingent workforce is having on the labor force.

The following chart was derived from the GAO’s GAO Contingent Workforce Report that compared historical surveys (CWS, CES Establishment, CPS Household, CPS Disability, CPS Annual Social and Economic Supplement, NORC General Social [GSS], Survey of Income and Program Participation).⁴⁰ Jobenomics 2016 and 2030 estimates are also included.

U.S. Core & Non-Core Contingent Workforce Size Estimates

	BLS/GAO 1995 CWS	BLS/GAO 1999 CWS	BLS/GAO 2005 CWS	GSS 2006	GSS 2010	Jobenomics 2016 Est.	Jobenomics 2030 Est.
Employed	123,208,000	131,494,000	138,952,000	143,150,000	138,438,000	149,703,000	160,000,000
Contingent Workforce	39,549,768	39,448,200	42,519,312	50,531,950	55,790,514	59,881,200	80,000,000
	32.1%	30.0%	30.6%	35.3%	40.3%	40.0%	50.0%

Source: GAO Contingent Workforce Report (GAO-15-168R), Tables 3 & 4, 20 April 2015

Source: Jobenomics

Agency & direct-hire temps, On-call workers & day laborers, Contract company workers

	7,269,272	7,495,158	7,781,312	10,163,650	10,936,602	11,976,240	19,200,000
Core Contingent	5.9%	5.7%	5.6%	7.1%	7.9%	8.0%	12.0%

Independent contractors, Self-employed workers, Standard part-time workers

	32,280,496	31,953,042	34,738,000	40,368,300	44,853,912	47,904,960	60,800,000
Non-Core Contingent	26.2%	24.3%	25.0%	28.2%	32.4%	32.0%	38.0%

³⁷ U.S. Census Bureau, Supplemental Surveys, <http://www.census.gov/programs-surveys/cps/about/supplemental-surveys.html> and <http://www.census.gov/programs-surveys/cps/about.html>

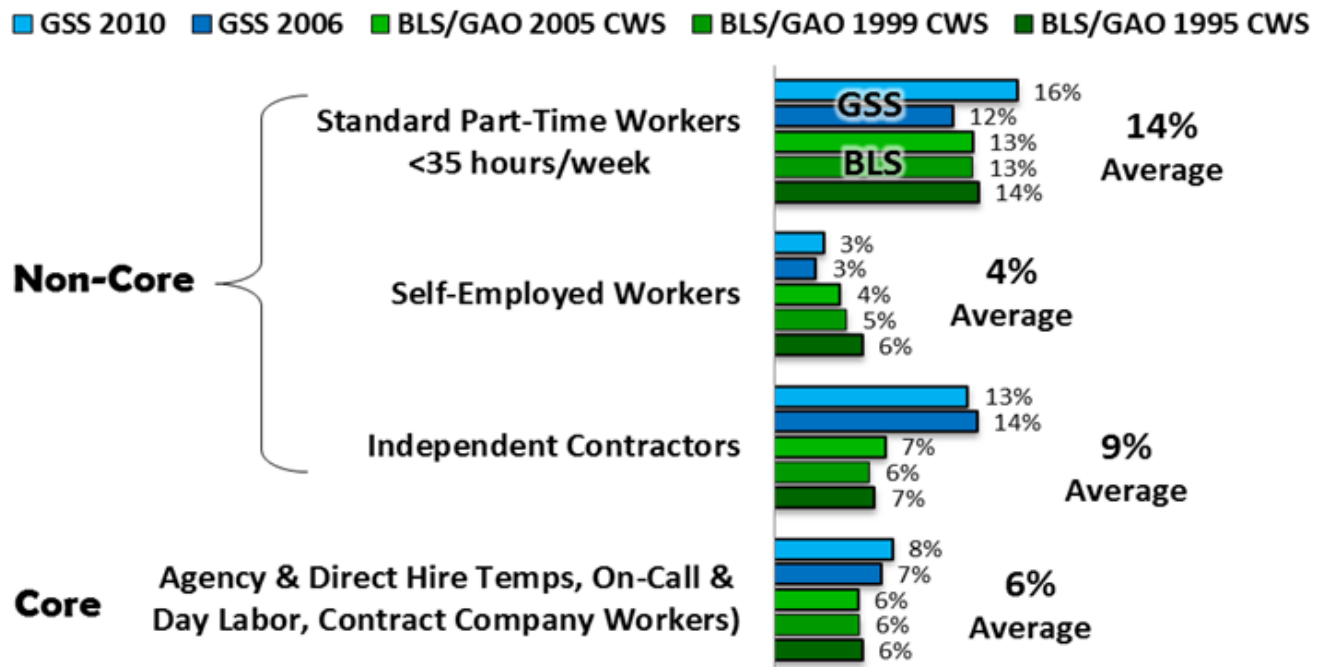
³⁸ U.S. Government Accountability Office, GAO-15-168R, Contingent Workforce: Size, Characteristics, Earning and Benefits, 20 April 2015, Background, page 3, <http://www.gao.gov/assets/670/669766.pdf>

³⁹ FY 2016 Congressional Budget Justification Bureau Of Labor Statistics, Labor Force Statistics, CWS, pages BLS-1 and BLS-11, <http://www.dol.gov/sites/default/files/documents/general/budget/2016/CBJ-2016-V3-01.pdf>

⁴⁰ GAO, Contingent Workforce Report (GAO-15-168R), Tables 3 & 4, 20 April 2015, <http://www.gao.gov/assets/670/669766.pdf>

Using composite data from multiple sources, the GAO estimates core and non-core contingent workers between 5.7% to 7.9% and 24.3% to 32.4% respectively, for a total of approximately 30% to 40% of the employed labor force. As of January 2016, the total number of U.S. employed is 149,703,000 million people.⁴¹ Using the 30% and 40% figures, a total of 45 to 60 million Americans would be considered contingent workers. By 2030, at 50% of all employed workers, the United States would have a total of 80 million contingency workers and 80 million standard full-time workers.

Contingent Workforce By Type Worker



The recent growth in 1099 workers (IRS Form 1099-MISC used by independent contractors, aka contingent workers) suggests a massive transition from full-time to contingent work this decade. In 2010, 82 million 1099s were sent to the IRS. By 2014, the number grew to 91 million for a total of 9 million for the four-year period or roughly 22 million if extrapolated for the entire decade. It should be noted that 1099s are only filed for wages over \$600. Many contingent workers, like apps developers, are working for zero wages with the hope of a large future payoff or jobs with leading network-centric corporations.

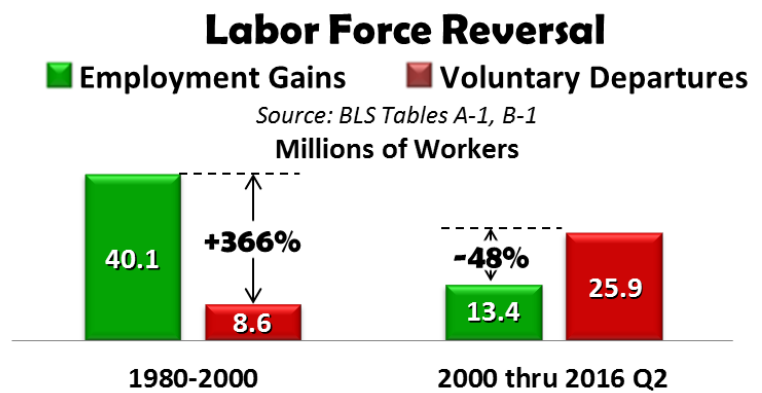
Within the contingent workforce, standard part-time workers are the largest group, at 14%, of all employed workers, followed by independent contractors at 9%, self-employed workers at 4% and core group workers at 6%. It appears that only the incorporated self-employed number were included (5.8 million today), not including the unincorporated self-employed (9.4 million today), which is consistent with the Jobenomics premise that government surveys are focused on incorporated businesses in existing nonfarm industries. It is also important to note that the number of incorporated self-employed businesses has grown by 35% since year 2000, giving credence to the notion that non-core contingent businesses are an important faction of the U.S. labor force and overall economy—a faction that is neither well reported nor understood.

⁴¹ BLS, Table A-1. Employment status of the civilian population, <http://www.bls.gov/news.release/empsit.t01.htm>

Jobenomics Contingent Workforce 50%+ Forecast (Seven Major Factors). By 2030, or sooner, Jobenomics forecasts that contingency workers will be the dominant (over 50%) component of the U.S. workforce. This forecast is based on seven factors: (1) increasing labor force losses versus labor force gains, (2) adverse corporate hiring and employment practices, (3) revolution in energy and network technologies, (4) automation of manual and cognitive jobs, (5) impact of the emerging digital economy, (6) shift from full-time, to part-time and task-oriented labor, and (7) cultural differences of new labor force entrants.

(1) Increasing labor force losses versus labor force gains. The U.S. labor force took an ominous reversal at the beginning of the 21st Century when able-bodied adult workforce departures dramatically outpaced the number of people entering the labor force.

During the 1980s and 1990s, employment gains were 366% more than voluntary departures (40.1 million versus 8.6 million). From the beginning of year 2000 through Q2 2016, employment gains were 48% less than voluntary departures (13.4 million versus 25.9 million). From a Jobenomics standpoint, this labor force reversal is largely due to poor economic conditions, conservative hiring practices, limited livable income opportunities, the demise of the American middle-class, and attractiveness of government welfare and mean-adjusted assistance programs.



Without significant jobs growth in conjunction with a meaningful reduction of voluntary departures, the U.S. economy is not sustainable, middle-class wages will continue to erode, consumption (70% of U.S. GDP) is likely to falter, and another recession is probable. Consequently, it is imperative that policy-makers, decision-leaders and business executives aggressively create employment opportunities that will motivate citizens towards workfare over welfare and self-sufficiency over public/familial dependence.

The best way to motivate these individuals to emphasize the plethora of employment opportunities afforded by the 6.1 million open U.S. jobs⁴², the fastest-growing service industries that are generating 81% of all new jobs, and by the millions of new opportunities that are available via the ongoing energy technology and network technology revolutions.

Contingent work and new non-core contingency businesses are an important component of fulfilling these opportunities—a component that has not been aggressively supported in the United States. Today, there are 60,000,000 American contingent workers. Prior to the end of the

⁴² U.S. Bureau of Labor Statistics,, Job Openings and Labor Turnover, Table 7, retrieved 23 January 2016, <http://www.bls.gov/news.release/jolts.t07.htm>

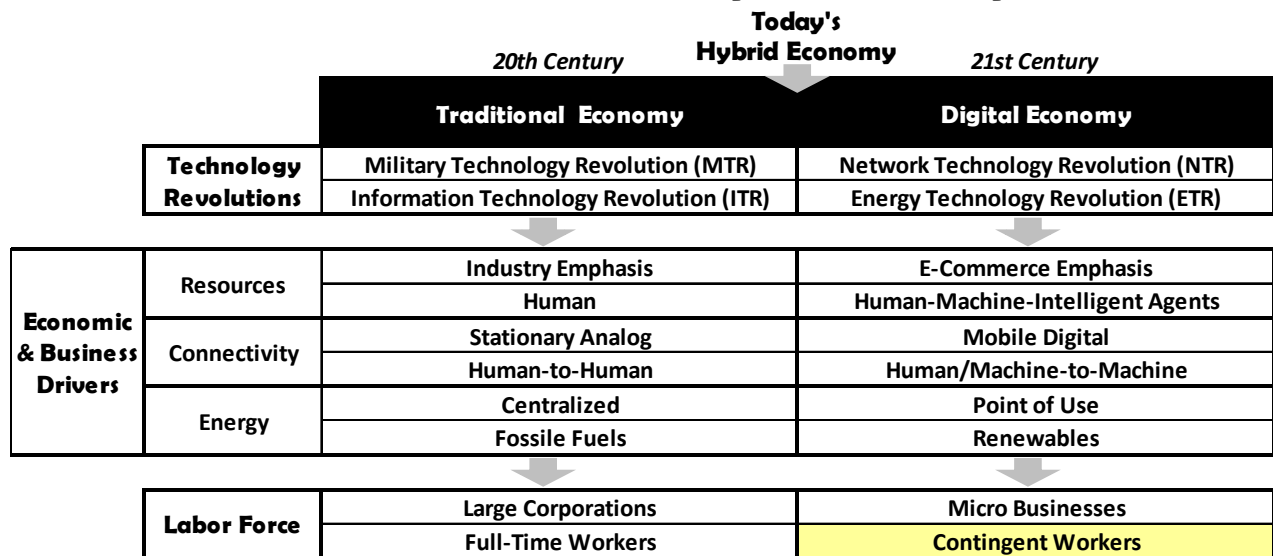
next decade, this number is likely to grow to 80,000,000 Americans. Now is the time to plan and create meaningful employment and income opportunities for the contingency workforce.

(2) Adverse corporate hiring and employment practices. From 2010 to 2016, big businesses with over 500 employees provided only 3,014,000 net new jobs, whereas small businesses with less 500 employees produced 10,511,000 net new jobs.⁴³ Today, corporate America makes more money on money than on people-made goods or people-provided services. If not for small business, the U.S. labor force would be much smaller than it currently is.

Since the end of the Great Recession in 2009, big business received numerous government incentives and low interest loans compared to small businesses. Rather than using these incentives and financial largess to recapitalize, most corporations understandably used the money to buy back stock, merge, acquire and invest in the secondary market. The net result of these actions was stronger corporations and a weaker labor force.

While it is essential that the United State maintain strong corporations, it is equally essential to develop a strong labor force. Major corporations must play a larger role in developing skills, jobs and startup businesses to fill the 6.1 million open private sector jobs.

U.S. Is Transitioning To a Hybrid Economy



The U.S. economy is transitioning from a traditional W-2 economy with standard employees to a digital 1099 economy with non-employee contingent workers. From a corporate standpoint, non-employees (contingent workers) make a lot of sense. Outsourcing work to a task-oriented and temporary workforce can provide corporate managers more flexibility and higher profitability than maintaining higher-priced, full-time employees. Contingent workers are also a solution to corporations that are struggling to attract talented workers. Critical skillsets can often be obtained by independent contractors, flex-workers, freelancers and on-demand labor.

⁴³ ADP, National Employment Report, December 2016, <http://www.adpemploymentreport.com/>

According to Ardent Partners, a U.S. research consultancy, “95% of organizations today perceive their contingent workforce as important and vital today not only to day-to-day operations, but also to ultimate enterprise success and growth.” In 2015, Ardent calculates that 54% of corporate top talent is concentrated on traditional workers, 20% on contingent workers, and the remaining balance (26%) a combination of traditional and contingent workers. By 2017, this concentration is expected to be 41% traditional, 25% contingent and 34% combined.⁴⁴

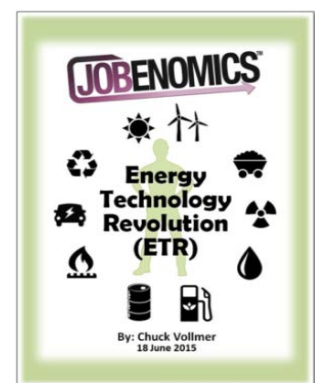
Unfortunately, corporate America does not have a common contingent workforce management framework. The same is true with government agencies at both the federal and state level. In order to build a stronger U.S. labor force, leading corporate executives and government officials need to develop a strategic contingent workforce plan that will minimize exploitive hiring and contracting practices of non-employees as well as giving rise to contingency-oriented businesses that provide livable incomes to their constituencies.

(3) Revolution in energy and network technologies. Today, the U.S. economy can be characterized as a hybrid economy that was formed largely by previous technology revolutions (the post-WWII Military Technology Revolution and the 1980s/1990s Information Technology Revolution) and is being transformed by two emerging technology revolutions (Energy Technology Revolution [ETR] and the Network Technology Revolution [NTR]).

The ETR and NTR have the potential to create millions of small and self-employed businesses and tens of millions of net new U.S. jobs. A substantial percentage of these new jobs will be high-end contingent work provided by contingent workforce oriented professional services firms, consultancies, independent contractors and self-employed businesses.

The ETR and NTR will be both innovative and disruptive. Innovative technology produces new and more efficient products and services that *create* new jobs, businesses, markets and industries. Disruptive technology produces new and more efficient products and services that *displace* existing jobs, businesses, markets and industries. If properly planned and executed, the churn created by the ETR and NTR can provide significant benefit to the U.S. labor force and economy. Unfortunately, the United States does not have a strategic vision for either of these revolutions.

Energy Technology Revolution (ETR)⁴⁵ involves emerging energy technologies, processes and systems that will transform the global energy mix and create hundreds of millions of new jobs around the world. Countries that have a national ETR strategy will claim the bulk of these jobs. Future U.S. energy employment growth will be determined by the degree of forward planning and investment, new businesses creation, recapitalization of retrofitting/replacing old equipment and exportation of American energy-related goods and services.



⁴⁴ Ardent Partners, The State of Contingent Workforce Management 2015-2016, <http://ardentpartners.com/CWM15/ArdentPartners-TheStateofCWM2015.pdf>

⁴⁵ Jobenomics Energy Technology Revolution Report, <http://jobenomicsblog.com/energy-technology-revolution/>

The Energy Technology Revolution (ETR)

The ETR Is A Perfect Storm of Energy Technologies, Processes and Systems Including:

Renewable Energy Sources (Biomass/Biofuels/Wood, Hydroelectric & Hydrokinetic, Wind, Solar, Geothermal, Municipal Waste), Alternative Fuels, Advanced Batteries, Advanced Vehicles (Electric Vehicles, Fuel Cells, Hydrogen Vehicles), Nuclear (Small Modular Reactors, Fusion Reactors), Coal, Conventional and Unconventional Oil & Gas (Petroleum & Other Fluids, Natural Gas, LNG & GTL, Methane Hydrates), Exotics and Yet Unknown Technologies as well as new energy services including Energy Efficiency, Energy Conservation, Energy-as-a-Service (EaaS), Energy Assurance and Security and Energy Disaster Preparedness and Recovery Services.

The ETR Will Revolutionize Labor Forces, Economies And Nations Via The:

Renewable energy sources, micro-grids, net-zero communities, advanced vehicles, alternative fuels, energy storage devices and smart networks will allow energy generation to occur closer to the consumer. Generating power close to the point-of-consumption eliminates cost, complexity, interdependencies and inefficiencies associated with transmission and distribution over 3 million miles of power lines in America.

The ETR Will Be Brilliantly Innovative And Creatively Disruptive:

Creating tens of millions of net new U.S. jobs and businesses.

Jobenomics estimates the size of the U.S. energy super-sector to be approximately 12 million employees, not including another 4 million automotive industry direct employees. If properly managed, this super-sector's future is so bright that is conceivable that the U.S. could double these numbers within the foreseeable future by (1) exporting energy, technology, processes and systems, and (2) moving from a centralized supply-driven architecture to a more decentralized demand-driven architecture that generates power at the point-of-consumption, whether it is a residence, a vehicle or a portable device.

Replacing and retrofitting retiring power generation and transportation systems with newer, cost-efficient and cleaner systems will also produce a new generation of high-tech workers for a workforce that is likely to be dominated by contingent labor.

Driven by growing global energy demand (that is forecast to grow 33% by 2030), climate change, renewable energy, cleaner fossil fuels and energy efficiency, the appetite for clean and affordable energy has never been higher. Climate change is a catalyst for nations, businesses and citizens to adopt new ETR technologies, processes and systems that will create a better, cleaner and cheaper energy ecosystem. Renewable energy sources, including **solar, wind, biofuels, hydroelectric, hydrokinetic, geothermal, municipal waste** and **biomass**, are already producing millions of new American jobs. Cleaner fossil fuels will play a major role in job creation in conventional and unconventional **oil and gas** production. U.S. **coal**, considered a dirty fossil fuel, has a strong upside potential with exports, and clean coal and coal gasification technologies. **Methane hydrates, liquefied natural gas** and **gas-to-liquid** production could also create millions of new

jobs. The United States is also on the verge of major nuclear technology breakthroughs including **fusion**, **small modular** and **thorium nuclear** reactors.

The economic, business and employment potential in transportation is also huge considering revolutionary technologies in **alternative fuels**, **advanced vehicles**, **advanced batteries** and exciting new systems, such as **fuel cells**. In the alternative fuels industry, a dozen technologies show promise including biodiesel, electric, propane, natural gas, hydrogen, ethanol, biobutanol, drop-in biofuels, methanol, P-Series fuels, renewable natural gas, and Fischer-Tropsch xTL fuels. A wide variety of advanced vehicles (biodiesel vehicles, hybrid electric vehicles, plug-in hybrid electric vehicles, all-electric vehicles, flexible fuel vehicles, natural gas vehicles, propane vehicles, and fuel cell electric vehicles) are changing the global automotive and transportation landscape. Every advanced economy has a national advanced battery program. Advanced batteries and fuel cells will boost national economies, perhaps rivaling the economic impact of the personal computer. Jobenomics expects that lithium batteries (lithium-sulfur, lithium-ion, and lithium-ferrophosphate) will deliver the most viable near-term storage systems in both the transportation and electric power generation sectors. Global revenue for fuel cells (proton exchange membrane fuel cells, direct methanol fuel cells, phosphoric acid fuel cells, molten carbonate fuel cells, alkaline fuel cells and solid oxide fuel cells) is projected to grow from \$2 billion today to \$40 billion in 2022.

Worldwide, the automotive manufacturing industry supports over 50 million jobs. Approximately 10 million are direct manufacturing employees and 40 million are indirect or induced jobs. If vehicle manufacturing were a country, it would be the sixth largest economy in the world.

The ETR is likely to change energy scarcity to energy abundance. No one saw the renaissance in the natural gas industry a decade ago due to the combination of horizontal drilling and hydraulic fracturing (fracking). Fracking is unlocking hydrocarbons buried deep underground in the continental U.S. and soon will do so around the world. A decade from now, hydrogen could replace gasoline, and renewables could replace coal. Equally possible, coal would be cooked rather than burned to produce clean methane and net-zero buildings could be energy self-sufficient. Gasification technology is unleashing clean-burning synthetic gases from garbage, human and animal waste and biomass. Energy efficiency has moved from the “hidden fuel” to the “first fuel”, exceeding output from any other fuel source. The vast majority of jobs created by these technologies will involve the contingent workers by a substantial margin over standard jobs.

The energy service-providing industry is one of the fastest growing, and least understood, American industries. Energy services include **energy efficiency**, **energy conservation**, **energy security and assurance**, **energy-as-a-service** (managing large and complex energy assets in an interactive, integrated and seamless way) and **energy disaster preparedness and recovery**. The energy efficiency sector alone could create 1.3 million new U.S. jobs by 2030 and saving U.S. consumers \$1.2 trillion by 2020. Energy service companies, called ESCOs, specialize in monetizing

gains in energy efficiency. U.S. ESCO industry revenues grew from \$2 billion in 2000, to \$6 billion in 2013 and are projected to be as high as \$15 billion by 2020.⁴⁶

Exotic technologies, such as **hydrogen**, energy harvesting, spray-on solar cells, cold fusion and vortex technologies are in development—each of which could have a significant impact on the U.S. economy and labor force. The impact of a hydrogen economy would be dramatic. According to a DoE report to Congress⁴⁷, under a rapid transformation scenario, hydrogen would completely replace new light-duty vehicle sales, replace 11 million barrels/day of oil by 2040, and provide 10% of U.S. electrical consumption by 2050. According to the same report, 675,000 net new direct jobs could be created with manufacturing hydrogen fuel cells, fuel cell maintenance and support systems, and hydrogen production from fossil fuels like coal and natural gas. Net employment in the automotive industry would remain unchanged between the gasoline and hydrogen economies, but replacement of gasoline-related skills with hydrogen-related skills would be substantial in the dealership and repair industries.

Renewable energy sources, **micro-grids**, **net-zero communities**, advanced vehicles, alternative fuels, **energy storage** devices and **smart networks** will allow energy generation to occur closer to the consumer and create millions of micro-businesses for the contingency workforce. Generating power close to the point-of-consumption eliminates cost, complexity, interdependencies and inefficiencies associated with transmission and distribution over 3 million miles of power lines in America. Like distributed computing (i.e., PCs) and distributed telephony (i.e., mobile phones), distributed generation shifts control to the consumer. It is also likely that on-site power generation will create an order of magnitude more businesses and jobs, much in the same way the PCs and smartphones and personal digital assistants currently provide.

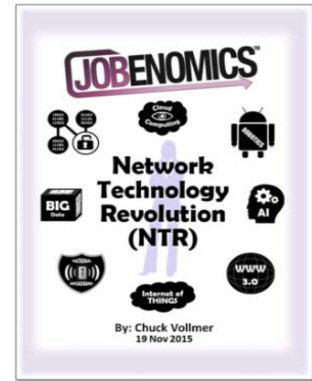
Net-zero communities, buildings and homes could significantly reduce the \$2.0 trillion needed by 2030 to modernize and protect the aging and highly-vulnerable U.S. electrical grid that loses as much electrical energy as it delivers. By shifting energy generation from centralized to decentralized, point-of-use systems, the ETR will not only be more efficient but has the potential to create a massive number of local jobs and small businesses.

While the U.S. is in the forefront in the emerging ETR, America lacks an overall strategy from a business and job creation perspective. A combination of renewable, cleaner fossil fuels, nuclear, transportation, storage, energy efficiency and energy security advancements are needed as outlined in the Jobenomics ETR plan. In the view of many energy experts, the Jobenomics ETR plan is unique since it is a synergistic development plan that focuses on emerging energy technologies, processes and procedures across the entire energy ecosystem from a business and job creation perspective. As the unconventional oil and gas and renewable energy industries have proven, contingent workers and independent contractors are ideally suited for the ETR.

⁴⁶ DoE, Berkeley Lab, September 2013, <http://emp.lbl.gov/sites/all/files/lbnl-6300e-ppt.pdf>

⁴⁷ DoE Hydrogen Program, Effects of a Transition to a Hydrogen Economy on Employment in the United States, Report to Congress, Page 6, July 2008, http://www.hydrogen.energy.gov/pdfs/epact1820_employment_study.pdf

The Network Technology Revolution⁴⁸ is defined by Jobenomics as the next generation in network and digital technology that will transform economies and the way we live, work and play. The NTR will be brilliantly innovative and creatively disruptive. Innovation introduces a new market, industry, or technology and produces something new and more efficient and seemingly worthwhile. Disruption displaces an existing market, industry, or technology and produces something new and more efficient and seemingly worthwhile. The more creative the NTR becomes the more destructive it will be. With the proper focus and leadership, the NTR can create millions of new small business and tens of millions of jobs. Left unattended, unstructured and unplanned, the NTR is likely to render half of the U.S. workforce obsolete in the near future. The NTR could produce tens of millions of net new U.S. jobs and millions of small businesses. On the other hand, via automation, the NTR has the potential to obsolete tens of millions of existing jobs. A national NTR strategy is needed to maximize labor force gains and minimize labor force losses.



The Network Technology Revolution (NTR)

The NTR Is A Perfect Storm of Network Technologies, Processes and Systems Including:

Big Data, Cloud Computing, Semantic Webs, Augmented and Virtual Reality, Mobile Computing, Ubiquitous Computing, Quantum Computing, Near-Field Communications, Inductive Charging, 5G Broadband, Spatial Sensing, Geo-Location, Computer Vision and Pattern Recognition, Natural Language Processing, Speech Recognition, Machine Learning, Transfer Learning, Deep Learning, Memetics, Biometrics, Telepresence, Blockchains, Multifactor Credentialing, Emotive Surveillance, Identity Management, Anonymity Networks, Robotics, Mechatronics, Nanobotics, Ambient Intelligence, Artificial Intelligence, Intelligent Agents and Super Intelligent Agents.

The NTR Will Revolutionize Labor Forces, Economies And Nations Via The:

Digital Economy (aka Internet, Web or New economies), e-Business, e-Commerce (aka business-to-business, business-to-consumer, business-to-government, consumer-to-consumer e-commerce as well as e-retailing, mobile commerce and mobile-Health), On Demand/Sharing Economy (aka Uber and Airbnb economies), Apps Economy, Gig Economy, Third Industrial Revolution (Manufacturing), and the Internet of Things (IoT).

The NTR Will Be Brilliantly Innovative And Creatively Disruptive:

Creating tens of millions of net new U.S. jobs and businesses, and/or
Replacing tens of millions of existing U.S. jobs and businesses.

The NTR Will Ultimately Transform Society By The Collective Resolve Of Humans Working Alongside Sophisticated Algorithms, Smart Machines, Robots And Intelligent Agents:

Revamping existing institutions and governments,
Instituting new and different ideas, beliefs, behaviors and cultures, and
Changing the nature of labor from relationship-oriented to task-oriented work, and full-time standard workforces to part-time contingent workers.

The NTR is characterized by a “perfect storm” of highly advanced technologies, processes and systems including **big data** (datasets that are too large to efficiently handle), **cloud computing** (practice of using a network of remote servers hosted in data centers to store, manage, and

⁴⁸ Jobenomics Network Technology Revolution Report, <http://jobenomicsblog.com/network-technology-revolution/>

process big data), **semantic webs** (thinking websites), **augmented and virtual reality** (blending of the artificial and real worlds), **mobile computing** (proliferation of smart mobile devices and micro-devices), **ubiquitous computing** (embedding microprocessors in everyday objects to communicate without human interaction), **5G broadband networks** (50-fold speed increases and 1000-fold data volume improvements), **spatial sensing** (real-time detection, measuring, mapping and analysis of objects in relationship to the environment), **robotics** (automated machines capable of movement), **mechatronics** (combination of mechanical engineering, computing, and electronics to create nanobots), **nanobotics** (also called nanomachines, nanoids, nanites and nanomites are microscopic self-propelled machines with a degree of autonomy and reproductive capability at the molecular level), **telepresence** (operating machines remotely to create an effect or control), **geo-location** (the process of determining the location of an entity by means of digital information processed via the Internet), **near-field communications** (short-range wireless technology that connects devices), **machine learning** (systems that can learn and teach each other), **deep learning** (an artificial intelligence technique allowing machines to extract patterns from big data in the same manner that the human brain does), **memetics** (machines that can create memes to mimic cultural traits and ideas), **biometrics** (agents that can identify and track biological traits), **blockchains** (distributed digital economy public ledgers), **multifactor credentialing** (automated authentication and identification of crowds, individuals and intelligent agents), **emotive surveillance** (systems that analyze and manage emotions), **identity management** (controlling user access and restoring damaged online identities), **anonymity networks** (networks that enable users to block tracking or tracing data and identities), **ambient intelligence** (when formerly dumb or mute objects are given the ability to communicate), **artificial intelligence** (or AI, intelligent algorithms and agents that will augment human interactions), and **intelligence agents** (AI agents that replace the need for human intervention and actions).

The NTR will transform economies, labor forces and society via including the **Internet of Things** (an environment where vastly more devices are connected to networks than people), the **digital economy** (also known as e-commerce, mobile-commerce, e-business and gig economies which are in their infancies compared to the traditional standard economy), the **sharing economy** (also known as the on-demand economy that individuals to rent or borrow goods rather than buy and own them) and the growing non-standard **contingent workforce**.

From an NTR perspective, Jobenomics sees three major trends occurring in U.S. labor force that will have a dramatic effect on the economy and employment, (1) more than any other labor force trend, the NTR will create significantly more employment opportunities (ala the emerging digital, gig, internet, Uber or e-commerce economy) for the contingent workforce than the standard workforce, (2) new labor force entrants (Generations Y & Z, often described as “digital natives”) will be much more NTR-savvy than previous generations and have a substantial different view regarding the way business is currently conducted and their roles in business, and (3) those who cannot adapt will likely depart the U.S. labor force to the growing netherworld of perpetual familial and government assistance and join the rolls of those officially categorized as “Not in Labor Force”.

America is blessed to be the home of network and information technology giants like Apple, HP, Facebook, Google, CISCO, Amazon, Microsoft, eBay and dozens of other NTR companies. While

U.S. NTR giants are making great technical advancements in communication, media and entertainment, foreign countries in Asia and Europe are using U.S. technology to develop their labor forces and economies to a much greater degree than in the United States.

As corporate citizens, U.S. NTR companies need to assume a much greater role in developing their domestic workforce that is capable of competing and prospering in the emerging global digital economy. From a Jobenomics perspective, NTR CEOs should take the lead (i.e., the responsibility) for creating a minimum of 10 million net new U.S. jobs within the next decade via the creation of network-centric small, micro and self-employed American businesses.

The Apps industry serves an excellent example of only one subset in a myriad of NTR technologies listed earlier in the NTR inventory of emerging technologies. The Apps industry has grown in less than a decade from zero in 2008 to 4 billion apps in an \$87 billion marketplace in 2015 that is expected to double by 2018. According to a recent Apple press release, as a result of the Apple's App Store's success, Apple is now responsible for creating and supporting 1.9 million jobs in the U.S. alone.⁴⁹ If the collective NTR CEO community wanted to create 10 million net U.S. jobs, with livable wages, they could easily do so without government intervention.

If Tim Cook turned Apple's creative energy to creating NTR-optimized e-business devices, tens of millions of more Americans (and billions of people around the world) could be given the opportunity to build a business. If Mark Zuckerberg used Facebook to monetize social networks, tens of millions of new careers could be created. If CISCO's Chuck Robbins will spend a small portion of time and effort developing the Internet of Business as compared to the Internet of Things, millions of new businesses could be created. The same is true of Jeff Bezos and Amazon, Satya Nadella and Microsoft, Sundar Pichai and Google, Ginni Rometty and IBM, as well as the rest of the American NTR CEOs. Together, these companies could create untold numbers of new U.S. jobs and micro-businesses that would mitigate the erosion of the middle-class, provide new career paths for the digital generation, and create meaningful income opportunities and livelihoods for the evergrowing contingent workforce.

(4) Automation of cognitive jobs and rise of centaurs. While the NTR can create tens of millions of jobs, it can also obsolete tens of millions of jobs. The more creative the NTR becomes the more destructive it will be. As more and more standard manual and knowledge workers are displaced, the contingent workforce is likely to expand—perhaps significantly.

The NTR is not today's version of the 1990s Information Technology Revolution (ITR) 2.0. While both the ITR and NTR incorporate revolutionary technology, the NTR portends to be significantly more intrusive than its earlier and more benign ITR cousin. ITR tools were designed to **assist** mankind's productivity via rule-based computation of routine-tasks. NTR agents are designed not only to augment, but also **replace** human endeavor via automation of non-routine tasks. As stated earlier, the NTR represents a perfect storm of technologies that emulates human form,

⁴⁹ Apple, <https://www.apple.com/pr/library/2016/01/06Record-Breaking-Holiday-Season-for-the-App-Store.html>

attributes and intelligence. Not only does the NTR have the ability to create 10s of millions of net new American jobs, it has the ability to eliminate 10s of millions of American jobs via automation.

As skilled labor becomes less available or too costly, employers are turning to automation in order to augment, displace or replace the standard workforce. While automation has been replacing routine manual labor tasks for decades, as evidenced by factory floor robotics, emerging NTR technologies, processes and systems are replacing non-routine cognitive tasks, skills, jobs and occupations at greater and greater rates.

By 2025, automation tools and systems could take on tasks equivalent to 140 million knowledge workers, equating to a global economic impact/savings of up to \$6.7 trillion annually. Knowledge work automation is possible by three NTR technologies: increased computer processing speeds and memory, machine learning and enhanced machine/human interfaces (such as speech recognition and other forms of biometric readers).⁵⁰

According to an Oxford University study on computer automation “about 47% of total U.S. employment is at risk over the next two decades”.⁵¹ If Oxford’s estimates are correct, out of the 143 million U.S. nonfarm workers, 67 million jobs could be at risk. It is incumbent on policy-makers, decision-leaders and NTR CEOs to plan now to mitigate this risk to the degree possible.

The Oxford University study regarding the effects of computer automation on the American labor force is the first major effort to quantify what recent technological advances may

US Occupations Subject To Computerization

0% = not computerizable, 100% = fully computerizable

Probability of Computerization	Sample US Occupations from 702 Occupations
0% to 9%	Executives, supervisors, doctors, therapists, scientists, engineers, designers, lawyers, clergy, teachers, instructors, trainers, advisors, social workers
10% to 20%	Chefs/cooks, chemists, technicians, hairdressers, air traffic controllers, pilots, firefighters, electricians, physician assistants
20% to 29%	Middle managers, computer occupations, analysts, concierges, engineering technicians, sales representatives, middle school teachers
30% to 39%	Actors, medical assistants, investigators, editors, flight attendants, bailiffs, surveyors, interpreters/translators, upholsterers, plumbers
40% to 49%	Judges, health and medical technicians, law clerks, electronic repairers, economists, historians, computer programmers, dispatchers
50% to 59%	Court reporters, product promoters, leather workers, commercial pilots, teacher assistants, cost estimators, transit police, personal financial advisors
60% to 69%	Jailers, meat packers, ticket agents, pipelayers, building inspectors, stock clerks, librarians, janitors, bus drivers, mail carriers, dental hygienists
70% to 79%	Airfield operators, laundry workers, carpenters, broadcast technicians, archivists, painters, bartenders, machine & computer operators
80% to 89%	Attendants, bellhops, cashiers, tool makers, security guards, meter readers, power plant operators, drillers, conservation workers, real estate agents, construction laborers, cartographers, bakers, stonemasons, technical writers
90% to 100%	Inspectors, appraisers, bookies, tour guides, station operators, pharmacy technicians, insurance sales agents, retail sales, butchers, accountants, auditors, waiters, welders, messengers, paralegals, assemblers, clerks, receptionists, gaming dealers, cashiers, real estate brokers, tellers, umpires/referees, loan officers, tax preparers, underwriters, telemarketers

Source: Oxford University, *The Future of Employment: How Susceptible Are Jobs To Computerisation?*, 17 Sep 2013

⁵⁰ McKinsey Global Institute, *Disruptive Technologies: Advances that will transform life, business, and the global economy*, Page 40, May 2013, https://www.sommetinter.coop/sites/default/files/etude/files/report_mckinsey_technology_0.pdf

⁵¹ Oxford University, *The Future of Employment: How Susceptible Are Jobs To Computerization?*, 17 Sep 2013, http://www.oxfordmartin.ox.ac.uk/downloads/academic/The_Future_of_Employment.pdf

mean for future employment and the labor force. Oxford analyzed 702 occupations from the U.S. Department of Labor. This Jobenomics chart above, derived from Oxford data, shows the probability of computerization of 100 occupations arranged from 0% (not computerizable) to 100% fully computerizable.

A job is considered to be “exposed to automation” or “automatable” if the tasks it entails allows the work to be performed by a computer, even if a job is not actually automated. For example, technology has progressed to the point where secretarial and cashier jobs can be automated, but corporations and retail stores still employ approximately 6 million administrative assistants and cashiers in the United States.

The NTR’s impact will be felt across all industries that will become less labor intensive as NTR technologies, processes and systems are assimilated, which is happening quickly at greater and greater rates causing large swaths of the U.S. labor force to become less competitive against their mechanical and digital counterparts. However, the Oxford study acknowledges that political and sociological forces will likely restrict many of these jobs from actually being computerized. Historical objections to automation of factory floor manual labor eventually gave way to free-market forces. At the dawn of the Industrial Revolution (England 1811-16), Luddites tried to organize and destroy factory automation to preserve standard jobs. Today’s Luddites maybe able to slow down the rate of transformation but the economics of automation will eventually defeat techno-pessimists who are resistant to new technologies and change.

In cooperation with Citi Global Perspectives & Solutions, Oxford University conducted two later studies in 2015 and 2016 that addressed automation and computerization in greater detail.^{52&53}

The February 2015 Oxford/Citi study reaffirmed the earlier study probability that 47% of the US labor force is at a high risk of automation. It also assigned the probability that 33% of U.S. workforce is at a low risk of automation (namely the jobs that are highly creative and require social and cultural skills) and the remaining 20% at a medium risk of automation.

According to a 2015 study, “the dominant narrative now characterizing how global labor markets are responding to technological change is one of job polarization: the fact that employment growth has been most robust at the highest and lowest ends of the skills spectrum. The middle skill jobs, in contrast, contain the highest concentration of routine tasks and are thus relatively easy to automate.”

According to a report published by the U.S. Federal Reserve Bank of Kansas City, job polarization is a primary cause for the vanishing American middle-class. “Over the past three decades, the share of middle-skill jobs in the United States has fallen sharply. Middle-skill jobs are those in which workers primarily perform routine tasks that are procedural and repetitive. The decline in the employment share of middle skill jobs has been associated with a number of sweeping

⁵² Oxford Martin School and Citi Global Perspectives & Solutions, Technology At Work: The Future of Innovation and Employment, February 2015, http://www.oxfordmartin.ox.ac.uk/downloads/reports/Citi_GPS_Technology_Work.pdf

⁵³ Oxford Martin School and Citi Global Perspectives & Solutions, Technology At Work v2.0: The Future Is Not What It Used to Be, January 2016, http://www.oxfordmartin.ox.ac.uk/downloads/reports/Citi_GPS_Technology_Work_2.pdf

changes affecting the economy, including *advancement of technology*, outsourcing of jobs overseas, and contractions that have occurred in manufacturing. As the share of middle-skill jobs has shrunk, the share of high-skill jobs has grown, and that trend has drawn considerable attention. Less well known is the fact that the share of low-skill jobs has also risen. This employment phenomenon where job opportunities have shifted away from middle-skill jobs toward high- and low-skill jobs is called ‘job polarization’.⁵⁴

From a Jobenomics perspective, low-skill jobs are the easiest to automate, whereas medium-skilled jobs are the easiest to bifurcate into task-oriented work that can be performed by a combination of humans and machines. While the NTR is creating new positions for high-skilled workers, it is causing increased competition for medium and low-skilled workers who are increasingly being replaced by smart machines. Increased competition causes workers to accept lower wage jobs or forcing medium and low-skill workers into the contingent workforce or out of the labor force entirely. As discussed in detail in the Jobenomics Unemployment Analysis, the number of able-bodied adults that voluntarily have departed the U.S. labor force has grown from 68 million to 94 million citizens and the number of people working part-time or in other “non-employee” contingent jobs is now 40% of the employed workforce.

Since the year 2000, U.S. economic growth is 66% less than what it was prior to the turn of the century. The primary reason for concern is largely due to NTR innovation that “benefits the few rather than the many”. While NTR has produced remarkable achievements like the iPhone, Google, eBay, Facebook, Skype and a myriad of other advancements in genome and autonomous systems, median wages have stagnated in about half of all OECD countries since 2000. Unlike 19th Century Industrial Revolution innovations that created gains for both producers and workers, the NTR has so far has benefited mainly the producers and is displacing workers via the revolution in network technology. “In short, while the digital age has been a blessing to consumers, it is changing the world of work in ways that may make a growing share of workers worse off.”

The January 2016 Oxford/Citi study takes a deeper dive into the effects of automation not only in the United States but the rest of the world. Building on the Oxford’s original work showing 47% of the U.S. workforce at risk, recent data from the World Bank suggests the risks are higher for other countries. Equivalent figures for India are 69% and 77% for China. As compared to the developed world, emerging and developing economies have a much higher rate of low-skilled workers that are more susceptible to automation.

As labor-intensive industries succumb to more automated-intensive industries, middle-income countries like China and India will face a major dilemma inasmuch as more automation will be require to compete internationally but is likely to reverse labor force gains that recently raised hundreds of millions of Asians out of poverty. Countries with large low and medium-skilled populations are especially vulnerable to the so-called “middle income trap”, where a country gets stuck at a level of development out of poverty without the wherewithal to elevate to levels of more advanced economies.

⁵⁴ Federal Reserve Bank of Kansas City, *The Vanishing Middle: Job Polarization and Workers’ Response to the Decline in Middle-Skill Jobs*, <https://www.kansascityfed.org/publicat/econrev/pdf/13q1tuzemen-willis.pdf>

China created its economic miracle via labor-intensive industries that required low and medium-skilled labor. Over the last two decades, China lifted 400 million people out of poverty largely by state-controlled labor-intensive industries in urban areas. Today, China is considered a middle-income country with a per capita income of \$7,600, compared to \$54,600 for the United States.⁵⁵ Over the last five decades only a few countries (Japan, Israel, South Korea and Singapore) have been able to escape the middle-income trap and evolve to the high-income club. NTR automation is likely to make the jump even harder since it is to the advantage of smaller high-skilled communities and will disadvantage larger low-skilled ones. In terms of manufacturing, automation incentivizes companies to move facilities closer to consumers, which could reduce the offshoring trend. 22% of the study respondents believe that North America has most to gain from automation, while 24% believe China has the most to lose.

Within the United States, there is a wide disparity between metropolitan areas in regard to automation. Cities like, Boston, Washington DC, Raleigh, New York, San Francisco are considered low risk, while, Fresno, Las Vegas, Greensboro, Harrisburg and Los Angeles are considered higher risk cities. Generally speaking, diversified, rich, highly educated cities are least exposed. The cities that are most exposed are older single industry centers replete with poorer and low skilled workers. Cities with a high concentration in information-, communication- and network-centric industries are the best prepared to embrace the upsides of NTR automation and the up-skilling that these industries produce for their labor forces. The most promising industries for job creation are in information technology, automotive, robotics, 3D printing, health and medical, which collectively will generate over 50% of all new American jobs. The bulk of these jobs will be in small businesses.

76% of the 2016 Oxford study respondents consider themselves as “techno-optimists” compared to 21% who see themselves as “techno-pessimists”.

From a Jobenomics perspective, this is an extremely important statistic. Too often, pundits overstate the extent of machine substitution and ignore the positive aspects of human/machine partnership in terms of increased productivity, earning and demand for skilled labor. The introduction of machines to the labor force has not historically hurt the labor force. The machine-smashing Luddites certainly did not foresee the massive labor force expansion caused by the industrial revolution in the 1800s. Agricultural machines displaced tens of millions of farmers and farmhands. Mass-produced automobiles displaced skilled artisans. Power tools displaced construction workers. The Information Technology Revolution (ITR) of the late 20th Century increased the U.S. labor force.

On the other hand, a high percentage of economists believe that while automation has not historically reduced employment, today’s information technology and automation is indeed different.

According to a report prepared for the U.S. Federal Reserve, a recent poll on the impact of technology on employment and earnings of leading academic economists conducted by the

⁵⁵ World Bank, GDP Per Capita, 2011-2015, <http://data.worldbank.org/indicator/NY.GDP.PCAP.CD>

Chicago Initiative on Global Markets, 43% of the respondents agreed with the statement that “information technology and automation are a central reason why median wages have been stagnant in the US over the past decade, despite rising productivity,” whereas, only 28% disagreed or strongly disagreed with the statement.⁵⁶

The 2016 Oxford/Citi study calculates that “between 2002 and 2012, 33 legacy jobs were lost for every new digital job that was created.”⁵⁷ The 2015 Oxford/Citi study cited three primary reasons why the NTR is likely to be different from previous technology revolutions: (1) the pace of change has accelerated; (2) the scope of technological change is increasing; and (3) unlike innovation in the past, the benefits of technological change are not being widely shared — real median wages have fallen behind growth in productivity and inequality has increased.”

With a proper national strategy (that currently does not exist), the NTR can replace jobs lost to computerization and automation via the creation of new small business and career paths. The 2016 Oxford/Citi report recommended the top four policy responses to the risks of automaton impacting labor and wealth distribution are (1) invest in education, (2) encourage entrepreneurship, (3) fund active labor market policies that help people find jobs, and (4) fund research that enables innovation and enhances employment.⁵⁸ In general Jobenomics agrees with the following caveats. Rather than investing in education invest instead in skills development and means to create businesses and occupations that will satisfy next-generation business opportunities and align the workforce with new labor market realities, like contingent work.

As history has demonstrated, technological innovation initially has a destructive effect as automated systems replace labor, but as new industries are established, employment expands along with wage growth. Some believe that the NRT may be different. Jobenomics does not concur. A proper national strategy, led by corporate citizens, engaged by entrepreneurial contingent workforce professionals and supported by government, could transform the U.S. labor force and economy for generations to come. To be successful, this strategy would have to maximize productivity and prosperity of both the standard and contingent workforce, and achieve a proper balance between the existing traditional economy and the emerging digital economy.

The business world has already started the replacement process. With the advent of computers and personal digital assistants, most businesses have mostly eliminated the secretarial workforce. Today, semantic (thinking) websites know our shopping and buying habits and modern e-commerce is rapidly upending the standard retail workforce. Intelligence agents are now entering the scene. Got a question, need a direction or need a solution? Just ask Apple’s Siri, Amazon’s Echo or IBM’s Watson for the answer.

⁵⁶ Polanyi’s Paradox and the Shape of Employment Growth, by David, H. Autor, MIT, NBER and JPAL, 3 September 2014, Page 5, <http://economics.mit.edu/files/9835>

⁵⁷ Ibid 36, Technology Is Impacting Media Employment. Page 79

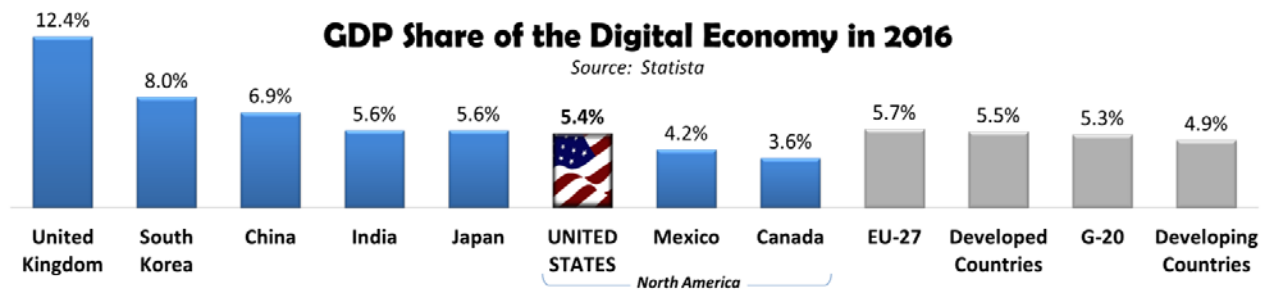
⁵⁸ Ibid 36, Figure 89. Citi’s Survey Results on Policy Responses, Page 98

When artificial intelligence approaches human intelligence, humans will be compelled to turn more decision-making to automated intelligence agents. Hypothetically, machines will eventually mature from general-intelligence to the level of human-intelligence at the point of technical “singularity” when machines become as cognitive as humans. Many experts believe that intelligence agents will achieve singularity as early as mid-century. However, in several critical domains, such as the worldwide financial system, singularity will occur much sooner.

Automation will slowly supplant cognitive labor task by task giving rise to “centaurs” (a combination of human operators, automated intelligent agents and smart machines). Smart machines (that communicate with humans) and intelligence agents (that learn human behavior) are entering the cognitive workforce at a greater and greater rate. Today, these automated machines/agents need human support to perform most tasks. However, they can perform enough complex tasks to reduce the need for full-time human labor, thereby giving rise to centaurs where contingent human workers will provide input as needed or warranted.

(5) Impact of the emerging digital economy. Via the combined innovative and disruptive effects of the NTR, the global economy is transitioning from the 20th Century’s traditional economy to a hybrid 21st Century’s traditional/digital economy.

A digital economy is also referred to as the new, Internet, web, gig, Uber, 1099, freelance, on-demand, shared, network or e-commerce economy—all characterized by a much greater percentage of professional, self-directed contingent workforce owners and employees.



Today, the U.S. economy is a hybrid economy that is approximately 95% traditional and 5% digital as a percent of GDP.⁵⁹ However, the U.S. digital economy is growing at 20% per year and is likely to be the dominant economy by mid-century based on a number of governmental, economic, technological and societal factors that can be managed but not controlled. As shown, global competition for digital economic dominance has already begun and, by many accounts, the United States is not competing as well as one would expect given the U.S. dominance in enabling NTR research & development, technologies, processes and systems.

According to eMarketer, a research firm, worldwide retail products and services sold on the internet with account for 8.6% of the total retail market worldwide for a value of approximately

⁵⁹ Statista, Share of the internet economy in the gross domestic product in G-20 countries in 2016, <http://www.statista.com/statistics/250703/forecast-of-internet-economy-as-percentage-of-gdp-in-g-20-countries/>

\$2 trillion. By 2019, retail e-commerce is projected to increase to 12.8% for a value of \$3.6 trillion. The average growth per year ranges from 18.7% to 22.7% growth.

The digital economy provides a global network that allows individuals, organizations and governments to access information, interact, communicate, collaborate, and provide products and services. Digital products and services include a vast repository of digitized products (news, video, music, data, information, knowledge, etc.), financial transactions (e-government, e-business and e-commerce), social networking (Facebook, Twitter, Instagram, etc.), and networked physical goods (e.g., Internet of Things).

The digital economy consists of various components including: government (policy and regulation), infrastructure (internet, networks, telecom and electricity), providers (digital service, content, information and knowledge workers), technology (R&D, processes and systems) and e-commerce (business-to-business, business-to-consumer, consumer-to-consumer and government to business/consumer). To achieve maximum productivity, these components must operate efficiently and collectively.

A digital economy’s orientation is significantly different than the traditional economy in terms of technology, business and governance.

From a **technology** perspective, today’s traditional economy has an industrial/analog/physical/ product-based orientation as opposed to tomorrow’s digital economy’s informational/digital/virtual/knowledge-based orientation.

From a **business** perspective, in today’s traditional business economy, corporations are oriented to maintaining corporate cultures, long timelines, mass production and relationship-focused transactions and leadership. Emerging digital businesses will be more oriented towards individuals, shorter timelines, customized services and products and task-focused transactions and leadership.

From a **governance** perspective, in today’s traditional economy, governance is oriented to meeting goals defined by performance standards defined by corporate leaders and accomplished by hierarchical, structured and stratified teams. In a digital economy, governance is oriented to task-focused managers of dispersed and networked teams and individuals collaboratively working on defined tasks with shorter-timelines and less cognizance of goals other than accomplishing the task at hand.

As more and more NTR technologies, processes and systems are incorporated, the difference between the old and new economy will become more profound. Cloud computing provides a

Differences Between the Old and New Economies

	Traditional Economy Orientation	Digital Economy Orientation
Technology	Analog	Digital
	Industrial	Informational
	Tangible	Conceptual
	Labor-Intensive	Knowledge-Intensive
Business	Corporate	Individual
	Long Timelines	Short Timelines
	Mass-Produced	Custom-Made
	Relationship-Focused	Task-Focused
Governance	Centralized	Decentralized
	Ordered/Structured	Collaborative/Freewheeling
	Hierarchical	Flat
	Fiat Currencies	Digital Currencies

good example of how a single NTR technology can quickly transform traditional organizations into digital organizations.

In less than a decade, the cloud has gone from a distant vision to the business mainstream. One-third of 200 surveyed senior traditional corporate executives said that cloud computing has a “transformative impact” on their business.⁶⁰ According to the Oxford Economics survey, a key benefit to cloud computing is the flexibility to start new businesses and close down old businesses. Over the next three years, the majority of these 200 corporate executives plan to make “moderate-to-heavy” cloud investments and increase migration of core traditional business functions into the cloud.

If a single NTR technology can create such big impact, one can only imagine the impact of incorporating dozens of other NTR technologies that will transform traditional businesses into hybrid e-businesses. Also imagine the transformative impact that e-commerce will have on small businesses and contingent workers, and the impact that e-government will have on enhancing bureaucratic efficiency and transparency.

The emerging digital economy will favor contingent work over full-time work. As traditional corporations embrace the digital revolution, the full-time workforce is likely to shrink to a fraction of its current size as corporations outsource greater amounts of full-time work to full-time equivalent (FTE) work to the contingent workforce.

Network-centric corporations are already exhibiting this trend. For example, Google has a market capitalization of \$455 billion with 54,000 full-time workers compared to General Electric’s market cap of \$293 billion with 305,000 full-time workers. While General Electric has perhaps five times as many indirect workers than Google, Google has enabled millions of contingent workers and contingent businesses that are engaged in global e-commerce and other NTR-related occupations. Another good example is a General Motors/Uber comparison. GM is worth about \$44 billion with 212,000 employees. Uber’s estimated worth is \$40 billion with 800 full-time employees and an estimated 500,000 contingent workers (mainly drivers) worldwide with approximately half the number in the United States.

(6) Shift from full-time, to part-time and task-oriented labor. Via the NTR and the emerging digital economy, many traditional full-time jobs will be dissected into discrete tasks, which in turn will be addressed by temporary collectives and virtual organizations. Today’s software can divide complex jobs into smaller tasks, automate the routine work, and then recruit contingent workers through online network hubs to perform non-routine work. As automated NTR systems monitor human workers, over time these increasingly intelligent systems will learn and assimilate anthropomorphic traits in order to automate more and more complex non-routine cognitive tasks. Today, the NTR is facilitating the labor force shift to contingent labor. In the future, contingent workers will likely provide machines the wherewithal to replace a substantial

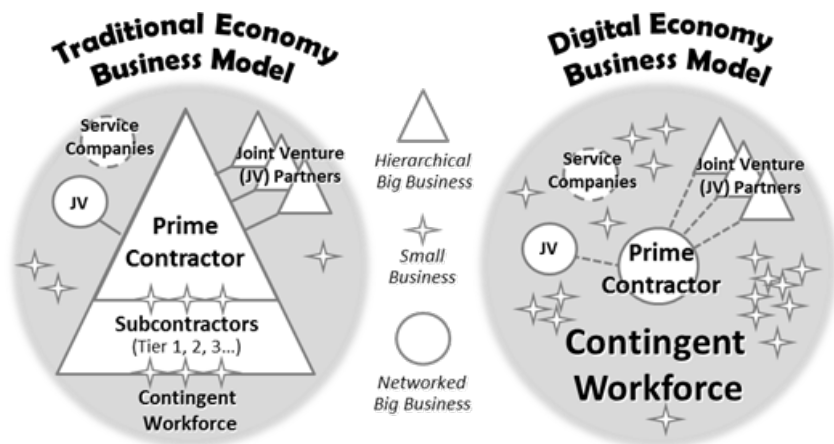
⁶⁰ Oxford Economics, The Cloud Grows Up, February 2015, http://www.sap.com/bin/sapcom/en_us/downloadasset.2015-02-feb-25-23.the-cloud-grows-up-oxford-economics-and-sap-pdf.bypassReg.html

percentage of the human labor force with cheaper and more efficient mechanical forms of labor. A McKinsey Global Institute (MGI) report that showed the 44% of U.S. firms that reduced headcount during the Great Recession did so via automation.⁶¹

Team collaborative and management tools will further create “contextual” work environments that rapidly form, perform, and then reform to address subsequent tasks. Micro jobs, micro labor and micro tasks are becoming more common, while brick and mortar edifices that house full-time employees are giving way to temporary offices, mobile computing and home-based operations—environments ideally suited for contingent workers.

According to an annual four-year report and survey of 7,000 business executives in 130 countries, the Deloitte Global Human Capital Trends 2016 report states that 92% of the executives see a need to redesign their organizations from a hierarchical managerial model to “highly empowered teams, led by a breed of younger, more globally diverse leaders. To lead this shift toward the ‘new organization’, CEOs and HR leaders are focused on understanding and creating a shared culture, designing a work environment that engages people, and constructing a new model of leadership and career development.” Over 80% half of surveyed executives, across a wide range of public and private industry sectors, stated that they are in the process of restructuring or have already completed the process.⁶²

In the Jobenomics lexicon, as shown, tomorrow’s organization will be a hybrid model that embraces both the traditional and digital business models. In a traditional business model, supervisors mandate goals to meet to achieve defined performance standards accomplished by hierarchically structured and stratified teams. While the



contingent workforce is present, it usually is a subordinated and a small fraction of the overall workforce. In a digital business model, managers coordinate dispersed tasked-focused teams that play a much greater and influential workforce role. The formula for success for a hybrid labor force is to find the right balance between the models.

Task-oriented contingent work is likely to accelerate in proportion to digital economy and e-business growth. Contingent work will also be accelerated by the advent of online network hubs designed task-oriented workers.

⁶¹ McKinsey Global Institute, An economy that works: Job creation and America’s future, June 2011, file:///C:/Users/CHUCK/Downloads/MGI_US_job_creation_full_report.pdf

⁶² Deloitte University Press, Global Human Capital Trends 2016, The New Organization: Difference by Design, <http://www2.deloitte.com/us/en/pages/human-capital/articles/introduction-human-capital-trends.html>

Online network hubs (like Amazon’s Mechanical Turk, Flexjobs, microWorkers, Fiverr, Elance and TaskRabbit) provide online labor pools usable by corporations, governments and individuals for tasks of any scale. These network hubs provide access to a highly-skilled, diverse, on-demand, scalable workforce, and correspondingly provides contingent workers a selection of millions of tasks for bid.

Similar hubs are available to contingent businesses. For example, Amazon started Amazon Launchpad⁶³ for startups to launch, market, and distribute their products to hundreds of millions of Amazon customers across the globe. The program offers a streamlined onboarding experience, custom product pages, a comprehensive marketing package, and access to Amazon’s global fulfillment network.

Educational institutions are also experimenting with network technology and contingent workforces. Founded and run by a former Google engineer and using from the founder of Google and other philanthropic sources, AltSchool is a collaborative community of micro-schools that uses outstanding teachers (contingent workers), deep research, and innovative creative collaboration tools to offer a personalized, whole child learning experience for the Generation Z. The future of business and the labor force is certainly not anything like it used to be.

(7) Cultural differences of new labor force entrants. Ethnology involves a branch of study that analyzes cultures in regard to their development, differences and relationships between various demographic groups. The ethnology of new labor force entrants will be increasingly important as 154 million NTR-savvy “Screenagers” (Generation Z, born 1996 to present, now 20 years old and younger) and “Millennials” (Generation Y, born 1980 to 1995, now ages 21 to 36) enter the workforce over the next decade, especially as it applies to the number of Screenagers and Millennials entering as contingent workers.

154 Million NTR-Savvy Gen Yers and Zers Will Transform The American Labor Force

Generation	Born	Oldest Age In 2016	U.S. Population Millions		Predominant Technology Culture	Predominant Business Aspirations
Gen Z, Screenagers	Before - 1996	20	87	27%	NTR	Entrepreneurial
Gen Y, Millennials	1980-1995	36	67	21%	ITR/NTR	Aspiring-Entrepreneurial
			154	47%		
Gen X	1966-1979	50	62	19%	Analog/ITR	Intrapreneurial
Baby-Boomers	1946-1965	70	79	24%	Analog Systems	Quasi-Traditional
Great Gen	1912-1945	104	32	10%	Mechanical Systems	Traditional Employee

Total Population 326 100% Source: Jobenomics, U.S. Census Bureau, Ryan-Jenkins

Screenagers and Millennials generally prefer contingent work over traditional full-time occupations. 61% of Millennials still at “regular” jobs want to quit within two years and be

⁶³ Amazon Launchpad, <http://www.amazon.com/gp/launchpad/signup>

entirely independent. 72% of surveyed Screenagers want to start their own business⁶⁴. While much of this is wishful thinking, the NTR will provide many of these Millennials and Screenagers with business and nonstandard employment opportunities that will make their wishes come true.

Properly structured, the digital economy can provide employment opportunities for those Millennials and Screenagers who exhibit “cultural dissimilarities” that make them a poor fit for the traditional workforce. Millennials are now firmly embedded into the U.S. labor force and are providing a multigenerational management challenge⁶⁵ compared to their Generation X (born 1966 to 1979) and Baby-Boomers (born 1946 to 1965) counterparts who have been integrated into the traditional workforce and corporate culture established by the baby-boom generation and their forefathers. Many Millennials, who have distinct ideas about what they expect from their jobs and the reliability of long-term corporate careers, are having a hard time conforming and integrating into traditional corporate culture.

The entrance of Screenagers, who spend an average of 7 hours a day of screen time (i.e., pads, tablets, smartphones and TV), will likely compound the workforce integration challenge since these newcomers have even greater cultural differences, expectations and timelines than the Millennials. Screenager ethnology is incompatible with today’s traditional career paths. Many people think that this will change as Screenagers mature and the harsh realities of earning a living ameliorate their cultural dissimilarities. Jobenomics is not so sure.

Rather than trying to force-fit new labor force entrants into the baby boomer-oriented legacy labor pool, it is prudent to seek solutions that recognize the realities of changing workforce attitudes and help newcomers to productively pursue their self-interests and self-sufficiency. As advocated by Adam Smith, the forefather of today’s classical free market economy, when individuals pursue their self-interest, they indirectly promote the greater good of society by producing vital goods, services and tax revenues for society. Accordingly, “digital natives” should be afforded the opportunity to be self-directed in the emerging digital economy.

Jobenomics contends that micro and self-employed business creation is a viable way to accommodate the expanding contingent workforce and deal with the issue of cultural dissimilarities with new labor force entrants. Screenagers and Millennials represent demographic groups with high motivation and great potential for micro and self-employed business growth. Surprisingly, Baby Boomers also have great potential.

Today, China is trying to replicate its economic success by promoting micro and self-employed businesses with the rural poor. According to recent government figures, the value of Chinese micro and small business loans were \$3.5 trillion⁶⁶ compared to \$0.6 trillion in the United

⁶⁴ Ryan Jenkins Next Generation Catalyst, 7 Emerging Millennial and Generation Z Trends For 2015, <http://ryan-jenkins.com/2015/02/05/7-emerging-millennial-and-generation-z-trends-for-2015/>, and Global Messaging, Beyond Facebook: How to Market to a New Generation, <https://www.globalmessaging.co.uk/index.php/beyond-facebook-market-new-generation/>

⁶⁵ Business News Daily, Despite Skeptics, Millennials Taking Control At Work, 4 September 2013, <http://www.businessnewsdaily.com/5039-millennials-management-positions.html>

⁶⁶ Reuters, China pushes for more small business lending despite bad loans rising, 8 May 2015, <http://www.reuters.com/article/2015/05/08/us-china-economy-idUSKBN0NT00320150508>

States.⁶⁷ In addition to government-sponsored initiatives and financial incentive programs, Chinese companies are aggressively facilitating micro and small business creation.

Alibaba, a Chinese e-commerce company, was founded “to champion small businesses, in the belief that the Internet (digital economy) would level the playing field by enabling small enterprises to leverage innovation and technology to grow and compete more effectively in the domestic and global economies”.⁶⁸ Today, Alibaba underwrites approximately 250,000 micro-businesses per year. Other Chinese NTR companies (Jingdong, Tencent, Baidu, NetEase, Amazon China, et al) are doing the same.

If leading U.S. technology companies were inclined to help U.S. contingency workers create micro and small business in support of filling the 5 million job openings and seizing emerging ETR/NTR employment opportunities, America could put tens of millions of people to work as well as creating millions of small and self-employed business.

Given these seven trends, Jobenomics forecasts that the contingent workforce will continue to rise and eventually overtake today’s standard workforce as early as 2030. More importantly, the nature and character of the U.S. labor force, business and the economy is evolving at an ever increasing rate. More attention needs to be given to maximizing productivity and income security for the contingent workforce.

⁶⁷ U.S. Small Business Association, Small Business Lending in the United States 2013 (Published December 2014), Table B. Value of Small Business Loans Outstanding by Loan Type and Size through June 2014, <https://www.sba.gov/sites/default/files/2013-Small-Business-Lending-Study.pdf>

⁶⁸ Kauffman Foundation, The Importance of Startups in Job Creation and Job Destruction, Last Paragraph, 9 Sep 2010, <http://www.kauffman.org/what-we-do/research/firm-formation-and-growth-series/the-importance-of-startups-in-job-creation-and-job-destruction>

The Workforce Education & Training Challenge

The Father of American Education, Horace Mann, stated that “Education then, beyond all other devices of human origin, is the great equalizer of the conditions of men, the balance-wheel of the social machinery.” While Jobenomics agrees, the educational paradigm required for yesteryear’s workforce development may not be appropriate for many in today’s workforce. Today the U.S. labor force is increasingly characterized by income inequality, an eroding middle class and a growing contingent workforce that traditional degree-oriented educational programs have not been able to mitigate. More skills-based training and certification programs are needed.

The bifurcation of American society into haves and have-nots, skilled and unskilled, and hopefuls and the hopeless is a major educational/training challenge. To those at the top of the American economic pyramid, the old paradigm of “get a degree to get a job, get a better degree to get a better job” is more important than ever. On the other side of the ledger, to those at the bottom of the economic pyramid, more workforce technical and social skills training are needed to stem the increasing exodus to welfare and alternative lifestyles. For many at the bottom getting a postsecondary degree is a bridge too far. Earning a high school degree no longer guarantees a livable wage or viable career.

Education is defined as the process of imparting or acquiring general knowledge, developing powers of reasoning and judgment, and generally of preparing intellectually for mature life. Education generally involves learning theory. In the United States, there are four levels of education: pre-primary, primary, secondary and tertiary. Pre-primary education includes kindergarten, nursery schools, preschool programs and child/day care centers. Primary refers to first through eighth grades. Secondary usually refers to the last four years of high school (ninth through twelfth grade). Tertiary, also called postsecondary, refers to academic pursuit undertaken after high school. Primary and secondary education are compulsory (required by law), whereas pre-primary and postsecondary education is not. Postsecondary undergraduate programs, generally include associate and bachelor (baccalaureate) programs. Postsecondary post-baccalaureate pursuits generally include masters and doctorate programs. Primary, secondary and tertiary/postsecondary are degree-oriented.

Training involves teaching a person a particular skill, knowledge or type of behavior that is related to specific competencies. Training has targeted goals of improving an individual’s capability, capacity, productivity and performance. While some training programs are degree-oriented (such as technical colleges), most training programs (such as skills training, on-the-job training, occupational training, apprenticeships and internships) are certificate-oriented.

From a Jobenomics perspective, understanding the difference between education and training is fundamental to U.S. labor force development. Education is foundational and generally measured by tenure. Training is specific and measured by what one can do once completed. Educational degree-oriented programs are measured in years and are usually expensive. Training programs are often as short as weeks or months, and are relatively inexpensive. For people seeking careers, degree-oriented programs are usually the best choice. For the underprivileged, unskilled and poorly educated segment of society, certificate-oriented skills-based training provides the most effective way to getting a good job, the first step towards a meaningful career.

Evolution of American Education. Horace Mann's greatest achievement was making education affordable to average citizens who could not afford send their children to school by instituting taxes to create "common schools" in Massachusetts. Heretofore, education was available mainly to the rich. Common schools were such a success that they rapidly spread to other states.

The Industrial Revolution in the late 1800s created a need for more specialized education and was the foundation for the state-run university system and the rise of a "credentialed" society. To a large extent today, the American psyche maintains that workforce eligibility depends on degrees and diplomas. Degrees from elite universities are still perceived to be the proper path to desirable jobs.

The Information Technology Revolution of the 1980s and today's Network Technology Revolution are redefining the educational paradigm in the same way that the Industrial Revolution redefined higher and postsecondary education standards of yesteryear. As a result of the transformative nature of these technology revolutions, universities around the world are beginning to recognize that over-specialized, mass-produced, degree-oriented programs may not be able to provide job skills that students and businesses need or want to succeed in today's economy.

Today's students (Generation Z, aged 21 and below) are digital natives who are largely self-taught from countless hours on the Internet. A great percentage of these young workforce entrants view industrially-oriented career paths with a high degree of skepticism. In 2014, Laureate Education, the world's largest higher education network with more than 850,000 students worldwide, commissioned Zogby Analytics to survey 27,000 postsecondary students on how universities could best meet their needs. Based on the survey, students said that they need a more accessible, flexible, innovative and job-focused education. More than 70% think that career-oriented skills, as opposed to subject matter, are required. 61% think that most courses offered by universities need to be taught by industry experts as opposed to tenured academics. 41% want to be able to earn specialized certificates in addition to degrees.⁶⁹ As a result of this survey, Laureate and Zogby introduced a groundbreaking index to track student attitudes about the future of higher education. According to the 2015 Index, 80% of students believe that the primary purpose of education is to improve employment prospects. 96% want universities to foster entrepreneurialism as opposed to academia.⁷⁰

Likewise, American businesses are increasing dissatisfied with the lack of applied-knowledge, problem-solving, critical-thinking and communication skills of postsecondary school graduates. To fill the gap, more and more corporations conduct their own post-postsecondary school training. According to the Georgetown University Center on Education and the Workforce, while colleges and universities spend \$407 billion annually on postsecondary education, employers spend \$590 billion annually on post-postsecondary school training (\$177 billion on formal training and \$413 billion on informal on-the-job training). 58% of formal employer-provided training spending goes to college

⁶⁹ Zogby Analytics, The University of the Future: The Laureate/Zogby Global Students Poll, 9 June 2014, <http://www.zogbyanalytics.com/news/459-the-university-of-the-future-the-laureate-zogby-global-students-poll>

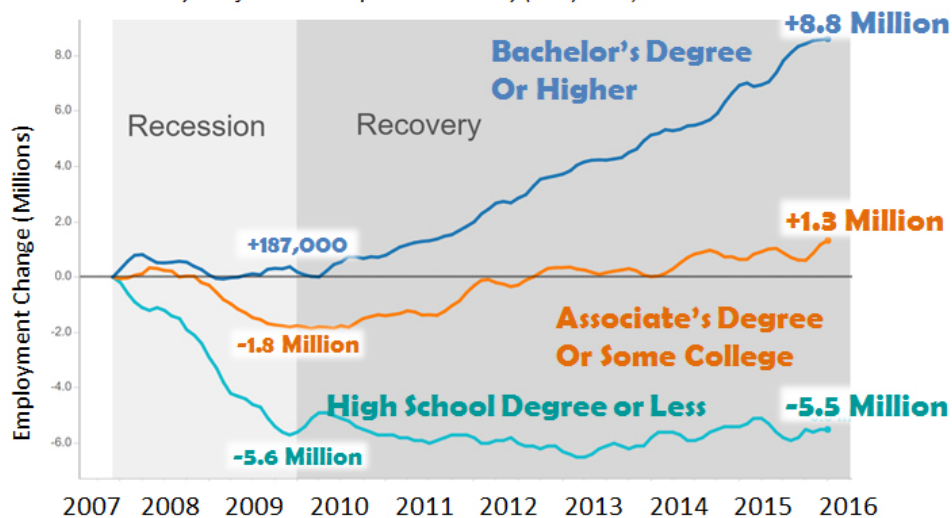
⁷⁰ Zogby Analytics, 2015 Laureate/Zogby Global Student Confidence Index, May 2015, <https://www.laureate.net/Thought-Leadership/~media/Files/LGG/Documents/Thought%20Leadership/Laureate%20Zogby%20Global%20Student%20Confidence%20Index.ashx>

and university graduates.⁷¹ Based on these statistics, degree-based programs are not providing employment-ready graduates.

Even the Association of American Colleges & Universities seems to agree with student and business concerns. According a 2016 Association report, “The ongoing digital revolution has created a complex and interconnected ecosystem that is fundamentally reshaping how we learn and communicate. Yet, despite its transformative potential, this digital ecosystem has so far had less of an impact on formal education than on other sectors of our society”. Furthermore, the report’s authors propose that networked and adaptive systems “re-bundle” higher education by connecting learning experiences to new integrative contexts for transformative learning.⁷²

U.S. Employment by Type of Degree

Source: Georgetown University Center on Education and the Workforce analysis of Current Population Survey (CPS) data, 2007-2016.



The U.S. Employment by Type Degree analysis was developed by the Georgetown University Center on Education and the Workforce. It shows the value of having a postsecondary Degree compared to an Associate’s Degree or some college, and a High School Degree or less during the 2007-2009 Great Recession and the following recovery period.⁷³

According to the report, during the 2007-2009 Recession, individuals with a postsecondary degree gained 187,000 jobs compared to 1.8 million job losses for those with some college or an Associate’s Degree and 5.6 million job losses for those with a high school degree or less.

Graduates with a Bachelor’s Degree, or higher, added 8.8 million overall jobs since the beginning of the Great Recession. Undergraduates with some college or an Associate’s Degree added 1.3 million

⁷¹ Georgetown University Center on Education and the Workforce, U.S. Spending On Post-Secondary Education And Training Reaches \$1.1 Trillion, 4 February 2015, <https://cew.georgetown.edu/wp-content/uploads/2015/02/Training-Press-Release-2.4.14.pdf>

⁷² Association of American Colleges & Universities, Open and Integrative: Designing Liberal Education for the New Digital Ecosystem, 16 June 2016, <https://secure.aacu.org/store/detail.aspx?id=GMSDIG>

⁷³ Georgetown University, Center on Education and the Workforce, America’s Divided Recovery, College Haves and Have-Nots 2016, <https://cew.georgetown.edu/wp-content/uploads/Americas-Divided-Recovery-web.pdf>

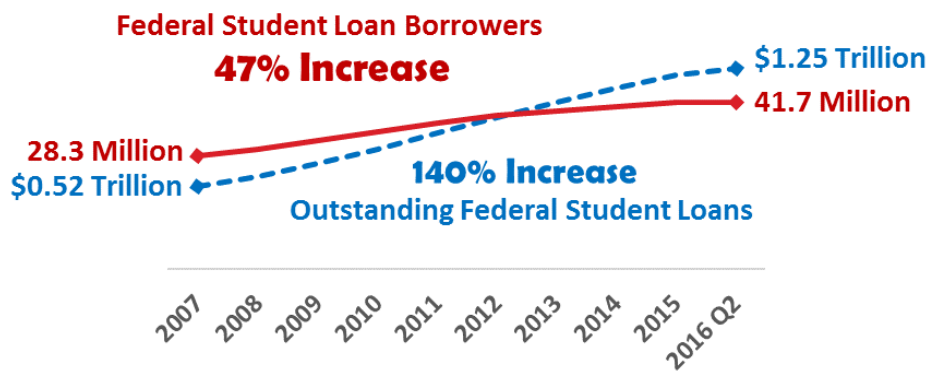
jobs. Individuals with a high school diploma or less lost 5.5 million jobs during the same time period. Even more disconcerting to the poorly educated, approximately all (99%) the jobs created in the post-recession recovery period have gone to people with at least some postsecondary education.

Degree-Oriented Postsecondary Education. According to the U.S. Department of Education, total undergraduate enrollment in degree-granting postsecondary institutions was 17.7 million in fall 2014, an increase of 48% from 1990, plus an additional 2.9 million graduate students. Of the 17.7 million undergraduates, about 60% were enrolled in 4-year institutions, 39% in 2-year institutions and 2% in less-than-2-year institutions. By 2023, undergraduate enrollment is projected to increase 14% to 20.2 million and post-baccalaureate enrollment (Master’s Degree and Doctorate Degree) is projected to increase 24% to 3.6 million.

The Georgetown study reports that not only did the people at the top of the educational pyramid get jobs, they captured the vast majority of the good jobs — full-time jobs that pay more than \$53,000 per year with benefits, such as employer provided health insurance and retirement plans. The Georgetown study also cautions students to seriously weigh the benefits verses the costs in getting these “good” jobs.

In 2013, average student loan debt was \$30,000, but with rising tuitions, \$50,000 is a more reasonable figure for future graduates, and over \$150,000 for elite university baccalaureate programs. For many at the bottom of America’s economic spectrum, getting a postsecondary student loan is the only way to move up the social/educational pyramid—often a great cost that may or may not be fiscally prudent.

Federal Student Loan Program



According the U.S. Department of Education, in 2007, total student debt and student loan recipients were \$0.52 trillion and 28.3 million respectively. Today, outstanding student loans total \$1.25 trillion (an all-time high, up 140% from 2007), with 41.7 million federal student loan borrowers (also an all-time high, up 47% from 2007).⁷⁴ The rate of growth is projected to continue to increase at a rate of 8% per year. If this projection is correct, there will be 97 million student loans totaling \$2.9 trillion by 2026.

⁷⁴ U.S. Department of Education, Office of Federal Student Aid, Federal Student Aid Portfolio Summary, July 2016, <https://studentaid.ed.gov/sa/about/data-center/student/portfolio>

According to the National Center for Education Statistics, in academic year 2013–14, postsecondary institutions spent \$517 billion. Total expenses were \$324 billion at public institutions, \$173 billion at private nonprofit institutions, and \$21 billion at private for-profit institutions.⁷⁵

62% of all surveyed Americans support making public universities, colleges and community colleges tuition-free for anyone who attends.⁷⁶ Hillary Clinton and the Democrat Party agree.

According to the Clinton's campaign website⁷⁷, under the Clinton Plan, families with income up to \$85,000 today, rising to \$125,000 by 2021, would pay no tuition at in-state 4-year public colleges and universities. Community college students would also pay no tuition. Current borrowers will be able to refinance loans at current rates, never having to pay back more than 10% of their income. All remaining college debt would be forgiven after 20 years. The Clinton Plan would cover more than 80% of all U.S. families. Her Plan would also create an additional \$25 billion fund will support historically black colleges and universities, Hispanic-serving institutions, and other minority-serving institutions. Social entrepreneurs and those starting new enterprises in distressed communities will be eligible for up to \$17,500 in loan forgiveness. Parents with PLUS loans will be able to refinance at current rates and students with children will be afforded childcare assistance.

If Hillary Clinton and her tuition-free supporters get their way, the total cost of public postsecondary education (\$324 billion per year) will shift to taxpayers, which equates to half the annual amount spent on the U.S. Armed Forces. However, the Clinton Plan claims that tuition-free postsecondary education “will be fully paid for by limiting certain tax expenditures for high-income taxpayers”.

Supporters argue that tuition-free education will help enroll and graduate more people, and therefore pay for itself via increased government taxes and economic growth. While this argument may be partly true due to the higher earning potential of graduates with bachelor’s degrees, it understates the length of the payback period, the degree of economic impact of graduates with unemployable credentials, the negative impact on people who with less than postsecondary education, and the deleterious impact of the ever increasing number of low-skilled workers who leave the workforce for public assistance and the underground economy.

From a Jobenomics perspective, while it is beneficial to get a college or university degree for the higher paying and high growth rate occupations, it is equally important to gain the skills needed to get a job. While a degree is still considered an advantage, the right degree can make a big difference in getting a meaningful job or being underemployed, which is the case for many college graduates.

⁷⁵ National Center for Education Statistics, Fast Facts, How much do colleges and universities spend on students? <https://nces.ed.gov/fastfacts/display.asp?id=75>

⁷⁶ Bankrate, Clinton floats college tuition plan. Will it fly?, 7 July 2016, <http://www.bankrate.com/financing/saving-money/clinton-floats-college-tuition-plan-will-it-fly/#ixzz4G5qxNK5y>

⁷⁷ Hillary, Making college debt-free and taking on student debt, retrieved 1 August 2016, <https://www.hillaryclinton.com/issues/college/>

Not all degrees are created equal. According to another recent Georgetown study⁷⁸, the risk of unemployment among recent college graduates depends largely on their major. Entry-level salaries for many graduates (such as those majoring in art-related career fields) are \$30,000, which is less than what they can get on welfare in HI, DC, CT, NJ, RI, VT, NH, MD, CA, WY, OR, MN, NV, WA, ND, NM, DE and roughly equal to benefits provided by a dozen other states.

The BLS 2016-17 Occupational Outlook Handbook (OOH), the U.S. government's premier job market reference source, includes 576 detailed occupations (about 83% of total employment).⁷⁹ According to the OOH, in 2014, the top 50 occupations employed 80,012,200 out of a total 150,539,900 employed Americans, which equates to 53% of the U.S. workforce. The bottom 526 OOH occupations employ 70,527,000 Americans, or 47%. Rate of growth for the top 50 occupation is projected at 8% compared to the bottom 526 rate of growth of 4%. Within the top 50, 14 college degree plus occupations (listed below) are projected to grow at 13%.

Top 50 Growth Occupations (With College Degree): 2014 to 2024

College Degree	Occupation	Number of Jobs In 2014	Number of New Jobs	Growth Rate	2014 Median Pay	\$/Hour
1	Registered nurses	2,751,000	439,300	16%	\$66,640	\$32.04
2	Software developers	2,228,000	373,200	17%	\$97,990	\$47.11
3	General and operations managers	2,467,500	147,000	6%	\$102,750	\$49.90
4	Accountants and auditors	1,332,700	142,400	11%	\$69,940	\$31.70
5	Management analysts	758,000	103,400	14%	\$80,880	\$38.89
6	Computer systems analysts	567,800	118,600	21%	\$82,710	\$39.76
7	Physicians and surgeons	708,300	99,300	14%	\$187,200	\$90.00
8	Market research analysts and marketing specialists	495,500	92,300	19%	\$61,290	\$28.47
9	Elementary school teachers	1,517,400	87,800	6%	\$53,760	\$25.84
10	Personal financial advisors	249,400	73,900	30%	\$81,060	\$38.97
11	Physical therapists	210,900	71,800	34%	\$82,390	\$39.61
12	Medical and health services managers	333,000	56,300	17%	\$92,810	\$44.62
13	Secondary school teachers	961,600	55,900	6%	\$56,310	\$26.87
14	Computer and information systems managers	348,500	53,700	15%	\$127,640	\$61.37
Total Top 50 Occupations Requiring A College Degree		14,929,600	1,914,900	13%		
Top 50 Total		80,012,200	6,796,000	8%		
Bottom 526 Occupations		70,527,700	2,992,900	4%		
Grand Total Employment/Jobs		150,539,900	9,788,900	7%		

These 14 college-decreed occupations are projected to generate 1,914,900 new jobs over the 10-year period with substantially higher wages than average. The two occupations that will produce the majority of new jobs include 439,300 registered nurses (\$66,640 median pay in 2014) and 373,200 software developers (\$97,990 median pay). The two highest paying occupations are 99,300 new physicians and surgeons (\$187,000 median pay) and 53,700 new computer and information systems managers (\$127,640 median pay).

⁷⁸ Georgetown Center on Education and the Workforce, Hard Times: College Majors, Unemployment and Earnings: Not All College Degrees Are Created Equal, <http://www9.georgetown.edu/grad/gppi/hpi/cew/pdfs/Unemployment.Final.pdf>

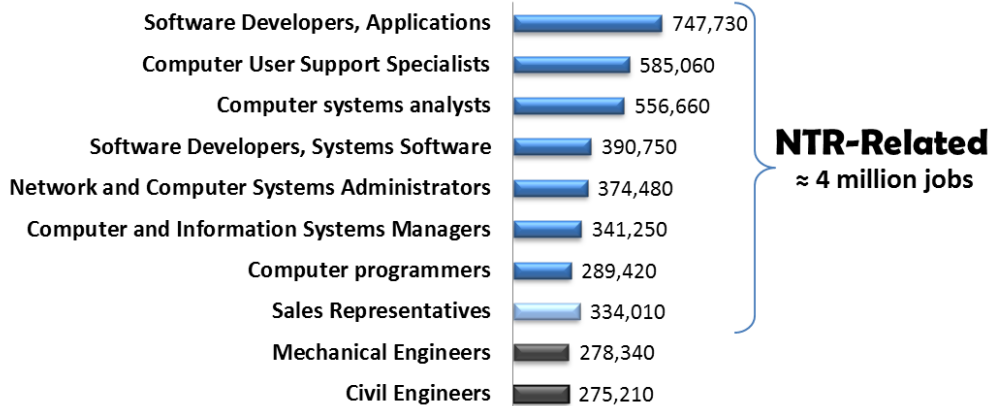
⁷⁹ BLS, 2016-17 Occupational Outlook Handbook, Table 1.3, <http://www.bls.gov/ooh/>

According to a recent PayScale study, the college degrees that are most likely (50%+) to lead to underemployment are: Criminal Justice (62%), Business Management & Administration (60%), Healthcare Administration (58%), General Studies (55%), Sociology (53%), English Language & Literature (52%), Graphic Design (52%), Liberal Arts (50%), Education (50%) and Psychology (50%).⁸⁰

Graduates educated in liberal arts are far more likely to be underemployed than those educated in Science, Technology, Engineering and Math (STEM). STEM degrees related to the Network Technology Revolution (NTR) and the emerging digital economy will capture approximately 4 million of the 9.8 million new jobs projected by the BLS as shown below.

Employment in the Largest U.S. STEM Occupations in 2015

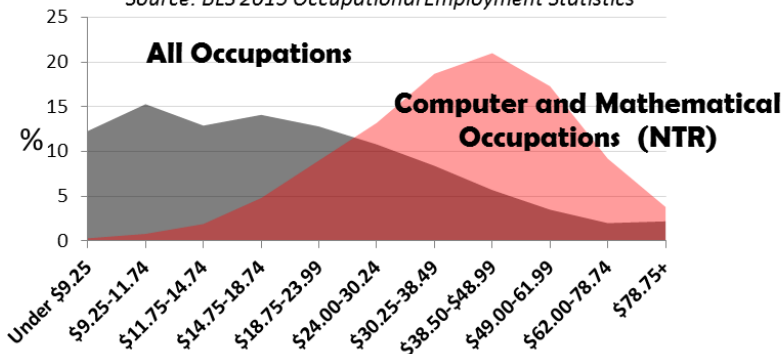
Source: BLS 2015 Occupational Employment Statistics



Furthermore, STEM degrees related to computer and mathematical (NTR-related) occupations will provide higher salaries and greater number of jobs as compared to other occupations as indicated by the BLS 2015 Occupation Employment Statistics data.⁸¹

Wage Ranges for Occupations in 2015

Source: BLS 2015 Occupational Employment Statistics



From a Jobenomics perspective, more discipline is needed to prepare postsecondary students for current job openings by industry and the emerging employment opportunities created by the energy

⁸⁰ PayScale, Underemployment Report, <http://www.payscale.com/data-packages/underemployment>

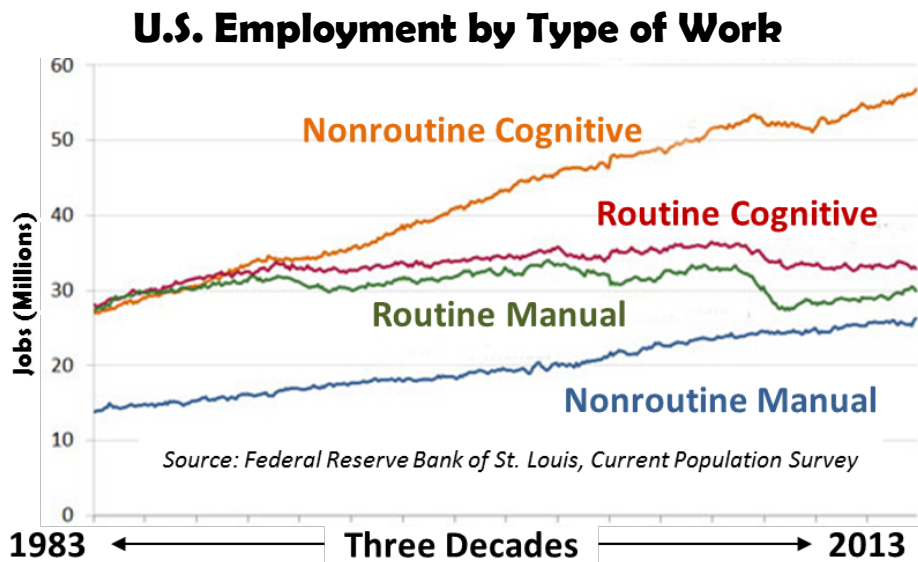
⁸¹ BLS, Occupational Employment Statistics, Data tables for the overview of May 2015 occupational employment and wages, http://www.bls.gov/oes/2015/may/featured_data.htm#largest

and network technology revolutions. Education in STEM-related subjects, especially those closely associated with the emerging digital economy will be especially important in revitalizing the U.S. labor force and economy.

Skills-Based Training & Certification Programs. With such a rapid rise in costs and demand for a postsecondary education, poorly educated and unskilled workers at the bottom of the U.S. educational and economic pyramid are getting farther and farther behind. At some point having a baccalaureate degree will be the new standard for employment replacing today’s high school diploma or equivalent General Educational Development (GED) certificate.

If the Democrat Party achieves its goal of tuition-free college education, the gap between the educated and uneducated will widen even further—likely leading to even greater high school dropouts and voluntary workforce departures. Moreover, only 44% of college and university students complete their college education, putting them behind the power curve in the labor market.

The Network Technology Revolution is obsoleting workers via automation, intelligent agents and smart machines. According to an Oxford University study on computer automation “about 47% of total U.S. employment is at risk over the next two decades”. If Oxford’s estimates are correct, out of the 143 million U.S. nonfarm workers, 67 million jobs could be at risk. This obsolescence will impact all workers, including degreed workers, who have routine manual and cognitive skills.



According to a Federal Reserve Analysis, the U.S. labor force is undergoing “job polarization” with declining middle-skill cognitive and manual routine jobs compared to increasing higher-skill cognitive and manual nonroutine jobs as shown.⁸² The Fed believes that the most likely drivers of job polarization are automation and offshoring, as both these forces lower the demand for middle-skill occupations relative to high-skill occupations. Jobenomics includes the rising contingent workforce is

⁸² Federal Reserve Bank of St. Louis, Jobs Involving Routine Tasks Aren't Growing, 4 January 2016, <https://www.stlouisfed.org/on-the-economy/2016/january/jobs-involving-routine-tasks-arent-growing>

also a major factor as standard full-time jobs are giving way to temporary part-time and task-oriented work.

Yesteryear's degree-oriented paradigm, does not guarantee work in today's high-tech, slow-growth economy where middle-class jobs are increasingly outsourced overseas or automated. Many citizens need short-term skills training and certification programs as opposed to longer-term degrees bestowed by postsecondary institutions. If 44% of college students drop out of college and 40% of college graduates have difficulty finding jobs, how can a high school dropout hope to find legitimate work? The answer is that many don't.

Horace Mann also concluded that "jails and prisons are the complement of schools; so many less as you have of the latter, so many more must you have of the former." Horace Mann, born in the 18th Century, could not have envisioned that in the 21st Century his jails and prisons quote would be as prophetic as it is today.

The United States has more people incarcerated per capita than any other nation in the world. Approximately 2.3 million Americans are incarcerated including 1,310,000 in state prisons, 646,000 in local jails, 211,000 in federal prison and 34,000 in youth detention facilities.⁸³

It is highly likely that these prisoners, as well the formerly incarcerated, preferred to learn short-term criminal skills as opposed to long-term educational degrees. It is also highly likely that jails and prisons excel in advanced criminal skill training and mentoring as evidenced by the high rate of recidivism (relapsing into criminal behavior). From a Jobenomics perspective, basic skills training targeted at high demand jobs would provide viable alternatives to lives in crime. Jobenomics offers these kinds of training programs for the formerly incarcerated.

For depressed and disenfranchised communities, especially in many of the large metropolitan inner-cities, Jobenomics emphasizes three basic forms of skills training: tradecraft, communication and business.

- First priority is tradecraft—a skill acquired through experience in a specific trade—with emphasis on skilled services. Too few workforce entrants or discouraged workers understand how they can obtain workforce skills via short-term training programs, internships and apprenticeships.
- Second priority is communications. In a business sense, communication entails the ability to express and demonstrate one's value-proposition. Without an ability to communicate effectively, a skilled individual will have difficulty maintaining a job.
- The third priority is small business creation with emphasis on services-providing startups that can be created and implemented with short-term training and certification programs. Jobs don't create jobs, business do, especially small businesses. Small businesses also offer the fastest way out of poverty through employment for the unemployed and underemployed. Every city should have a community-based business generator that trains, implements and mass-produces highly-scalable small and self-employed businesses.

⁸³ Prison Policy Initiative, Mass Incarceration: The Whole Pie 2016, <http://www.prisonpolicy.org/reports/pie2016.html>

Job “Skill” Zones 1 Through 5

Skill Level	Zone 1	Zone 2	Zone 3	Zone 4 & 5
Preparation	Little or none	Some	Medium	Considerable or extensive preparation needed. The J-CBBG will fast track these individuals who want to start a business.
Education	None, GED, High School	GED, High School	Vocational school, on-the-job experience, or associate degree	
Experience	Little or no previous skill or knowledge	Some previous work-related skill or knowledge	Previous work-related skill or knowledge	
Job Training	Few days to a few months	One to two years on-the-job experience or apprenticeships	Several years of work-related experience, on-the-job training, and/or vocational training	
Examples	<i>Taxi drivers, waiters, clerks</i>	<i>Electricians, food service managers, assistants</i>	<i>Accountants, sales managers, database administrators, teachers</i>	

A Job Skill Zone is defined as a group of occupations that are similar in skills possessed by an individual who wants to work, how much related experience is needed to perform a task or work, and how much training/education is needed to qualify the individual for the job or task. High-skilled labor requires Zone 3-5 skills that usually are substantiated by degrees from accredited educational institutions. Lower-skilled individuals usually require Zone 1-2 skills that usually are obtained by certifications from accredited training institutions (schools and businesses).

Low skilled individuals at the base of America’s economic pyramid are often trapped between choosing a long-term path of gaining a degree (GED, high school or postsecondary) or dropping out of the labor force entirely—often public assistance or alternative lifestyles. While there is no evidence that people on welfare are lazy or immune to work, there is evidence that many welfare recipients lack the skills necessary to obtain the types of jobs that pay above-average wages, which, in turn, makes welfare an attractive option.

According to a 2013 CATO Institute study⁸⁴, “the current (U.S.) welfare system provides such a high level of benefits that it acts as a disincentive for work....Welfare currently pays more than a minimum-wage job in 35 states, even after accounting for the Earned Income Tax Credit....In 13 states it pays more than \$15 per hour.” Also according to the CATO study, one would have to make more than \$60,000 (pretax wage equivalents) in Hawaii and more than \$50,000 in Washington DC and Massachusetts to beat the level of welfare payments.

The attractiveness of the U.S. welfare system—that is decoupled from any workfare requirements as required in the most liberal European nations—often outweigh the promise of degreed-jobs which have proven to be increasing elusive and unattainable in today’s polarized labor market. In addition, many disenfranchised individuals in financially depressed communities exhibit anti-establishment and counter-cultural attitudes that view standard work as passé, outmoded and less lucrative than they

⁸⁴ CATO Institute, The Work Versus Welfare Trade-Off: 2013, http://object.cato.org/sites/cato.org/files/pubs/pdf/the_work_versus_welfare_trade-off_2013_wp.pdf



can achieve by a combination of public assistance, the underground economy, barter, alternative lifestyles and even criminal behavior.

Consequently, for unskilled, poorly educated and discouraged workers, Jobenomics is implementing short-term skills training and certification programs, which are significantly more attractive than degree-oriented programs, in order to encourage/engage/reengage individuals in workfare.

Top 50 Growth Occupations (No College Degree): 2014 to 2024

Data Sources: BLS, Occupational Outlook Handbook, Employment Projections, Table 1.3

No College Degree	Occupation	Number of Jobs In 2014	Number of New Jobs	Growth Rate	2014 Median Pay	\$/Hour
1	Personal care aides	1,768,400	458,100	26%	\$20,440	\$9.83
2	Food and beverage serving workers	4,731,800	451,800	10%	\$18,550	\$8.92
3	Home health aides	913,500	348,400	38%	\$21,380	\$10.28
4	Retail salespersons	4,859,600	331,000	7%	\$21,670	\$10.42
5	Nursing assistants	1,545,200	267,800	17%	\$25,090	\$12.06
6	Customer service representatives	2,581,800	252,900	10%	\$31,200	\$15.00
7	Construction laborers	1,386,400	180,100	13%	\$30,190	\$14.51
8	Laborers and freight, stock, and material movers	3,719,300	175,500	5%	\$23,560	\$11.33
9	Medical assistants	591,300	138,900	23%	\$29,960	\$14.41
10	Janitors and cleaners	2,360,600	136,300	6%	\$22,840	\$10.98
11	Secretaries and administrative assistants	3,976,800	118,800	3%	\$35,970	\$17.30
12	Medical secretaries	3,976,800	118,800	3%	\$35,970	\$17.30
13	Licensed practical and licensed vocational nurses	719,900	117,300	16%	\$42,490	\$20.43
14	Sales representatives, wholesale and manufacturing	1,800,900	117,200	7%	\$58,380	\$28.07
15	Heavy and tractor-trailer truck drivers	1,797,700	98,800	5%	\$39,520	\$19.00
16	Receptionists and information clerks	1,028,600	97,800	10%	\$26,760	\$12.87
17	Cooks, restaurant	2,290,800	97,000	4%	\$21,120	\$10.16
18	Office clerks, general	3,062,500	95,800	3%	\$28,670	\$13.78
19	Billing and posting clerks	1,426,500	89,300	6%	\$36,230	\$17.44
20	Computer user support specialists	766,900	88,800	12%	\$50,380	\$24.22
21	Electricians	628,800	85,900	14%	\$51,110	\$24.57
22	Stock clerks and order fillers	2,924,300	84,700	3%	\$25,810	\$12.41
23	Maintenance and repair workers, general	1,374,700	83,500	6%	\$36,170	\$17.39
24	Teacher assistants	1,234,100	78,600	6%	\$24,430	\$11.74
25	Landscaping and groundskeeping workers	1,282,000	77,600	6%	\$24,810	\$11.93
26	Industrial machinery mechanics	464,400	73,400	16%	\$47,450	\$22.82
27	Childcare workers	1,260,600	69,300	5%	\$19,730	\$9.48
28	Waiters and waitresses	2,465,100	68,900	3%	\$18,730	\$9.01
29	Cashiers	3,424,200	67,000	2%	\$19,060	\$9.16
30	Hairdressers, hairstylists, and cosmetologists	656,400	64,400	10%	\$23,200	\$11.15
31	Carpenters	945,400	60,400	6%	\$40,820	\$19.63
32	Bartenders	580,900	60,100	10%	\$19,050	\$9.16
33	Dental assistants	318,800	58,600	18%	\$35,390	\$17.02
34	Emergency medical technicians and paramedics	241,200	58,500	24%	\$31,700	\$15.24
35	Security guards	1,102,500	55,000	5%	\$24,470	\$11.76
36	Food preparation workers	873,900	54,800	6%	\$19,560	\$9.40
Total Top 50 Occupations Requiring No College Degree		65,082,600	4,881,100	7%		<i>Below \$15 Min Wage</i>

36 of the top 50 fastest growing OOH occupations require less than a college degree. Within the top 36 non-college degree occupations, the number of projected new jobs range from a high 458,100 new personal care aid jobs to a low of 54,800 food preparation worker job openings over the next decade (2014-2024). In the base year (2014), the labor pool of these combined 36 occupations was 65,082,600 workers with an average projected growth rate of 7%, which should generate 4,881,100 net new jobs over the ten-year period. Many job-seekers will pursue degree-oriented programs to be competitive for these 4,881,100 non-college positions. Many more will seek certification-oriented programs to learn specific skills to be competitive.

As highlighted in red the OOH list, 25 out the 36 non-college occupations are projected to make less than \$15 per hour, the hourly “livable” wage benchmark. Low wages are a deterrent to workfare, thereby making welfare a more attractive alternative. To mitigate this deterrent, Jobenomics believes that being a participant in a small business startup offers an additional incentive for rapid upward mobility into management and enhanced income opportunities. This is the principle that many companies, like fast-food chains, utilize. For example, McDonalds offers a path for employees to start as crew members, who are offered a career path to advance to crew chiefs, then managers and finally to owners.

Most people perceive that minimum wage laws apply mainly to the fast-food industry. This perception understates the serious consequences of a universal minimum wage to all businesses, the labor force and the U.S. economy. If a \$15/hour minimum wage was implemented today nationwide, if all current able-bodied Americans who can work were considered, 159 million citizens make below minimum wage or no wage at all.⁸⁵ 44 million Americans in the top 50 projected highest growth occupations listed would need an hourly increase in pay of up to \$6 per hour.⁸⁶ According to California Governor Jerry Brown, California’s new minimum wage law will increase the wage for about 6.5 million Californian residents or 43% of the state’s workforce.⁸⁷ Major cities that have high costs of living are likely to easily absorb \$15/hour, but smaller cities and rural areas with lower cost of living may not find it so easy. The impact on small business creation and sustainability would be significant.

Jobenomics endorses the concept of a livable wage, especially for enticing people to join the workforce. However, upward mobility is hampered by cutting off the low wage steps of the wage scale ladder—fewer people will be able to climb the ladder because the first step will be much higher. Furthermore, businesses will be more motivated to automate manual and cognitive labor as opposed to hiring. McDonalds, Wendy’s, and many other service-providing companies, are switching to self-ordering and automation to avoid the \$15 wage hike. At the end of the day, fewer people will be hired, valuable skills training would be curtailed and upward mobility diminished.

⁸⁵ U.S. Census Bureau, Current Population Survey, 2015 Annual Social and Economic Supplement, PINC-05, Work Experience in 2014--People 15 Years Old and Over by Total Money Earnings in 2014, Age, Race, Hispanic Origin, and Sex, http://www.census.gov/hhes/www/cpstables/032015/perinc/pinc05_000.htm

⁸⁶ BLS, 2016-17 Occupational Outlook Handbook, Table 1.3, <http://www.bls.gov/ooh/>

⁸⁷ USA Today, \$15 minimum wage coming to New York, Calif., 5 April 2016, <http://www.usatoday.com/story/news/nation/2016/04/04/california-new-york-minimum-wage-hikes-signed-into-law/82617510/>

Rather than instituting a universal minimum wage, Jobenomics prefers workforce incentives and supplements that would encourage 15 million unemployed and underemployed workers, 16 million new workforce entrants per year and 95 million sidelined able-bodied citizens to choose workfare over welfare. Rather than funding people not to work, subsidize them to work by providing ways to bridge the gap between low wages and livable wages.

The U.S. federal Earned Income Tax Credit (EITC) program subsidizes low- to moderate-income working individuals and couples, particularly those with children. In addition to EITC, the federal government funds 126 separate welfare and social program expenditures programs targeted at subsidizing the poor, the disabled and elderly. State, county and municipal governments offer additional welfare and public assistance programs. Total U.S. welfare and social program expenditures are estimated to exceed \$4 trillion per year. Over 50 million people receive nutrition subsidies (food stamps) and another 13 million people receive public or subsidized housing assistance each year. Perhaps, it's time for America to assist people who desire to become self-sufficient via workfare. It would be better to teach people to fish for a living rather than continually providing fish for sustainment.

Subsidies should also be considered for mass-producing startup businesses, especially in depressed communities. These startup businesses would be the economic engine that could revitalize many declining urban and rural communities. To incentivize mass-production of startup businesses, funding should be applied to standardized training and certification programs. Easily accessible low interest loan programs, like the Home Affordable Refinance Program (HARP), should be created for those who want to start and maintain small businesses. Tax and regulatory waivers instituted for the first five years after every business birth. As mentioned earlier, 79% of startups survive one-year, 50% five-years and 33% ten-years. Subsidies, loans and waivers would improve these percentages substantially, boost the economy and increase overall employment.

Conclusion. From a Jobenomics perspective, the difference between education and training is significant to U.S. workforce and small business development. Education is foundational and generally measured by tenure. Training is specific and measured by what one can do once completed. Educational degree-oriented programs are measured in years and are usually expensive. Training programs are often as short as weeks or months, and are relatively inexpensive. For people seeking careers, degree-oriented programs are usually the best choice. For the underprivileged, unskilled and poorly educated segment of society, certificate-oriented skills-based training provides the most effective path into the workforce. At the end-of-the-day, one must remember that jobs do not create jobs, businesses do, especially small businesses that employ 80% of all Americans and created 80% of all new jobs since the end of the Great Recession in 2009.

Jobenomics State and City Initiatives

Jobs creation and business creation go hand-in-hand. Jobs do not create jobs, businesses do, especially small businesses that currently employ the majority of all Americans and create the vast majority of all new jobs. The way that government and big business can plan, manage and support job creation is via mass-producing startup businesses via community-based business generators. A Jobenomics Community-Based Business Generator is designed to mass produce startup businesses with emphasis on minority-owned, women-owned, Generation Y/Z (new workforce entrants)-owned and other hopefuls.

Jobenomics is now working directly with community leaders to develop business and job creation initiatives to mass-produce small businesses and jobs. Emphasis is placed on demographics with the greatest need and potential—women, minorities and youth. Jobenomics New York City, Delaware and Baltimore City initiatives are underway with other city and state efforts in progress including North Carolina and its major cities.

- Jobenomics New York City’s employment goal is for 1,000,000 net new jobs by 2026 in the five boroughs of New York City. Jobenomics New York City is led by a Harlem community leader who is also running for Mayor of New York City.⁸⁸
- Jobenomics Delaware’s employment goal is for 150,000 net new jobs by 2026 across the three counties and three major cities in Delaware. Jobenomics Delaware is led by a Dover business executive who is running for Lt. Governor.⁸⁹
- Jobenomics Baltimore City’s employment goal is for 100,000 net new inner-city jobs by 2026. Jobenomics Baltimore City is currently being led by a Commissioner of the Governors Workforce Investment Committee and inner-city Baltimore community leader.⁹⁰

These community leaders are working with other community, government and business leaders to develop detailed plans, with actionable milestones, for citizens who desire meaningful jobs or want to start a business. A 16-page Jobenomics City & State Initiatives White Paper is available at <http://jobenomicsblog.com/jobenomics-city-state-initiatives/>. Presentations for Jobenomics New York City, Jobenomics Delaware and Jobenomics Baltimore City are also available as footnoted.

Jobenomics Community-Based Business Generator Concept. Jobenomics Community-Based Business Generators mass-produce startup businesses by: (1) working with community leaders to identify high-potential business owners and employees, (2) executing a due diligence process to identify potential high quality business leaders and employees, (3) training and certifying these leaders and employees in targeted occupations, (4) creating highly repeatable and highly scalable “turn-key” small and self-employed businesses, (5) establishing sources of startup funding, recurring funding and contracts to provide a consistent source of revenue for new businesses after

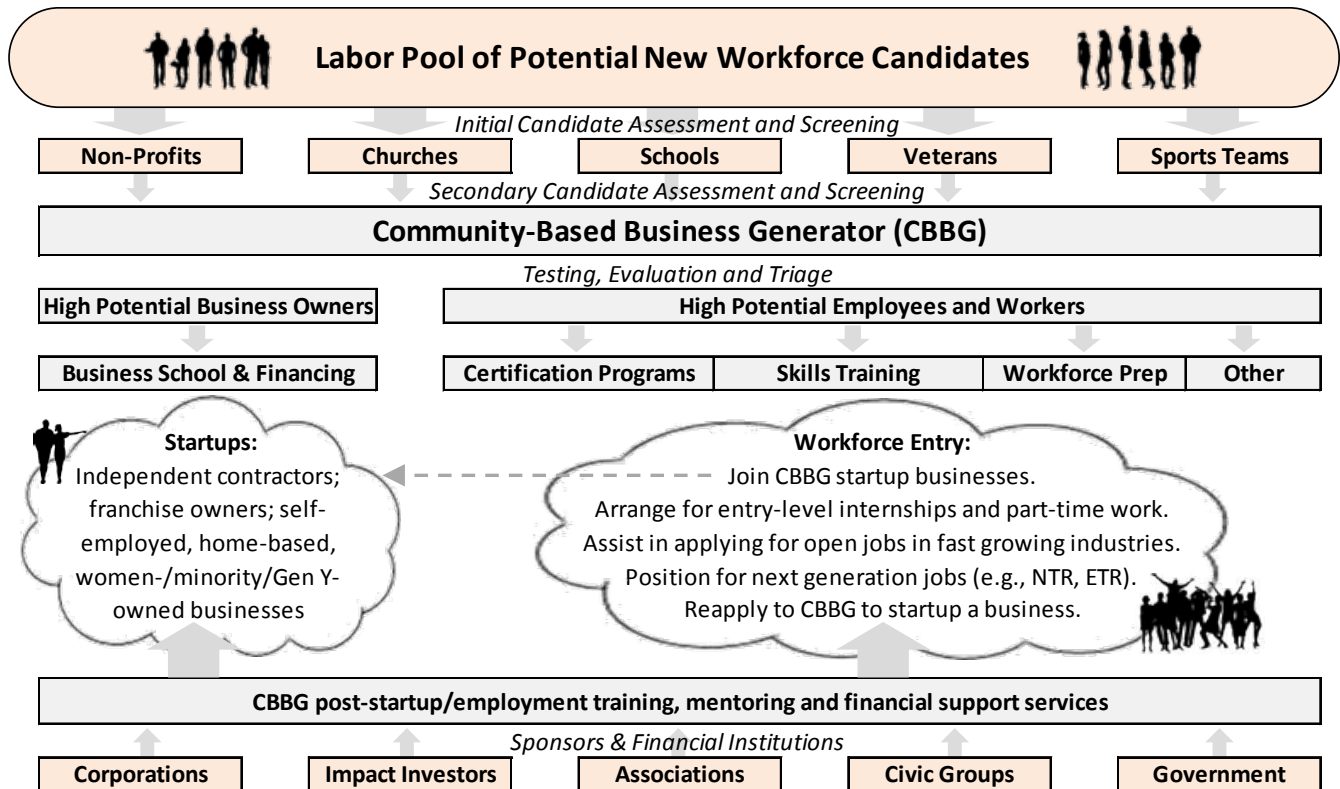
⁸⁸ Jobenomics New York City presentation, <http://jobenomicsblog.com/jobenomics-new-york-city/>

⁸⁹ Jobenomics Delaware presentation, <http://jobenomicsblog.com/jobenomics-delaware/>

⁹⁰ Jobenomics Baltimore City presentation, <http://jobenomicsblog.com/jobenomics-baltimore-city/>

incorporation, and (6) providing mentoring and back-office support services to extend the life span and profitability of businesses created by the Jobenomics Community-Based Business Generators.

Jobenomics Community-Based Business Generator Concept



The process starts by using community leaders to identify high potential job seekers. Churches, non-profit institutions, schools, sports teams and veterans groups are a great source for identifying talent, desire and fortitude. These organizations provide the first phase of the triage process by screening and assessing high performance people who are known to them. The second stage is accomplished during onboarding that involves Jobenomics screening and assessing. The third stage uses aptitude and personality tests to determine potential career paths. Once completed, candidates will be separated into a business leader group or a high potential employee group for training. The leader group will undergo management and startup business training. The employee group will undergo skills training based on the role that they will assume in the startup business (operational, technical, mechanical, financial, marketing, administrative, etc.). After the training is completed and certifications awarded, the team will commence startup operations under the guidance and assistance of the Jobenomics Community-Based Business Generator team. Jobenomics contends that Community-Based Business Generators could vastly improve the rate of startups and expanding businesses, and reduce the rate of contracting and closing businesses.

Starting a notional pool of 10,000 candidates, Jobenomics will work with local civic organizations (churches, non-profits, sports teams, etc.) to identify and nominate the top 1,000, who they know, for the Jobenomics Community-Based Business Generator program. This is the first stage of the due diligence process to separate the proverbial wheat from the chaff. These nominees will then be subjected to standard aptitude and attitude tests in order to willow the list down to 200 to 300

trainees who we believe that could become high-quality employees and business leaders. Approximately 10% would undergo business school training and certification (goal is to startup a locally-owned business) and 90% some form of skills-based training and certification that would be needed in our new startup businesses. If each startup employed 10 people, 20 to 30 new small businesses would be created.

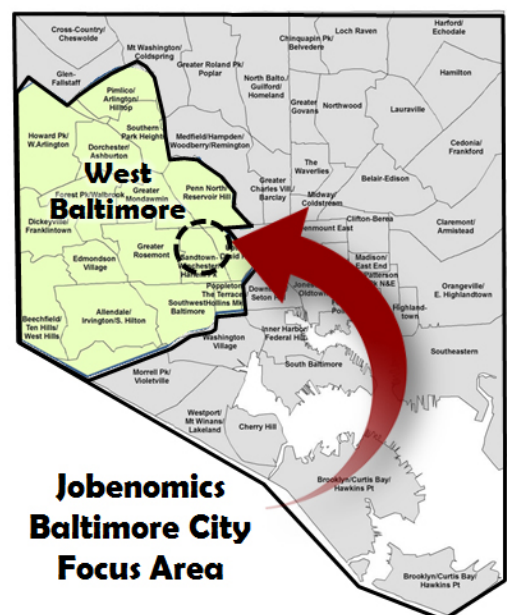
While the overall goal is to mass-produce small businesses, the Jobenomics Community-Based Business Generator will help all people who enter the program to find meaningful employment. Many of the initial 1,000 candidates are likely to prefer working for existing companies rather than going through the Jobenomics process. Anticipating this, Jobenomics will implement a “pipeline” to connect these individuals who have undergone some level of due diligence to companies that are hiring. A common complaint that Jobenomics often hears from companies is that they have a very hard time finding good people who want to work and who have the right attitudes/aptitude for work. Consequently, the Jobenomics management team includes a nationally recognized leader who developed such a pipeline system for the Department of Defense that has matched 250,000 veterans with companies. This system is ideally suited for matching Jobenomics candidates to local employment vacancies.

Today, the United States does not have standardized national, state or local processes to create or mass-produce startup businesses. The U.S. startup process is largely ad hoc. By instituting a community-based (all jobs are local) standardized, repeatable and scalable process to mass-produce (birth) small businesses, millions of new establishments could be created across America. By being part of a small business team, team members will be motivated to grow the business in order to make it more profitable, which facilitates upward mobility, higher wages, better benefits, potential equity positions, and, perhaps most importantly, a sense of camaraderie and purpose.

Jobenomics Baltimore City Initiative. The Jobenomics Baltimore City initiative serves as a good example of what the Jobenomics National Grassroots Movement is trying to achieve with state and local communities.

In April 2016, Jobenomics was contacted by Baltimore City leaders in regard to developing a potential Jobenomics Baltimore jobs creation initiative. After a few meetings, Jobenomics developed an initial framework for the Baltimore Metropolitan Area (MSA). In June 2016, Jobenomics and Baltimore City community leaders met with State and County economic development officials. The State of Maryland, Baltimore County and Baltimore suburbs are performing better than the national average in job creation, but Baltimore City (an independent city within the metropolitan area) is not.

The consensus of the State and County economic development officials was that priority must be given to areas with the highest potential for job creation, namely

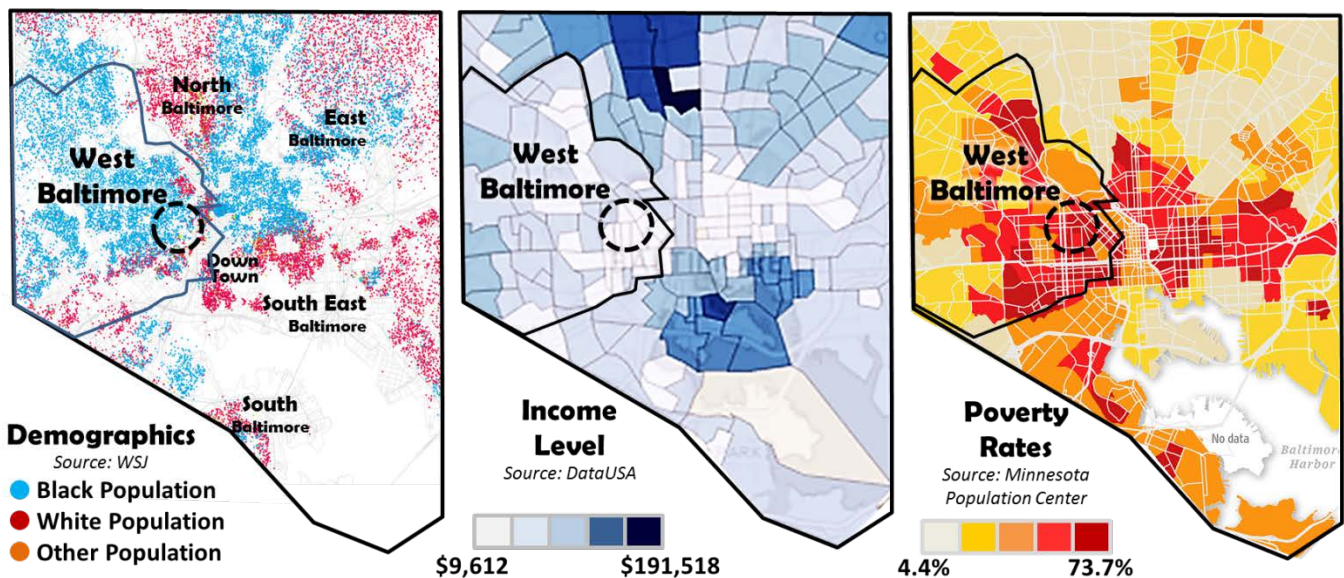


Baltimore suburbs with high skills and resources. By comparison, Baltimore City’s urban labor force has lower skills with fewer resources. As a result of the June meeting, Jobenomics Baltimore was rewritten as Jobenomics Baltimore City focused on West Baltimore’s most distressed neighborhoods—the area where Freddie Gray’s death in police custody in 2015 fueled latent unrest into full-fledged riots and violence.

Over the next several months, these core community leaders are organizing seminars and meetings with other community leaders to discuss the Jobenomics Baltimore City plan and its initial business and jobs creation strategy. These community leaders will include state and local government officials, corporate executives, non-profit organizations as well as the new major’s transition team that will be assembled after the election in November 2016 (several of the core community leaders are slated to be on the Mayor’s Transition Team). These meetings Jobenomics will determine if there is reason to commence fund raising operations for pilot projects in Baltimore.

Based on Jobenomics Baltimore City’s goal of restoring the labor force, Jobenomics analyzed Baltimore City labor force skills, major corporations and businesses within the city limits, current job openings and emerging business opportunities offered by the Energy and Network Technology Revolutions. The analysis also incorporates national, state, county, metropolitan, city and neighborhood statistics regarding demographic, economic, employment, unemployment, business, cultural, educational and job skill data unique to the Baltimore City workforce. Highlights of this analysis are presented below.

Demographic, Income & Poverty Statistics



In 1950, Baltimore City's population topped out at 950,000, of whom 24% were Black. Today, the Baltimore City population is 632,000, of whom 64% are Black, 30% White and 6% Hispanic/Asian/Mixed. West Baltimore’s population is 213,000 and overwhelmingly Black.

By race and ethnicity, the 14 West Baltimore neighborhoods are 98%, 97%, 96%, 96%, 94%, 93%, 92%, 92%, 93%, 89%, 84%, 83%, 73% and 46% Black. Perhaps not surprisingly, the most mixed race

neighborhood (46% Black, 39% White, 8% Asian, 4% Hispanic and 3% Mixed) was Freddie Gray's neighborhood.⁹¹

Baltimore City's median income levels, by neighborhood, range from a low of \$9,612 to a high of \$191,518. The national per capita income is \$47,669. Maryland per capita income is \$56,127.⁹²

Approximately 60% of the adult working age population in the City is employed. Two-thirds of the employed personnel have jobs outside of Baltimore City due the lack jobs in the City.

The national average poverty rate is 14.8% and varies by family size. Maryland average poverty rate is 10.0%. The Baltimore County poverty rate is 9.7%. The average Baltimore City poverty rate is 23.6%.⁹³ Baltimore City neighborhood poverty rates range from a low of 4.4% to a high of 73.5% in West Baltimore's predominantly Black neighborhoods.⁹⁴

The most common race or ethnicity living below the poverty line in Baltimore City is Black (104,000), followed by White (26,000) and Hispanics (6,000). Females, age 25 to 34 (12,900), are the largest single demographic living in poverty.⁹⁵

The percent of female-headed households with children under 18 in Baltimore City averaged 55% of all households. In some areas of the city (such as Cherry Hill, Upton and Druid Heights—a walkable 8-block distance from the proposed Jobenomics Baltimore City Operations Center), the percentage is as high as 77.4% for all female-headed households.⁹⁶ The percentage of single minority female-headed households is likely to be even higher.

Low income levels coupled with high poverty leads to high crime. Baltimore City ranks within the top 20 most dangerous cities in America. Violent crime rate is one of the highest in the nation, across communities of all sizes (both large and small). The chance of a person being a victim of a violent crime (murder and non-negligent manslaughter, armed robbery, aggravated assault and rape) is 1 in 73. The chance of a person being a victim of a violent crime or property crime (burglary, larceny, motor vehicle theft and arson) is 1 in 16.⁹⁷

⁹¹ Statistical Atlas, Map of Race and Ethnicity by Neighborhood in Baltimore, Black, <http://statisticalatlas.com/place/Maryland/Baltimore/Race-and-Ethnicity>

⁹² DataUSA, Baltimore City, MD, Income by Location, <http://datausa.io/profile/geo/baltimore-city-md/#economy>

⁹³ DataUSA, Baltimore City, MD, Poverty by Race & Ethnicity, <http://datausa.io/profile/geo/baltimore-city-md/>

⁹⁴ Wall Street Journal, WSJ analysis of U.S. Census Bureau data via Minnesota Population Center of the University of Minnesota, Diversity Index, <http://graphics.wsj.com/baltimore-demographics/>

⁹⁵ DataUSA, Baltimore City, MD, Poverty by Race & Ethnicity, <http://datausa.io/profile/geo/baltimore-city-md/>

⁹⁶ Baltimore Neighborhood Indicators Alliance-Jacob France Institute at the University of Baltimore, Census Demographics (2010-2014), Percent of Female-Headed Households with Children under 18 (2010), http://bniajfi.org/vital_signs/data_downloads/

⁹⁷ Neighborhood Scout, Crime rates for Baltimore, MD (analysis of FBI data), <http://www.neighborhoodscout.com/md/baltimore/crime/#description/>

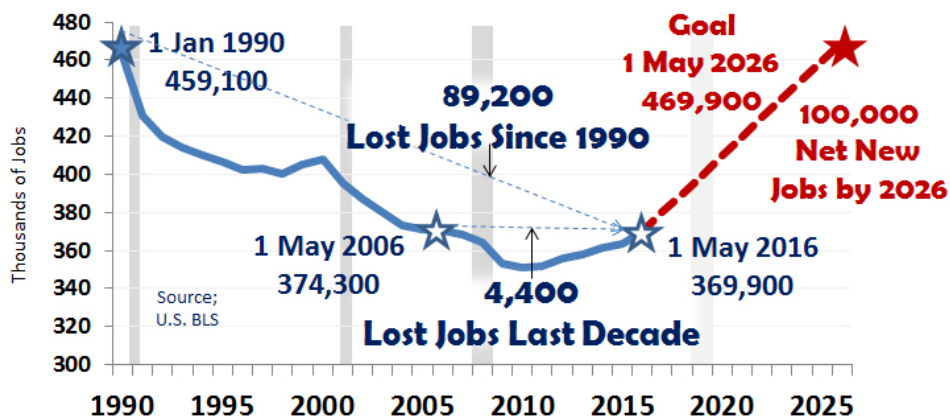
Based on statistical research, neighborhood tours and meetings with West Baltimore community leaders, the Jobenomics Baltimore City team agreed to an overall goal of restoring Baltimore City’s labor force, which would go a long way to increasing incomes, alleviating poverty and reducing crime.

Our research produced an initial net new jobs framework which was enthusiastically endorsed by the half-dozen community leaders on the Jobenomics Baltimore City team.

Creating 100,000 net new jobs by 2026 became the 2026 Jobenomics Baltimore City milestone with emphasis on minorities, women and new workforce entrants.

Jobenomics Baltimore City business and job creation plan focuses on the poorest neighborhoods and expands outward in West Baltimore and then to the rest of City.

Jobenomics Baltimore City Employment History



In January 1990, the City had 459,100 jobs. By May 2016, the City had 369,900—loss of 89,200 jobs since 1990 and a loss of 4,400 over the previous decade.⁹⁸

The Jobenomics Baltimore City team decided on an employment goal of 100,000 net new inner-city jobs by 2026, which would slightly exceed the City’s 1990 employment level. The team also agreed on the principle that jobs do not create jobs, businesses do, especially small businesses that can support the needs of the local community. Consequently, it was decided that the Jobenomics Baltimore City’s small business creation effort should focus primarily on minority, women and new workforce entrants—the demographics with the highest need and potential in West Baltimore and the City at large.

100,000 net new jobs is an aggressive but achievable goal for a city with a population of 621,000 and an employed workforce of 369,900. 100,000 new workers increase the employed workforce by 27% over the next decade, or 2.7%, per year. 2.7% is aggressive but achievable if focused on high growth occupations.

⁹⁸ U.S. Bureau of Labor Statistics, Baltimore Area Employment – March 2016, http://www.bls.gov/regions/mid-atlantic/news-release/AreaEmployment_Baltimore.htm



Most of Jobenomics targeted occupations are forecast by the U.S. Department of Labor to grow faster than 2.7% per year over the next decade. Home health, nursing, occupational and physical therapy jobs are all projected to grow over 3.0% per year. Trainers, construction workers, counseling, computer, medical assistant jobs are projected to grow up to 2.9% per year.⁹⁹

These projections are based on a business-as-usual approach. The Jobenomics approach is much more aggressive with a standardized skills-based training process targeted at local high growth business and employment initiatives. If the Jobenomics Baltimore City plan is successfully implemented, population decay should reverse itself upward and employment increase.

Baltimore City does not lack human resources to fulfill the Jobenomics Baltimore City plan. Over the next decade, a large percentage of the City's 96,000 new workforce entrants, now aged 6 to 18, will enter the workforce ready for meaningful jobs and careers. A high percentage of Baltimore City's 62,000 unemployed who are looking for work may be able to finally land a job, the right job. A reasonable percentage of Baltimore City's 182,000 able-bodied adults who are no longer looking for work may decide to change their minds.

Jobenomics Community-Based Business Generators will work with established educational and training organizations to add an extra dimension to workforce and business development for these new workforce entrants, the unemployed and underemployed, as well as the discouraged, underutilized and sidelined nonworking adults. In addition, the Generators will assist unfulfilled workers who are dissatisfied with their current job, retrain to find employment opportunities more fulfilling.

Jobenomics Baltimore City initiatives include a number of interesting new next-generation and socially conscious job opportunities that should be able to attract 25,000 to 50,000 from outside the City. Since the end of the 2007 -2009 Great Recession, Millennials (now numbering 75.4 million people) have reversed the migration from urban to suburb and are seeking socially-conscious and interesting employment opportunities.

Kevin Plank, the CEO of Under Armour, is looking for such people—10,000 of them to work in his new 4-million-square-foot headquarters on 266 acres in the Port Covington district of Baltimore City. Plank and other community leaders like him want to transform Baltimore as a model and destination city. While the Jobenomics Baltimore City plan is not likely to be involved in Under Armour's direct hiring, it will help develop new business and high quality employees for Under Armour's indirect workforce that is projected to be five times as large (30,000 jobs).

The Jobenomics Baltimore City team will also work with One Baltimore, Visit Baltimore, Innovation Village, BLocal and Baltimore Tourism to develop businesses tailored to making Baltimore City a model destination city. A 25% increase in tourism alone will create 20,000 new jobs.

⁹⁹ U.S. Bureau of Labor Statistics,, Occupational Outlook Handbook, Growth Rate (Projected), <http://www.bls.gov/ooh/>

Given these new opportunities, untapped labor force resources, community support and help from above, the goal of 100,000 net new jobs by 2026 is a very achievable.

In addition to jobs, if the Jobenomics Community-Based Business Generator is as successful as envisioned, it should be able to create as many as 2,000 new small businesses and significantly more self-employed businesses. The Plan also will provide post-startup support that will increase the lifespans of new business and support their growth into medium and large-sized businesses.

As of this writing, the Jobenomics Baltimore City plan has four major objectives, each with four sub-objectives. These objectives are specific to Baltimore City according to the needs of the community as expressed by the current cadre of community leaders. As more community leaders join the initial cadre and commit themselves and their organizations, the plan’s objectives/sub-objectives will be modified to meet their needs.

Jobenomics Baltimore City’s Initial Net New Jobs Framework

Industry/Occupation	Job Zone Skill Level	Jobs		Total Jobs	% of 100K Goal
		Direct (Est.)	Indirect (Est.)		
Manufacturing	1-5	5,750	28,750	34,500	35%
Under Armour	1-5	3,000	15,000	18,000	18%
Foreign (EB-5)	1-5	1,000	5,000	6,000	6%
Urban Mining	1-3	750	3,750	4,500	5%
Light Industrial	1-3	1,000	5,000	6,000	6%
Healthcare and Social Assistance	1-4	6,375	19,125	25,500	26%
Personal Care Aids	1-2	2,000	6,000	8,000	8%
Home Health Aids	1-2	2,000	6,000	8,000	8%
Nursing Assistances	1-2	2,000	6,000	8,000	8%
Direct-Care Center	1-4	375	1,125	1,500	2%
Demolition and Construction	1-4	6,000	18,000	24,000	24%
Demolition Labor	1	1,500	4,500	6,000	6%
Construction Labor	1-2	1,500	4,500	6,000	6%
Live-Baltimore/Retire-Baltimore	1-4	1,500	4,500	6,000	6%
Renewable Energy Initiative	1-4	1,500	4,500	6,000	6%
Digital Economy	1-5	4,000	12,000	16,000	16%
E-Commerce Self-Employed	1-4	2,000	6,000	8,000	8%
On Demand Work (e.g., Uber)	1-3	1,000	3,000	4,000	4%
E-Business Consultants	4-5	500	1,500	2,000	2%
Independent Contractors	3-5	500	1,500	2,000	2%
Total	1-5	22,125	77,875	100,000	100%

Out of the 100,000 net new jobs, 35% will be related to Manufacturing, 26% to Healthcare and Social Assistance, 24% to Demolition and Construction and 16% to the emerging Digital Economy. Both direct and indirect jobs are listed. Direct jobs are actual full-time positions created by business. Indirect jobs are created by other businesses that come into existence due to the economic growth provided by direct employment. Jobenomics uses a direct/indirect ratio of 1:5 for goods-producing business and 1:3 for service-providing businesses. Job skill zone levels are also listed.

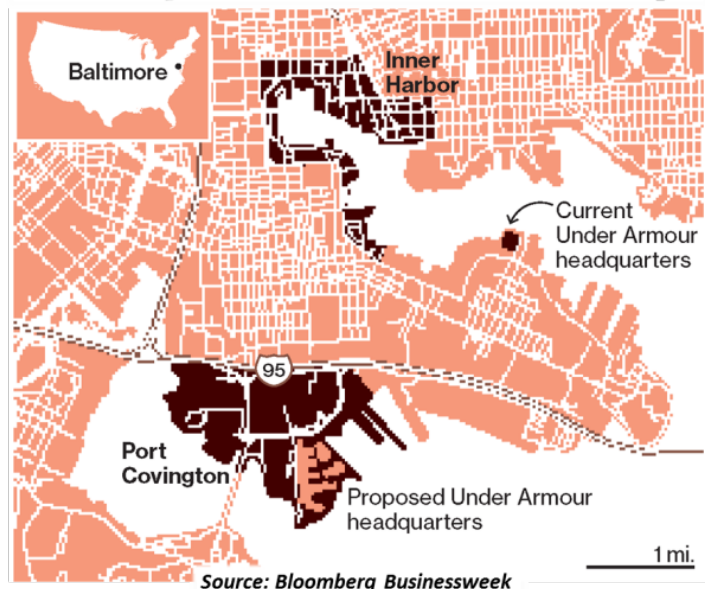
Manufacturing. The first objective is to restore the Baltimore manufacturing labor force by adding 34,500 jobs (5,750 direct and 28,750 indirect). While Jobenomics does not view manufacturing as a major contributor to net new job creation in America (mainly due foreign competition and automation), Baltimore City is an exception.

Baltimore was a major war production center in World War II replete with steel, shipyards and aircraft manufacturing plants. After WWII, Baltimore lost 100,000 jobs in manufacturing alone. Today, the Baltimore region’s manufacturing workforce is about 5% of the labor force compared to 30% in the heydays of the 1950s.

Baltimore City has a rich history of manufacturing. Consequently, it makes it easier politically, publically and culturally to accept major manufacturing initiatives. While only 5% of the workforce, Baltimore still has 100 operational manufacturing companies including major manufacturers like Northrup Grumman (aerospace, defense and information technology), Under Armour (apparel), McCormick & Co. Inc. (food products), BD Diagnostic Systems (medical devices) and AAI (unmanned systems) that employ approximately 15,000 direct employees in the metro area. The City is also replete with adequate, but aging, manufacturing infrastructure and a Tier 2/3 subcontractor manufacturing base. Despite all their challenges, Baltimore City citizens are eager and willing to work as evidenced by extremely large queues of Baltimoreans at job fairs. Most importantly, Baltimore City has a major manufacturing champion, Kevin Plank the CEO of Under Armour, who is personally committed to Baltimore City labor force restoration with next generation jobs and financing to make these jobs a reality.

Kevin Plank was featured on the cover of the 28 June 2016 edition of Bloomberg Businessweek pledging to “jump-start Baltimore”.¹⁰⁰ Baltimore City is Plank’s “adopted city” and he is committed to providing jobs in Baltimore City in preference to exporting these jobs outside the City as well as abroad. In January 2016, Under Armour announced plans to build a 4 million square foot headquarters, employing 10,000 direct employees, on 266 acres that Plank had acquired in the Port Covington district of Baltimore City. In addition to the new Under Armour headquarters, according to Under Armour’s plan, “Port Covington will be home to 7,500 housing units, a hotel, shopping, and two light-rail stops”.

Under Armour’s Current & Future Headquarters In Baltimore City



¹⁰⁰ Bloomberg Businessweek, Under Armour’s Quest to Dethrone Nike and Jump-Start Baltimore, by Rachel Monroe, 28 June 2016, <http://www.bloomberg.com/features/2016-under-armour-kevin-plank/>



Plank's master plan also includes 13 million square feet of offices, 13,500 homes, stores and restaurants, and 42 acres of parks. In June 2016, the City's Planning Commission unanimously approved the master plan that can be obtained at this footnoted website¹⁰¹.

The Jobenomics Baltimore City team intends to work with Under Armour (and other likeminded corporate executives) to help develop Under Armour's indirect workforce that is estimated to five-times the size of the direct workforce with emphasis on minority-owned business, and training and certified lower skilled workers.

The indirect workforce will be drawn from the local community, trained and certified by the business generators to mass-produce small service-providing businesses in areas like transportation, accommodation, food and beverage, retail (convenience stores, salons, barber shops, etc.) and other indirect services businesses. In regard to Under Armour's Tier 2/3 subcontractor manufacturing base, the Jobenomics plan calls for attracting domestic and international textile, information/network technology, commercial/residential development, and renewable energy firms to help meet the needs of Under Armour as well as new and expanding Tier 2/3 firms.

In addition to the above, Jobenomics is working with local officials on an Urban Mining initiative. Urban mining is defined as a process of reclaiming raw materials and metals from municipal waste streams including construction and demolition material, municipal solid waste, electronic waste and tires. These waste streams contain combustible and non-combustible materials. Combustibles are carbon-based matter that has caloric value that can be converted to marketable products via waste-to-organic and energy via waste-to-energy technologies. Non-combustible elements can be reclaimed via waste-to-material technology. Urban mining offers a number of benefits including reclamation of valuable raw materials and metals that can be sold as commodities or used for local manufacturing application, reducing the impact on landfills and exporting of toxic waste, mitigating environmental pollution associated with traditional surface and subsurface mining operations, and producing revenue for local business and job creation.

Jobenomics Baltimore City's Net New Job Framework is tailored to the demographics of Baltimore City. Emphasis is being given to lower skill zones that tend to be more predominant in the poor sections of the inner-city. To date, the Jobenomics Baltimore City plan has been endorsed and led by community leaders who are now obtaining endorsements and support from corporate executives, government officials, opinion leaders and non-profit organizations, all of whom will be involved in the finalization and implementation of an actionable Jobenomics Baltimore City plan.

Healthcare and Social Assistance. The second objective is to enhance Baltimore City's healthcare and social assistance labor force by mass-producing small and self-employed direct-care businesses in order to create 25,500 net new jobs (6,375 direct and 19,125 indirect).

So far this decade (January 2010 to July 2016), the U.S. Healthcare and Social Assistance sector added 2,640,000 jobs—the largest sector of the thirteen labor sectors in the United States. Over the next

¹⁰¹ Under Armour, Presentation to the Urban Design & Architecture Review Panel, 28 January 2016, <http://technical.ly/baltimore/wp-content/uploads/sites/3/2016/02/012816-UDARP-UA-Global-HQ.pdf>

decade, the U.S. Department of Labor projects 3.8 million new U.S. healthcare and social assistance jobs, or 40% of all new U.S. jobs, which is twice the amount of the next fastest growing sector.¹⁰² Over the same time period, the Maryland Department of Labor projects 435,000 new healthcare-related jobs, second only to government growth of 500,000 workers, and 45,000 new social assistance-related jobs.¹⁰³ Creating the Jobenomics plan to create 6,375 direct healthcare and social assistance jobs in Baltimore City by 2026 is a very small fraction of the 435,000 projected new Maryland healthcare jobs when Baltimore City is the hub for Maryland regional medical services.

Seven of the top ten major employers in Baltimore City are involved with healthcare. These esteemed Tier 1 corporations include: John Hopkins Hospital, University of Maryland Medical System, MedStar, LifeBridge, Mercy Health, St. Agnes and Kennedy Krieger Institute. Each of these employers has Tier 2/3 firms involved in healthcare. Jobenomics Baltimore City plan is create a “Tier 4” cadre of small and self-employed healthcare businesses that can work as independent contractors or be acquired by higher tier corporations.

The Jobenomics Baltimore Plan also calls for creation of a Direct-Care Center as part of an overall Direct-Care Initiative focused on healthcare, eldercare and childcare. A Direct-Care Initiative would provide in-home services from local small, micro and self-employed businesses managed by community-based direct-care centers equipped with the latest information systems connected to a network replete with real-time teleconferencing and mobile phone direct-care apps.

A number of factors are expected to lead to job growth in direct-care technology development as well as direct-care business and job creation: (1) growing population, (2) longer life expectancy, (3) chronic and age-related disease growth, (4) improved service-providing technology and (5) increasingly generous healthcare, social assistance and welfare programs.

Today, direct-care jobs are primarily funded through public funds. A direct-care initiative, designed around a community information and coordination center, could be largely paid by clients who need some assistance to retire at home or working families who can't afford the high cost of daycare.

According the Bureau of Labor Statistics, in-home personal care service sector is projected to increase by 1.3 million jobs (a 70% growth rate compared to 14% for all U.S. occupations) from 2010 to 2020 with a median pay of approximately \$20,000. While \$20,000 is well below the \$33,000 median pay for all occupations, it is attractive to new workforce entrants, retirees who need supplemental income and contingent workers who often work multiple part-time jobs as a matter of choice.

Community-based direct-care centers will also help establish and manage home-based healthcare, eldercare and childcare businesses. By 2020, assisted-living facilities are projected to have a 17 million bed shortfall for aging and disabled baby boomers—in-home eldercare services by home-based caregivers could solve the assisted-living shortfall. Today, only 8% of childcare arrangements

¹⁰² BLS, Employment Projections (2014-2024), Table 2. Employment by major industry sector, <http://www.bls.gov/news.release/ecopro.t02.htm>

¹⁰³ Maryland Department of Labor, Maryland Long Term Occupational Projections (2014 - 2024), <https://www.dllr.state.md.us/lmi/iandoproj/maryland.shtml>

are conducted in a caregiver's own home. This percentage could be expanded significantly and safely if managed by a Direct-Care Center. Affordable childcare is a major issue for female-headed households in Baltimore City and nearby suburbs.

Mass-producing self-employed, home-based childcare businesses that are safety managed could have significant impact on homebound mothers. More mothers could have home-based childcare businesses to supplement their income. More mothers could be emancipated from the home to pursue other occupational pursuits. The requisite childcare skills are natural for mothers who are or have raised children. Jobenomics believes that mothers should be afforded the opportunity to monetize these skills. Micro and self-employed businesses are ideally suited to provide direct-care, either on full-time or part-time basis. These businesses are relatively easy to start.

The principal role for government (federal, state and/or local) would be to fast-track policies, regulations and licensing arrangements conducive to in-home care by small and self-employed businesses. Today, the regulatory environment is so burdensome only larger companies can provide the full range of direct-care services. Small and self-employed businesses could provide basic in-home services that would not require extensive regulation and licensing. If teenage babysitters do not need government licensing, why should adults that want to start a self-employed business?

In addition to training and certifying basic caregiving skills, a Direct-Care Center would provide proper regulatory oversight and quality control. The Direct-Care Center would also work with larger established businesses that provide services higher up the skills chain. Small and self-employed businesses can provide basic services at a lower cost than larger businesses, which is extremely important to the elderly and parents who cannot afford the price of current caregiving services.

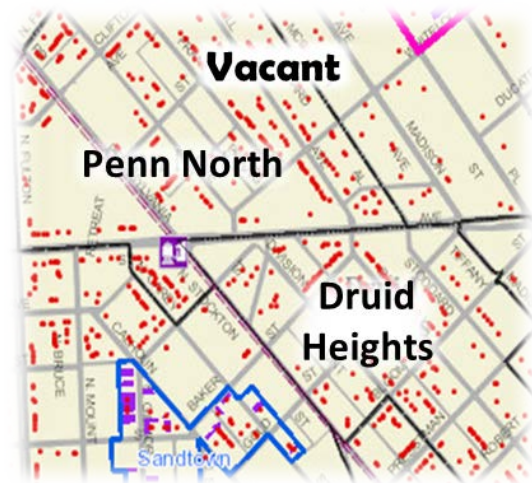
If Airbnb (a trusted community marketplace for people to list, discover, and book unique lodging accommodations around the world) can grow from zero to 500,000 homes in 34,000 cities in eight years, direct-care centers could implement home-based eldercare and childcare services in hundreds of thousands U.S. households in a relatively short period of time. By unleashing the power of new technology, like Airbnb did, it is not unreasonable to expect a quadrupling of the current in-home personal care employment growth rate. In Baltimore City, the net result could be thousands of net new jobs and micro businesses for its most financially distressed demographic.

Demolition and Construction. The third objective is to restore the Baltimore construction labor force by adding 24,000 demolition and construction jobs (6,000 direct and 24,000 indirect).

Baltimore's plan to demolish tens of thousands of residential buildings and commercial properties could lead to tens of thousands of new jobs and businesses if properly planned. Baltimore City's Vacants to Values (V2B) program identifies for-sale vacant homes, commercial buildings, and lots that need to be demolished or refurbished. According to V2B, population loss and other economic factors over the past 60 years have left Baltimore with upwards of 17,000 vacant and boarded structures.¹⁰⁴

¹⁰⁴ Vacants to Values, Demolition Site Maps, <http://www.vacantstovalue.org/Developers.aspx#demomaps>

West Baltimore's Penn North and Druid Heights neighborhood vacancies are the red dots on the map. Based on location, population trends, and market demand, about 5,500 of vacant buildings have good potential for redevelopment. Market demand for the remaining 11,500, however, is very limited. These 11,500 properties are candidates for demolition. Under V2B, the Baltimore City commits \$10 million per year in demolition funding, which is a good start. Much more funding could be obtained for developers to design and build planned residential communities as envisioned by Kevin Plank and likeminded social engineering architects.



According to Baltimore Neighborhood Indicators Alliance, Baltimore City owns 31,092 vacant properties but issued only 4,300 demolition permits due to limited funding.¹⁰⁵ An additional 5,492 properties are in the process of rehabilitation. Baltimore City has a total of 204,295 residential homes, many in need of repair and upgrading. In 2014, 7,822 homes were sold at a median sales price of \$126,325, which is a very low price compared to other East Coast communities. If 100,000 new jobs were added to the workforce as envisioned by the Jobenomics Baltimore City plan, many thousands of demolition, renovation and construction jobs would be needed.

The Jobenomics Baltimore City plan recommends working with V2B to integrate the current demolition, renovation and construction efforts into a small business and job creation plan in association with Jobenomics Community-Based Businesses Generators. Jobenomics has identified a dozen related short (several weeks in duration) federally certified training programs that could quickly mass-produce startup businesses.

The Jobenomics New York City team has secured a commitment from a major New York Bank to fund up to \$20 million worth of micro business loans up to \$50,000 for each startup of this type. Baltimore City could do the same using the new or refurbished home as collateral backed by some form of government loan or guarantee, similar to the federally funded Home Affordable Refinance Program (created by the Federal Housing Finance Agency to help homeowners refinance their mortgage), Freddie Mac (a government owned enterprise created to buy of U.S. home mortgages) and Ginnie Mae (a government owned enterprise created to help make affordable housing a reality for low- and moderate-income households).

Jobenomics also believes that HUD Section 3 financial assistance could be used to startup demolition, renovation and construction businesses. HUD Section 3 financial assistance is expended for housing or community development, targeted at public housing and low income residents and businesses. Section 3 is the legal basis for providing jobs for residents and awarding contracts to businesses

¹⁰⁵ Baltimore Neighborhood Indicators Alliance-Jacob France Institute, Housing and Community Development (2010-2014), http://bniajfi.org/vital_signs/data_downloads/

needing financial assistance.¹⁰⁶ Properly orchestrated, HUD Section 3 could underwrite labor force restoration and business creation efforts in West Baltimore. To qualify for HUD Section 3 financing low income is defined as 80% or below the median income of the Baltimore metro and to qualify as a business at least 51% of the business must be owned by Section 3 residents. Both of these stipulations are easily met in West Baltimore.

The Jobenomics Baltimore City plan calls for the development of Live/Work/Play communities. Live/Work/Play consists of major new modern multilevel, multifaceted, high-tech, sustainable Live/Work/Play communities near the Inner Harbor, which would be a large draw for the Millennial Generation-Y and Generation-Z domestic and international college graduates entering the workforce.

Jobenomics is discussing the possibility of modifying the HUD Section 8 Housing Choice Voucher program to attract low income college graduates (most graduates do not have an income) to the City as opposed to paying poor inner-city residents to move to the suburbs.¹⁰⁷ Using these vouchers in this way would be of interest to developers and investors to build modern Live/Work/Play apartments and condos, as well as planned residential and retirement communities. Live/Work/Play communities would also be of interest to Under Armour for their future employees who would work at the Port Covington headquarters and campus. Under Armour plans to build two light rail stops and a water taxi to connect employees to Downtown Baltimore and the Inner Harbor.

Jobenomics Baltimore City envisions incorporating Live Baltimore into the planned community process. Live Baltimore is a tax deductible non-profit that emphasizes Baltimore City's attractive features: sports, entertainment, low housing costs and other features of city living. Live Baltimore's target generation is Millennials—the largest U.S. demographic with 83 million people. This year, Millennials surpassed Baby Boomers and Generation X as the largest component in the U.S. labor force with 53.5 million workers. Jobenomics Baltimore City also envisions a Retire Baltimore initiative. Retire Baltimore would create low-cost, high-quality assisted-living and skilled-care retirement communities close to Baltimore's leading medical centers and staffed by locally trained and certified caregivers. The Direct-Care initiative will provide low cost services to Retire Baltimore. The ultimate goal is to make Baltimore City an attractive and affordable live/work/play/retire community for the upcoming Millennial and retiring Baby Boomer generations.

Digital Economy. The fourth objective is to enhance Baltimore City's labor force by adding 16,000 jobs (4,000 direct and 12,000 indirect) related to the emerging digital economy. The Digital Economy objective is likely to be the most important of all four objectives from a long-term point of view. The U.S. economy is currently 95% traditional and 5% digital. The U.S. traditional economy is growing at approximately 2% per year and the digital economy is growing 20% per year. If these growth rates

¹⁰⁶ HUD.GOV, Section 3 Brochure,

http://portal.hud.gov/hudportal/HUD?src=/program_offices/fair_housing_equal_opp/section3/section3brochure

¹⁰⁷ Under the current Administration, the total number of voucher households has grown to more than 2.2 million.

According the U.S. Department of Housing and Urban Development, the housing choice voucher program is the federal government's major program for assisting very low-income families, the elderly, and the disabled to afford decent, safe, and sanitary housing in the private market. Since housing assistance is provided on behalf of the family or individual, participants are able to find their own housing, including single-family homes, townhouses and apartments. Source: http://portal.hud.gov/hudportal/HUD?src=/program_offices/public_indian_housing/programs/hcv/about/fact_sheet

continue, the digital economy would equate to $\frac{1}{4}$ of the U.S. economy by year 2026 and $\frac{1}{2}$ by 2033. Consequently, it is essential that all U.S. communities prepare their digitally-oriented labor force for this explosive growth.

The emerging Digital Economy (also known as the Internet Economy, New Economy, Gig Economy Apps Economy, Uber Economy and Shared Economy) is transforming the planet via e-commerce, e-retailing, e-business, m(mobile)-commerce, h(health)-commerce as well as the Internet-of-Things. The Digital Economy will favor an independent home-based, self-employed, flexible and task-oriented part-time workforce over the traditional corporate full-time workforce. The Jobenomics Baltimore City plan will help to develop the digital infrastructure, training and business development to support the emerging digital economy and the ever-growing Baltimorean contingent workforce that is dependent on the web for task-oriented work.

To be economically robust, the Baltimore City economy depends on good jobs that reside inside city limits. In 2010, 54.2% of population worked outside of the City. In 2014, 67.1% did—a rise 24% or 6% per year. The impact of the 2015 riots is yet unknown but many citizens believe that the exodus may worsen especially with Baltimore City's most talented and upcoming youngsters who are entering the workforce. This brain drain has to be reversed. Next-generation talent and skills must be retained in order for the Baltimore economy to grow. Since the digital economy is not geographically constrained, Baltimore's digital natives could work anywhere from home.

Compared to similar sized East Coast cities (Washington 659,000, Boston 659,000), Baltimore City employment opportunities are limited for the upcoming generation, known as Generation Z—born 1996 to present, now 21 years old and younger. Generation Zers are called "Screenagers" due to the amount of time they spend on the Internet and Smartphones. For the most part, Baltimore's Screenagers are digital natives just like all other digital natives across the world. Moreover, digital skills are largely taught during the 7 hours a day that these youngsters spend online. As the world's digital economy matures, Screenagers will be at the helm.

Baltimore City's Screenage population is 177,500 or 21% of the population. 67,000 screenagers, 15-21 years old, are now entering the workforce. The Jobenomics Baltimore City plan will help them prepare for entry as well as starting their own business. The digital economy offers standard and contingent career opportunities that are generally not suitable for older non-digital generations. 72% of surveyed American Screenagers want to start their own business. Baltimorean Screenagers are likely to feel the same. While much of this is wishful thinking, the digital economy will provide many of these Screenagers with opportunities that could make their wishes come true. A Jobenomics Community-Based Business Generator would significantly enhance the probability of success in this regard as well as productively pursuing self-interests and self-sufficiency.

Properly planned and structured, the digital economy will not only mitigate the brain drain leaving the city, but maintain indigenous Screenager talent. As discussed in the previous section, modern high-tech Live/Work/Play communities would also draw Screenage talent from outside the City. The fusion of inside and outside talent would constitute a formidable force for economic and workforce development in Baltimore City.



Economic Impact. Jobenomics estimates that the economic impact would be **negative \$5-\$10 million** if the Jobenomics Baltimore City initiative proved to be unsuccessful after the initial pilot projects. On the other hand, if Maryland and Baltimore City community leaders embraced the concept and supported mass-producing small businesses and jobs, the economic impact could exceed **\$6 billion per year**. 100,000 new jobs at an average salary of \$50,000 are worth **\$5 billion a year** to Baltimore City.

If companies, like Under Amour agreed to support the EB-5 foreign investment and manufacturing initiative, Baltimore City should benefit in numerous new small and medium-sized business in textile- and wearable technology. Corporate support would also help justify developers and financial institutions to invest and build major new modern multilevel, multifaceted, sustainable Live/Work/Play communities near the Inner Harbor which would be a large draw for the Millennial Generation-Y and new Generation-Z domestic and international college graduates. These “digital natives” are flocking to modern high-tech communal working areas with local personally, a sense of purpose, and 24/7 food/beverage/entertainment options. Other real estate investments in new green commercial buildings, residential communities and open spaces would be significant. An e-waste/e-scrap/e-demolition material reclamation facility could produce profits of up to \$50 million per year, and potentially \$200 million per year if Baltimore City can divert the exported e-waste stream from its container shipping facilities. Raw reclaimed materials (copper, aluminum, steel and plastics) could be used at cost for building industrial manufacturing plants in Baltimore. The total economic impact of these initiatives could be between **\$500 million to \$2 billion per year**.

Even a moderate Jobenomics Baltimore City success would receive national and international attention and vastly help improve Baltimore City as a “destination city” for tourism, vacations, sporting events and business conferences. According to Visit Baltimore¹⁰⁸, over 24.5 million domestic visitors and 1.8 million international visitors came to Baltimore City in 2014. The direct economic impact from visitor spending in 2014 was \$5.2 billion spent on lodging, food/beverage, entertainment and transportation. The economic value of tourism beyond direct visitor spending included \$2.7 billion in salaries (82,379 jobs; 56,919 directly employed and 25,460 indirectly employed) that were pumped back into the local economy, and approximately \$0.5 billion that were collected as taxes and fees by the State and Baltimore City government. The total economic impact of tourism to Baltimore City was around \$8 billion in 2014. If the Jobenomics Baltimore City helped improve Baltimore City as a “destination city” by 25%, the additional economic impact could be **\$2 billion per year**.

If 40% (current percentage of the U.S. contingent labor force) of the 100,000 new jobs joined the contingent workforce and would become contingency workers (temporary workers, part-time workers, day laborers, self-employed, task-oriented workers, shared economy workers, independent contractors, consultants, freelancers). If half (20,000) of these workers were Jobenomics Community-Based Business Generator graduates, they would likely be part of a small business startup. If each startup contained 10 employees, **2,000 new small businesses** would be created.

¹⁰⁸ Visit Baltimore, Annual Report And Business Plan Fiscal Years 2015–2016, http://baltimore.org/sites/default/master/files/pdf/ar_2015_final_web.pdf

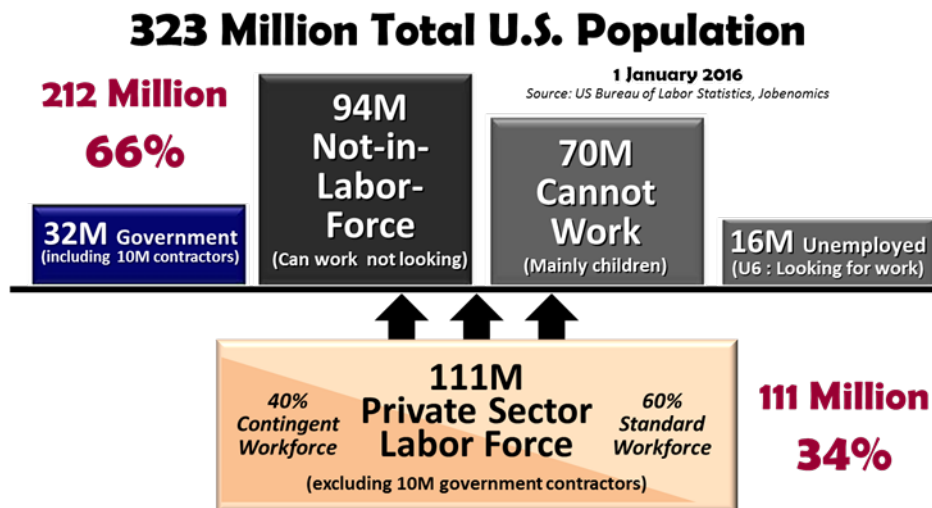


Concluding Thought. Whether the Jobenomics Baltimore City plan will be realized is too early to predict. Fulfillment will be only achieved when consensus is achieved by community leaders and a decision is made to commence with several pilot projects. Today, only one thing is for sure. In the short three months since inception, the Jobenomics Baltimore City plan has changed the Baltimorean workforce development dialog from a project-by-project approach to a more strategic small business and labor force development approach focused on developing skills for those at the bottom of Baltimore's economic hierarchy. The notion of creating 100,000 net new jobs by 2026 was initially received as whimsical. Based on reaction to the plan in its current incarnation, 100,000 net new jobs for Baltimore City is no longer a fanciful notion but an achievable possibility.

Conclusion

Job creation is the number one issue facing U.S. in regard to economic growth, sustainment and prosperity. Jobs do not create jobs, businesses do, especially small businesses that currently employ 78.2% of all Americans and created 80% of all new jobs since the end of the Great Recession.

Unfortunately, America is focused on big business and government employment solutions that have not been very effective growing the U.S. labor force. In fact, the U.S. labor force is in a state of decline as evidenced by the eroding middle-class and the transformation from full-time to core contingency workers. With the next fifteen years, Jobenomics forecasts that the contingent workforce will replace traditional full-time workforce as the dominant force of labor in the United States—a trend that is largely unknown to U.S. policy-makers and the American public.



34% of all Americans financially support the rest of the country. As of 1 January 2016, out of a total U.S. population of 323 million, 111 million private sector workers support 32 million government workers and government contractors, 94 million able-bodied people who can work but chose not to work, 70 million who cannot work (at home caregivers, children, retired, institutionalized), and 16 million unemployed and underemployed.

The U.S. economy is not sustainable with only 34% supporting an overhead of 66%. The growing contingent labor force, which consists of mostly lower paid wage earners, makes the overhead burden even more precarious. More people with livable wages and greater discretionary income must be productively engaged in the private sector labor force for the U.S. economy to flourish.

Of the 111 million workers in the private sector labor force, 70 million individuals work full-time, 26 million are part-timers (less than 35 hours per week) and 15 million are self-employed. The 41 million part-time and self-employed workers are part of the ever-growing contingent workforce that likely to be as high as 60 million people as addressed in this report. Given the seven trends discussed in this analysis, Jobenomics forecasts that the contingent workforce will continue to rise and eventually become the dominant component (50% or more) in U.S. employed workforce.



Jobenomics believes that new small, emerging and self-employed businesses could create 20 million new jobs within a decade, if properly incentivized and supported. Notwithstanding filling the 4.9 million open U.S. jobs positions, the emerging Energy Technology Revolution (ETR) and the Network Technology Revolution (NTR) could create 20 million net new American jobs within a decade given proper leadership and support.

To create this number of net new jobs, Jobenomics asserts that the four demographics with the highest need and growth potential include women, minorities, new workforce entrants, and the large cadre of financially distressed citizens who want to work or start a small business. These demographics are ideally suited for the accommodating the growing contingent workforce and attracting new labor force entrants that often do not share the same employment dream of older generations.

Using the Jobenomics model of mass-producing highly repeatable and scalable “turn-key” small and self-employed businesses via community-based business generators, America writ large could create tens of millions of jobs that would transform the U.S. labor force, middle-class and economy.