***The Price Elasticity of Demand for Unskilled Workers, applied to the Potential Policy under the future Trump Administration for the Deportation of Illegal Immigrants from the U.S.***

 **Introduction**

 Recent political discourse and dialogue in preparation for the recent November 8th, 2016 U.S. Presidential election were at times ‘light’ on substantive issues of policy, but one area of intense debate and perhaps strong disagreement between the two candidates was immigration policy and practice. It was widely reported that the Republican candidate for President would immediately begin the requisite actions necessary to deport up to 11 million immigrants now living illegally in the United States. While this issue will likely evolve over time, Mr Trump said, in Phoenix, AZ on 31 August 2016: “Our enforcement priorities will include removing criminals, gang members, security threats, visa overstays, public charges – that is, those relying on public welfare or straining the safety net, along with millions of recent illegal arrivals and overstays who’ve come here under the current Administration.” (Trump, *Campaign Website*, 2016)

 As President Obama said soon after his 2009 election, “elections have consequences…” and now that Mr Trump is the President-elect, he has already come ‘on line’ as saying that he will begin deportations. In a 13 November 60 Minutes/CBS interview, President-elect Trump reiterated that he will begin deportations of ‘illegal’ immigrants, on an initial scale of between 2-3 million (Amy Wang, *Washington Post*, online, 13 Nov 2016), and the next day the N.Y. Times reported: “[on] immigration, …..he said his priority was to deport two million to three million immigrants he characterized as dangerous or as having criminal records, a change from his original position that he would deport all of the estimated 11 million undocumented immigrants in the country. ” (Julie Herschfeld Davis, *New York Times*, 15 Nov 2016)

 Such large–scale planned deportations could have substantive and lasting impacts on the U.S. economy over time in the short, mid and long term. One of the primary concerns expressed in stark terms by Bryce Covert (about a recent *American Action Forum* report) is that “…6.8 million undocumented immigrants are employed, and removing them from the country all at once would reduce that output by somewhere between $381.5 to $623.2 billion. It could also leave millions of jobs empty, as there wouldn’t be enough legal employees to fill all the vacancies, particularly in industries that disproportionately employ undocumented workers, like construction, farming, and hospitality.” (Bryce Covert, web, May 2016). The Pew Foundation/Trust in 2015 found that “…the U.S. unauthorized immigrant workforce now holds fewer blue-collar jobs and more white-collar ones than it did before the 2007-2009 recession, but a solid majority still works in low-skilled service, construction and production occupations, according to new Pew Research Center estimates.” (Passell and Cohn, *Pew*, 2015)

**Problem statement**

 It may be useful, based on the known outcome of the upcoming Presidential election, to examine the premise that as a policy choice, the Administration could or would deport large numbers of undocumented immigrants from the U.S. The numbers would certainly be in the millions if this undertaking is executed by the future Administration (and supported by Congress and the American people), and would likely include many workers currently in the labor force. Many or a large number of these workers also are ‘unskilled’, and not only are likely paid at or around the minimum wage, but would be difficult to replace or ‘backfill’ with other workers. The problem statement is: **‘to determine, using estimates for price (or wage) elasticity of demand, what the potential impact of possible deportations of unskilled immigrant workers is on the Nation’s economy. Specifically using the change in demand and change in price using microeconomic elasticity formulas, how much more would unskilled sector employers need to pay workers in order to ‘replace’ lost labor due to deportations?**

The shift in the supply curve (i.e., in approximately 4 million unskilled workers from the labor force) due to the deportation of undocumented workers is shown at Enclosure 1/Figure 1. The challenge is to determine the change in equilibrium price (delta) driven by this deportation. This number, derived from price (wage) elasticity of demand estimates, would then enable economic thinking as to what new wage would be required to restore the equilibrium; in other words, hire back the ‘lost’ 4 million undocumented, unskilled workers.

**Elasticity of Demand: Calculations and Assumptions/with Planning Factors** (Note: all calculations by the author, unless as noted with references/citations)

1. **Labor Force**

 (Oct 7 2016 BLS Employment Report) [Please see Enclosures 3 and 4]

 Highlighted -- **Total Employed (Skilled/Unskilled) = 152 Million** (Table A1)

 Targeted: Select Unskilled Occupations (Table A13)

 (Service, Natural Resources (incl Farming), Construction,

 Maintenance, and Production) = **27 + 14 +8 = 49 Million workers**

1. **Potential Loss/ Deportation**

 Total: 6.8 Mil of 11 Million Undocumented Immigrants Employed (Gitis, Varas 2016)

 **Estimate 4 Million Lost Jobs- low end calculation (assume Unskilled, only).**

(Gitis, Varas 2016)

1. **Projection out to 2030** (Wharton Immigration Budget Study, 2016)

 **(**Gillespie, 2016) and (Gitis, Varas 2016)

 Approx 160 Million Employed/in Labor Force

 4 Million Unemployed (unskilled, only).

 Current Employed in Labor Force: 152 Mil to Future

 (160 Mil projected out to the year 2030)

 This represents an approx **5.2 % Increase**

 **Applying the 5.2% Increase to Unskilled Labor Force/Employed**

 **49 Million to .052(4) = +2.548 or 2.55 Mil = 51.55 Mil\***

 **[\***Note: In the Model, Fig 1/Enclosure 1, Estimate S1= 51.55, S2= 51.55-4= 47.55]

1. **Calculate % QD**

In 2030 we would expect 51.55 Mil unskilled workers in the U.S. Labor Force that are employed. If up to 4 Million workers in this labor force are deported and not replaced, that would be QD

Calculate % QD

 of 4/51.55 Mil = -**7.7% of the Unskilled Labor Force in the U.S**. , or % QD

 **5.Elasticity Estimates for Labor Demand**: note, using select unskilled occupations, only.

In order to determine estimates, I selected three major fields or focused vocations/ occupations, using a weighted distribution. Please see Enclosures 5, 6, 7 and 8. I arrived at the following (I chose three weighted unskilled sector populations to get to 100% of my unskilled labor estimates):

**Service: 50% (weight 0.5)**

**Production: 30% (weight 0.3)**

**Farm: 20% (weight 0.2)**

I estimated across the three categories with a high and a low Elasticity of Demand #/ estimate: **See Figure 2 at Enclosure 2 for Final Elasticity Estimates.**

**6. Employ** **Elasticity Formula/ Price [wage] elasticity of demand**

ED = % QD = (Qn - Qo)

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 %  P Qo

 \_\_\_\_\_\_\_\_\_\_\_\_\_

 (Pn - Po)

 ---------------

 ( Po)

%  P (ED) = % QD

%  P = % QD

 =====

 (ED)

Lower elasticity/Higher Estimate %  P = % QD = -7.7 % = **13.94%**

**=====****=====**

 (ED) -0.552

Higher elasticity/Lower Estimate %  P = % QD = -7.7 % = **9.21%**

**=====****======**

 (ED) -0.836

**Conclusions**

 It appears from this analysis that the potential future Administration policy of mass deportation of millions of undocumented immigrants would have a significant impact on the U.S. economy due to the expected loss of unskilled labor jobs. Using the low range of the estimates cited by the American Action Forum of 4 million [unskilled] jobs (Gitis, Varan 2016), and projecting this loss into the future economy (to 2030) provides ‘troubling’ results. The elasticity demand estimates for unskilled labor yield potential price/wage increases of between 9.21% and 13.94%. In other words, using the unskilled occupational fields in the estimate (production, services, and farming, representing unskilled labor more broadly) it would be necessary to increase wages between nearly 9 and 14% in order to “replace” the lost unskilled immigrant labor from deportation. In simple/ practical terms, at the current U.S. minimum wage rate of $7.25 per hour, that would roughly equate to requisite wage increases of between 65 cents to $1.02 per hour in order to regain the market equilibrium, and potentially ‘return’ the balance of the 4 million workers to the labor force. Such wage increases are unlikely; I estimate with a 40 hr week (46 weeks), a cost to employers of $4.78 to $7.507 Billion, annually, for o/a 4 million workers. This policy of deportation could also have other deleterious long term impacts to the U.S. economy. As the recent Wharton School Immigration Policy Budget Simulator study makes clear: “[m]ore deportations, though, leads to less economic growth...Despite the drop in the size of the population, deporting an additional 10 percent of unauthorized immigrants per year reduces GDP per capita by one percent by 2050 relative to no change in policy.” (UPenn, Wharton, *Immigration Policy Budget Simulator*, 2016, online) This controversial and potentially impactful policy shift could affect lives, jobs, employers, the economy, and our Nation. It is certainly worthy of further study, discussion and debate, prior to possible implementation.

**Enclosure 1: Figure 1**



 **Figure 1: Supply Shift for Unskilled Workers/Labor Due to Deportation of up to 11**

 **Million “Illegal” Immigrants**

[Diagram by Jack Kammerer]

 (Gitis, Varas, 2016) also described in **(**Gillespie, 2016) (based on work by the Wharton

 Immigration Budget Simulation) is the baseline for number of workers o/a 4 mil. Note:

 I used the low end of the employed, undocumented worker estimated range 4-6.8 million from

 Gitis, Varas, taking the 4 million ‘low end’ estimate number and assuming that they were

 ‘unskilled’.

**Enclosure 2: Figure 2**

[Sources/citations for elasticity estimates in red in table are reflected below; other work in table

 and aggregated elasticity estimates represent work of the author]

|  |  |  |
| --- | --- | --- |
|  |  |  |
| Unskilled Labor Sector |  **Low Elasticity Estimate** | **High Elasticity Estimate** |
|  |  |  |
| Service | -0.47 | -0.853 |
| Production | -0.45 | -0.45 |
|  | -0.79 | -1.01 |
| Farm | -0.657 | -0.953 |
|  |  |  |
|  |  |  |
| Service | -0.47 | -0.853 |
| Production | -0.62 | -0.73 |
| Farm | -0.657 | -0.953 |
|  |  |  |
| Service .5 x | [ -0.47 |  -0.853 ]  |
| Production .3 x | [ -0.62 |  -0.73 ] |
| Farm .2 x | [ -0.534 |  -2.23 ] |
|  |  |  |
| Service | -0.235 | - 0.4265 |
| Production | -0.186 | - 0.219 |
| Farm | -0.1314 | - 0.1906 |
|  (additive) |  |  |
| Final Elasticity of Demand |  **-0.5524= -0.552** | **-0.8361=-0.836** |

 **Figure 2. Estimates for Price Elasticity of Demand, Unskilled Labor**

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Citations for Elasticity Estimates in Red, in Table above

**Service**: Low: -0.47 High -0.853

(Cotterill, 2001)

**Production**: Low: -0.45 High -0.45

Low-skilled

(Hakkala, Heyman, Sjoholm, 2010)

 Low: -0.79 High: -1.01

(Zucker, 1973)

**Farm:**  Low: -0.657 High -0.953

[for Various periods 1937-1967]

(Hammond, et all 2001)

**Enclosure 3**

(Department of Labor, Bureau of Labor Statistics, [**Employment Situation**](http://www.bls.gov/news.release/empsit.toc.htm)*October 07, 2016;)*

[author emphasis added in yellow]

**“Annex A: Current Employment Data, DOL BLS Employment Situation (7 Oct 2016)”**

| HOUSEHOLD DATATable A-1. Employment status of the civilian population by sex and age [Numbers in thousands] |
| --- |
| **Employment status, sex, and age** | **Not seasonally adjusted** | **Seasonally adjusted(**[**1**](http://www.bls.gov/news.release/empsit.t01.htm#cps_empsit_a01.f.1)**)** |
| **Sept.2015** | **Aug.2016** | **Sept.2016** | **Sept.2015** | **May2016** | **June2016** | **July2016** | **Aug.2016** | **Sept.2016** |
| **TOTAL** |  |
| **Civilian noninstitutional population** | 251,325 | 253,854 | 254,091 | 251,325 | 253,174 | 253,397 | 253,620 | 253,854 | 254,091 |
| **Civilian labor force** | 156,607 | 159,800 | 159,636 | 156,867 | 158,466 | 158,880 | 159,287 | 159,463 | 159,907 |
| **Participation rate** | 62.3 | 62.9 | 62.8 | 62.4 | 62.6 | 62.7 | 62.8 | 62.8 | 62.9 |
| **Employed** | 148,980 | 151,804 | 151,977 | 148,942 | 151,030 | 151,097 | 151,517 | 151,614 | 151,968 |
| **Employment-population ratio** | 59.3 | 59.8 | 59.8 | 59.3 | 59.7 | 59.6 | 59.7 | 59.7 | 59.8 |
| **Unemployed** | 7,628 | 7,996 | 7,658 | 7,925 | 7,436 | 7,783 | 7,770 | 7,849 | 7,939 |
| **Unemployment rate** | 4.9 | 5.0 | 4.8 | 5.1 | 4.7 | 4.9 | 4.9 | 4.9 | 5.0 |
| **Not in labor force** | 94,718 | 94,054 | 94,456 | 94,458 | 94,708 | 94,517 | 94,333 | 94,391 | 94,184 |
| **Persons who currently want a job** | 5,584 | 5,824 | 5,753 | 5,944 | 5,923 | 5,692 | 5,886 | 5,833 | 6,088 |

(Department of Labor, Bureau of Labor Statistics, [Employment Situation](http://www.bls.gov/news.release/empsit.toc.htm) *October 07, 2016 )*

**Enclosure 4**

(Department of Labor, Bureau of Labor Statistics, [**Employment Situation**](http://www.bls.gov/news.release/empsit.toc.htm)*October 07, 2016;)*

[author emphasis added in yellow]

**“Annex A1: Current Employment Data, DOL BLS Employment Situation Oct 7 2016.”**

“Table A-13. Employed and unemployed persons by occupation, not seasonally adjusted”

| **HOUSEHOLD DATATable A-13. Employed and unemployed persons by occupation, not seasonally adjusted** [Numbers in thousands] |
| --- |
| **Occupation** | **Employed** | **Unemployed** | **Unemploymentrates** |
| **Sept.2015** | **Sept.2016** | **Sept.2015** | **Sept.2016** | **Sept.2015** | **Sept.2016** |
| **Total, 16 years and over(**[**1**](http://www.bls.gov/news.release/empsit.t13.htm#cps_empsit_a10.f.1)**)** | 148,980 | 151,977 | 7,628 | 7,658 | 4.9 | 4.8 |
| **Management, professional, and related occupations** | 58,105 | 59,599 | 1,414 | 1,652 | 2.4 | 2.7 |
| **Management, business, and financial operations occupations** | 24,485 | 24,729 | 590 | 708 | 2.4 | 2.8 |
| **Professional and related occupations** | 33,619 | 34,870 | 823 | 944 | 2.4 | 2.6 |
| **Service occupations** | 25,808 | 27,100 | 1,815 | 1,690 | 6.6 | 5.9 |
| **Sales and office occupations** | 33,106 | 33,435 | 1,782 | 1,614 | 5.1 | 4.6 |
| **Sales and related occupations** | 15,498 | 15,704 | 912 | 855 | 5.6 | 5.2 |
| **Office and administrative support occupations** | 17,608 | 17,731 | 871 | 760 | 4.7 | 4.1 |
| **Natural resources, construction, and maintenance occupations** | 13,865 | 14,106 | 823 | 772 | 5.6 | 5.2 |
| **Farming, fishing, and forestry occupations** | 1,116 | 1,159 | 68 | 116 | 5.7 | 9.1 |
| **Construction and extraction occupations** | 7,611 | 8,101 | 570 | 489 | 7.0 | 5.7 |
| **Installation, maintenance, and repair occupations** | 5,139 | 4,845 | 185 | 167 | 3.5 | 3.3 |
| **Production, transportation, and material movingoccupations** | 18,095 | 17,738 | 982 | 1,151 | 5.1 | 6.1 |
| **Production occupations** | 8,743 | 8,261 | 410 | 561 | 4.5 | 6.4 |
| **Transportation and material moving occupations** | 9,352 | 9,477 | 572 | 590 | 5.8 | 5.9 |

**Enclosure 5**

(from Gitis and Varas, 2016)

#### “Table 1: Employed Undocumented Immigrants by Industry in 2012”

|  |  |  |
| --- | --- | --- |
| **Industry** | **Undocumented Immigrant Workers** | **Share of Industry** |
| Agriculture, Forestry, Fishing, and Hunting | 342,608 | 16.1% |
| Mining | 29,512 | 3.1% |
| Construction | 1,043,222 | 12.2% |
| Manufacturing | 918,729 | 6.3% |
| Wholesale/Retail Trade | 829,500 | 4.2% |
| Transportation and Utilities | 193,644 | 3.3% |
| Information | 77,980 | 2.8% |
| Financial Activities | 215,349 | 2.3% |
| Professional and Business Services | 1,030,144 | 6.4% |
| Educational and Health Services | 375,360 | 1.7% |
| Leisure and Hospitality | 1,148,940 | 9.0% |
| Other Services | 584,578 | 8.2% |
| Total | 6,789,566 | 5.6% |

**Enclosure 6**

(Pew, 2015) <http://www.pewhispanic.org/2015/03/26/share-of-unauthorized-immigrant-workers-in-production-construction-jobs-falls-since-2007/>



**Enclosure 7**

(Pew, 2015) <http://www.pewhispanic.org/2015/03/26/share-of-unauthorized-immigrant-workers-in-production-construction-jobs-falls-since-2007/>



# Enclosure 8

# (Emily Barone, *Time Magazine*, October 24, 2016)

# [author emphasis added in yellow]

“WHERE UNDOCUMENTED IMMIGRANTS WORK:

13% Professional, management, business and finance

4% Farming, fishing and forestry

8% Transportation and material moving

14% Production, installation and repair

62% hold service, construction and production jobs, twice the share of U.S.-born workers

13% Sales, office and administrative support

33% Service

15% Construction and extraction”

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