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## **Disaggregate U.S. Labor Statistics for the USAGE 2.0 and GTAP CGE Models**

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Preliminary draft

**Disaggregate U.S. Labor Statistics for the USAGE 2.0 and GTAP Applied General equilibrium Models<sup>1</sup>**

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Abstract

This paper documents a methodology to disaggregate by occupation the U.S. sectoral employment data within the USAGE 2.0 and GTAP applied general equilibrium (AGE) models. We utilize statistics from the U.S. Bureau of Labor Statistics and the U.S. Department of Agriculture, in particular the Occupational Employment Statistics Survey and the Census of Agriculture, to produce the following occupation-by-sector tables for 2007 and 2010 for each of the two AGE models: employment, mean annual wage, wage bill, and wage bill shares. The last table, wage bill shares, can be used to split payments to labor services in the AGE models into 22 major occupations.

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# **Disaggregate U.S. Labor Statistics for the USAGE 2.0 and GTAP Applied General Equilibrium Models**

## **1. INTRODUCTION**

There is great interest in developing a better understanding of economic impact of trade on U.S. labor markets. Although wage and employment are an integral part of the general equilibrium effects of trade, applied general equilibrium (AGE) models such as USAGE 2.0 and GTAP do not split labor to more than two types: skilled and unskilled labor.

USAGE 2.0 is the second version of the USAGE-ITC applied general equilibrium model, a single region AGE model of the U.S. economy. Documentation and discussion of the USAGE-ITC model may be found in Dixon and Rimmer (2002) and U.S. International Trade Commission (2004 and 2011). The theory of USAGE 2.0 is similar to the theory of the USAGE-ITC model. USAGE 2.0 is based on the time series of annual U.S. input-output data published by the Bureau of Economic Analysis while USAGE-ITC is based on the benchmark U.S. input-output accounts (see <http://www.bea.gov/industry/index.htm>).

GTAP is a multi-regional, global trade applied general equilibrium model. Documentation and discussion of the GTAP model and database can be found in the GTAP web site (<https://www.gtap.agecon.purdue.edu/about/project.asp>) as well as in Hertel (1997), Hertel and Tsigas (1997) and Narayanan, G. B., A. Aguiar and R. McDougall (2012).

This paper documents a methodology to disaggregate labor by occupation and expand the labor data within the current USAGE 2.0 and GTAP models for the U.S. economy, by incorporating data from the U.S. Bureau of Labor Statistic Occupational Employment Statistics Survey, as well as the U.S. Department of Agriculture Census of Agriculture. For each of the two AGE models, we produce the following occupation-by-sector tables for 2007 and 2010: employment, mean annual wage, wage bill, and wage bill shares. The last table, wage bill shares, can be used in the AGE models to disaggregate U.S. labor data into 22 occupations.

## **2. DATA SOURCES**

### **2.1 BLS-OES**

#### **2.1.1 Overview**

The Occupational Employment Statistics (OES) Survey is a semi-annual survey of nonfarm business establishments, conducted by the Bureau of Labor Statistics (BLS). It is

designed to measure employment and wages for over 750 occupations at detailed levels of industry classification and geographic area.

The OES survey collects data in twice-a-year panels every three years, resulting in six panels. Each panel includes approximately 200,000 establishments, giving a total of around 1.1 million establishments over the three-year six-panel samples that cover about 70 percent of the employment in the United States. Estimates of occupational employment and wage rate are based on a rolling six-panel (or 3-year) cycle, including employment counts, mean wages, median wages, percentile wages, upper 2/3-lower 1/3 (experienced vs. entry-level) wages, and associated variances. The OES does not include farm business establishments. In 2002, the OES began to use North American Industry Classification System (NAICS) instead of Standard Industrial Classification (SIC) to classify industries.

### 2.1.2. Key Elements

Key elements of OES are listed below, as modified from the BLS “Survey Methods and Reliability Statement”:

- An **establishment** is generally a single physical location where economic activities occur. Each establishment is assigned a 6-digit NAICS code.
- **Employment** refers to the number of full-time and part-time employees. Self-employed workers, owners and partners in unincorporated firms, household workers, and unpaid family workers are excluded.
- **Occupations** are classified based on work performed and on required skills, and defined by the U.S. Office of Management and Budget’s Standard Occupational Classification (SOC) system codes at 2 and 6-digit levels. 2-digit SOC codes designate 23 major occupation groups (Table 1), though OES only uses the 22 groups and exclude the last one, “Military Specific Occupations”. The 2007 OES uses the 2000 SOC system, while the 2010 OES uses the 2010 SOC system. At 2-digit level, the classification for major occupation groups remains unchanged.

Table 1: 2010 Standard Occupational Classifications at 2 digit level (23 Major Groups)

Index	SOC	SOC Code	Occupations
1	11	management	Management Occupations
2	13	bus_finance	Business and Financial Operations Occupations
3	15	comp_math	Computer and Mathematical Occupations
4	17	arch_enginr	Architecture and Engineering Occupations
5	19	sciences	Life, Physical and Social Science Occupations
6	21	social_serv	Community and Social Service Occupations
7	23	legal	Legal Occupations
8	25	education	Education, Training and Library Occupations
9	27	entertain	Arts, Design, Entertainment, Sports, and Media Occupations
10	29	health_prac	Healthcare Practitioners and Technical Occupations
11	31	health_sup	Healthcare Support Occupations
12	33	protective	Protective Service Occupations
13	35	food_service	Food Preparation and Serving Related Occupations
14	37	build_maint	Building and Grounds Cleaning and Maintenance
15	39	pers_care	Personal Care and Service Occupations
16	41	sales	Sales and Related Occupations
17	43	admin_supp	Office and Administrative Support Occupations
18	45	farm_occup	Farming, Fishing and Forestry Occupations
19	47	constructn	Construction and Extraction Occupations
20	49	maint_repr	Installation, Maintenance, and Repair Occupations
21	51	production	Production Occupations
22	53	transport	Transportation and Material Moving Occupations
23	55	miltry	Military Specific Occupations

- A **wage** is money that is paid or received for work or services performed in a specified period. Base rate pay, cost-of-living allowances, guaranteed pay, hazardous-duty pay, incentive pay such as commissions and production bonuses, and tips are included in a wage (U.S. Bureau of Labor Statistics, 2011).
- **Industries** are classified by the North American Industry Classification System (NAICS) codes at 4, 5 and 6-digit levels. However, the data at 5 or 6 -digit level of detail are not available across all sectors and occupations.
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### - 2.1.3. OES Data

The OES survey is primarily a mail survey. Probability sample panels of about 200,000 establishments are selected semiannually. Most responses are obtained through mail with the remaining responses collected by telephone, e-mail or other electronic means, or personal visit.

Respondents with more than ten employees are given pre-selected SOC occupation choices based on the establishment's industry classification. Nonetheless, the respondent can always write-in any detailed SOC occupation that is not included. Respondents with ten or less employees are sent a form without any pre-selected occupations. These respondents must write-in all occupations themselves.

BLS estimates employment by the product of reported employment per occupation with a ratio estimator. For the 2007 data, the ratio estimator uses the average of employment totals from November 2006 and May 2007 of the Quarterly Census of Employment and Wages (QCEW) and employment totals of the reporting establishment. By this method, BLS scales the numbers from their samples to be compatible with the QCEW which covers 98 percent of U.S. jobs.

For certain occupations, such as teachers, flight attendants, and pilots, only annual wages are reported if workers are paid by year and do not work the usual 2,080 hours per year. In this case, hourly wages are not calculated using the 2,080 factor. For other occupations, such as entertainment workers, in which workers are paid high hourly wages but do not work full-time year-round, only hourly rates are reported. For these occupations, the annual wage will not be calculated by the 2,080 factor. For our dataset, we only use the annual wages, and thus exclude data of employees for whom only hourly wages are reported.

Although the original BLS OES dataset provides employment and wage estimates within each industry across almost all occupation types, some individual occupational employment and wage estimates are either unavailable or withheld from publication in order to ensure confidentiality. In 2007, at 2-digit SOC level, out of 4820 records, 167 are found missing employment estimates, and 34 are found missing annual wage estimates. In 2010, at 2-digit SOC level, out of 4595 records, 140 are found missing employment estimates, and 31 are found missing annual wage estimates. Here, we treat unavailable and confidential data as missing data, and assign them the value of zero.

## 2.2 USDA-the Census of Agriculture

Since the OES covers only non-farm business establishments, we use the data from the Census of Agriculture conducted by the Department of Agriculture (USDA) to cover agricultural sectors.

### 2.2.1. Overview

The Census of Agriculture (the Census) is a census conducted every five years by USDA's National Agricultural Statistical Services (NASS) that provides comprehensive agricultural data for every county in the United States. Only farms that meet the NASS farm definition (an operation that produces or would normally produce and sell \$1,000 or more of agricultural products per year) are included.

Since 1997, the Census has been using the NAICS codes to classify agricultural production establishments with a single principle of aggregation that production units

using similar production processes should be grouped together. Fourteen major NAICS classifications were used in Table 62 “Summary by North American Industry Classification System” in the 2007 census.

The Census covers various aspects of farm establishment, such as land use, output, product sales, government payment, and production expenses. However, for the purpose of labor disaggregation, we only use the data concerning farm operators and hired farm labor.

### 2.2.2. Key Elements and Data

#### **Farm operator:**

- Farm operator is the person who runs the farm, making the day-to-day management decisions. The operator could be an owner, hired manager, cash tenant, share tenant, and/or a partner. The Census collects information for up to three operators per farm. In the case of multiple operators, the respondent for the farm identifies who the principle farm operator is during the data collection process. We categorize farm operators as “SOC11-management occupations”.
- The Census reports number of operators, as well as information on principal operators, such as days worked off farm. In order to produce “year-round, full-time” equivalents, we adjust the employment counts for farm operators by scaling reported time worked on the farm. For instance, for those with the category “1 to 49 days worked off farm”, we use the scaling factor of  $[(1+49)/365]$ . Because the Census reports “Days worked off farm” for principal operators only, we assume the rest of operators are non-principal operators that spend half of the year at the most working on farm, and we adjust the employment counts with a scaling factor of  $[(1+183)/365]$ .
- The Census does not report hourly or annual wages of farm operators. Based on the fact that some farm operators are hired managers, we use mean annual wage for “management occupations” reported by the OES for industry sector “support activities for crop production” for crop farm operators, and “support activities for animal production” for livestock farm operators.

#### **Hired farm worker:**

- Hired farm worker is any worker, other than an agricultural service worker, who was paid for at least one hour of agricultural work on a farm or ranch. Worker type is determined by what the employee was primarily hired to do, including field workers, livestock workers, supervisors, and other workers (U.S. Department of Agriculture, 2012). We categorize hired farm labor as “SOC45-farming, fishing and forestry occupations”.

- We adjusted the employment counts for hired farm worker by scaling reported time spent working on the farm in order to produce “year-round, full-time” equivalents. For instance, the Census divides hired farm labor into two categories by days worked in farm: 150 days or more, and less than 150 days. For the first category, we use the scaling factor of  $[\frac{((150+365)/2)}{365}]$ . For the second category, we use the scaling factor of  $[\frac{((1+149)/2)}{365}]$ .
- We use annual expenditures on hired farm labors and adjusted annual employment counts of hired farm labor to calculate mean annual wage. The expenditures on hired farm labor include cash expenditure, as well as payment of wages to members of the operators’ family and social security taxes.

With no sufficient data on employment number as well as working days worked in farms, we omit contract labor in our labor disaggregation, though it is an important component of agricultural labor market.

### **3. LABOR DISAGGREGATION METHODOLOGY**

By using the employment and wage data from the OES survey and the Census of Agriculture, we are able to generate the shares of labor payment for twenty-two major occupations within each AGE model sector for 2007 and 2010, and thus disaggregate labor into 22 occupation groups in AGE models.

The methodology of labor disaggregation is detailed step-by-step below:

#### Step One: Mapping NAICS Industries with AGE Model Sectors

The OES classifies industry sectors with 4, 5 and 6-digit NAICS, but the data at 5 and 6-digit NAICS level is not available across all sectors and occupations. The USDA census data are summarized by a mix of 4 and 5-digit NAICS codes. Thus the mapping of NAICS industries with AGE model sectors is performed at the 4-digit NAICS level.

The USAGE 2.0 model employs 67 industry sectors. We rely on an existing concordance table between 67 USAGE sectors and 2002 NAICS codes to map the data from OES and USDA with the USAGE model sectors (Appendix: Table 1).

GTAP 8 data base is classified into 57 sectors (Appendix: Table 2). Of them, 14 sectors cover agriculture, fishing and forestry. No concordance tables between the 57 GTAP sectors and the 298 NAICS industries (at 4-digit level) are ready to use. Thus we rely on the detailed descriptions of NAICS codes and GTAP sectors, 2002 USITC’s aggregation mapping for 1992 U.S. I-O sectors to GTAP sectors, as well as the existing GTAP sector references to standard classifications such as the Customs Procedure Codes (CPCs) and International Standard Industrial Classification (ISIC) codes, to determine the designation



of GTAP sector for each NAICS code reported in the OES and USDA census data (Appendix: Table 3 and 4).

NAICS is reviewed and updated every five years. Since 2002, the BLS has used NAICS 2002 and NAICS 2007 for the OES. The implementation of NAICS 2012 has already been scheduled. Although updates take place mostly at 5 and 6-digit level, when we develop the NAICS-GSC concordance table for the OES, we make any necessary adjustments.

### Step Two: Split Occupational Estimates

A number of 4-digit NAICS industries correspond to more than one GTAP sectors, thus their employment estimates need to be divided between them. Currently, we divide the numbers equally between respective GTAP sectors. For instance, employment estimates from NAICS 2111 “oil and gas extraction” is equally divided between GSC16-Oil and GSC17-Gas, and employment estimates from NAICS 1111 “Oilseed and grain farming” is equally divided between four GTAP sectors: GSC1-PDR (paddy rice), GSC2-WHT (wheat), GSC3-GRO (other grains) and GSC4-OSD (oil seeds). In the future, we plan to refine this method by basing the division on annual outputs and/or labor intensities of these sectors.

### Step Three: Generating Matrices by NAICS Industry and Occupation

After combining the OES and the USDA Census data and mapping NAICS industries with AGE model sectors, we are able to generate two matrices: (1) Total Employment by NAICS Industry and Occupation, and (2) Mean Annual Wages by NAICS Industry and Occupation. Here, each observation of employment,  $e_{ij}$  is an element of Total Employment, where  $i \in$  the set of all NAICS industries and  $j \in$  the set of all 22 SOC major occupations. Likewise, each observation of the mean wage  $w_{ij}$  is an element of Mean Wages for each NAICS industry  $i$  and SOC occupation  $j$ .

From above two matrices, we are able to obtain the third matrix- Wage Bill matrix (i.e. the matrix of labor payments) that  $wb_{ij} = e_{ij} * w_{ij}$  for each NAICS industry  $i$  and SOC occupation  $j$ .

### Step Four: Aggregating Employment ( $e_{ki}$ ) and Wage Bill ( $wb_{ki}$ ) Estimates by AGE Model Sector and Occupation

For each NAICS industry  $i \in$  AGE model industry  $k$  and SOC occupation  $j$ , we generate aggregate employment:  $e_{kj} = \sum_i^n e_{ij}$ . Similarly, for each NAICS industry  $i \in$  AGE model industry  $k$  and SOC occupation  $j$ , we generate aggregate wage bill:  $wb_{kj} = \sum_i^n wb_{ij}$ .

At this point, we are able to obtain two matrices: (1) Total Employment by AGE Model Sector and Occupation (shown in Appendix Tables 7, 8, 15 and 16.), and (2) Total Wage Bill by AGE Model Sector and Occupation (shown in Appendix Tables 11,12, 19 and 20). Here, for each observation of employment,  $e_{kj}$  is an element of Total Employment, where  $k \in$  the set of AGE model sectors and  $j \in$  the set of all 22 SOC major occupations.

#### Step Five: Generating Mean Annual Wage ( $\overline{w}_{kj}$ ) by AGE Model Sector and Occupation

We use  $\overline{w}_{kj} = \frac{wb_{kj}}{e_{kj}}$  to obtain mean wage for each AGE model sector by major occupation group, where  $k \in$  the set of AGE model sectors and  $j \in$  the set of all 22 SOC major occupations. Now we have the third matrix table: 3) Mean Annual Wage by AGE Model Sector and Occupation (shown in Appendix Tables 9, 10, 17 and 18).

#### Step Six: Generating Shares of Wage Bill by AGE Model Sector and Occupation

Once we generate 1) total employment, 2) mean annual wage, and 3) wage bill matrices by AGE Model Sector and Occupation, we calculate shares of the wage bill for each AGE model sector  $k$  and SOC occupation  $j$ :  $wb\_share_{kj} = \frac{wb_{kj}}{\sum_{j=1}^{22} wb_{kj}}$ . Now we have the fourth matrix table: 4) Shares of Wage Bill by AGE Model Sector and Occupation (shown in Appendix Tables 5, 6, 13 and 14).

#### Step Seven: Additional Calculations

Additionally, employment is calculated across SOC occupations,  $e_k = \sum_{j=1}^{22} e_{kj}$ , as well as across AGE model sectors,  $e_j = \sum_{k=1}^n e_{kj}$  for each AGE model sector  $k$  and SOC occupation  $j$ . Wage bill sums are calculated across SOC occupations,  $wb_k = \sum_{j=1}^{22} wb_{kj}$ , as well as across AGE model sectors,  $wb_j = \sum_{k=1}^n wb_{kj}$  for each AGE model sector  $k$  and SOC occupation  $j$ . Similarly, weighted mean wages were calculated across SOC occupations,  $\overline{w}_k = \frac{\sum_{j=1}^{22} wb_{kj}}{\sum_{j=1}^{22} e_{kj}}$ , as well as across AGE model sectors,  $\overline{w}_j = \frac{\sum_{k=1}^n wb_{kj}}{\sum_{k=1}^n e_{kj}}$  for each AGE model sector  $k$  and SOC occupation  $j$ .

#### Step Eight: Plug into AGE Models

The fourth matrix, Shares of Wage Bill by AGE Model Sector and Occupation, could be used to split labor data to 22 occupations in the AGE models and they may simulate economic effects on the U.S. labor markets.

#### 4. 2007 AND 2010 RESULT COMPARISON

At the time of writing, we have completed USAGE and GTAP labor disaggregation for 2007 and 2010. Since one of the world’s worst financial crises happened between 2007 and 2010, it is interesting to compare the results from 2007 and 2010 (Appendix Tables 5-20).

Overall, U.S. businesses cut employment during this period, particularly in sectors such as construction, manufacturing, retail and motor vehicle and parts production. Low-skilled occupations suffered the most, such as production workers, office of administrative and support occupation, and construction workers. Nominal wages saw modest increases across all occupations and most sectors. Management occupations saw a noticeable increase of labor payment, as the result of rising wage and stable employment.

Because we rely on 2007 USDA Census of Agriculture for employment counts in agricultural sectors for both 2007 and 2010, the changes mostly reflect the trend in non-farm sectors.

#### Total Employment

From 2007 to 2010, the total U.S. employment decreased by 7.27 million.

- *By SOC Occupation Group:* The three occupation groups incurring the biggest losses in employment by number are 43-Office and administrative support occupations, 47-construction and extraction occupations, and 51-production occupations. Together they accounted for 73% of employment loss during this period. Two occupations incurring the most gains in employment are 29-health practitioners and technical occupations and 31-healthcare support occupations.

Table 2: Top employment changes by SOC

SOC	SOC-code	2010 EMP	2007 EMP	Δ EMP	Δ by %
51	production	8,234,350	10,141,830	(1,907,480)	-19%
43	admin_supp	21,489,300	23,234,210	(1,744,910)	-8%
47	constructn	5,059,570	6,693,970	(1,634,400)	-24%
25	education	8,449,760	8,313,860	135,900	2%
31	health_sup	3,953,140	3,622,120	331,020	9%
29	health_prac	7,343,300	6,873,690	469,610	7%

- *By USAGE Sector:* The three sectors incurring the largest losses in employment by number are 7- construction, 28-retail trade, and 51-administrative and support services. Together they account for 58% of total U.S. employment loss during this period. The sectors incurring the largest gains in employment by number are 53-

educational services, 54-Ambulatory health care services, and 55- hospitals and nursing and residential care facilities.

The sector experiencing the largest drop in employment by percentage is 15-motor vehicle, bodies and parts (-36%), and the sector experiencing the largest gain by percentage is 62-federal government (18%).

Table 3: Top employment changes by USAGE sectors

com65	com65_string	com65_description	2010 EMP	2007 EMP	Δ EMP	Δ by %
7	Construction	Construction	5,661,990	7,653,380	(1,991,390)	-26%
51	AdminServ	Administrative and support services	6,988,520	8,154,740	(1,166,220)	-14%
28	RetailTrd	Retail trade	14,558,450	15,601,050	(1,042,600)	-7%
27	WholesaleTrd	Wholesale trade	5,462,150	5,962,350	(500,200)	-8%
15	MotVehParts	Motor vehicles, bodies and trailers, and parts	658,560	1,032,170	(373,610)	-36%
62	FedGenGov	Federal general government	2,035,590	1,722,800	312,790	18%
53	EducatServ	Educational services	12,825,810	12,454,050	371,760	3%
54	AmbHealthCar	Ambulatory health care services	8,738,680	8,338,060	400,620	5%
55	HopsitNurs	Hospitals and nursing and residential care facilities	3,633,120	3,231,490	401,630	12%

- *By GTAP Sector:* The three sectors incurring the largest losses in employment by number are 46- construction, 47-trade and 54-business services. Together they account for 76% of total U.S. employment loss during this period. The sector incurring the largest gain in employment by number is 56-public administration, defense, education and health.

The sectors experiencing the largest drop in employment by percentage are 28-wearing apparel (-46%), 38-motor vehicles and parts (-36%), 30-wood products (-35%), 42-manufactures (-29%), 27-textiles (28%), 46-construction (-26%), and 34-mineralproducts (-26%).

Table 4: Top employment changes by GTAP sectors

gtap	gtapcode	gtapdescription	2010 EMP	2007 EMP	Δ EMP	Δ by %
46	CNS	Construction	5,661,990	7,653,380	(1,991,390)	-26%
47	TRD	Trade	33,533,600	35,458,010	(1,924,410)	-5%
54	OBS	Business services nec	18,140,080	19,717,350	(1,577,270)	-8%
38	MVH	Motor vehicles and parts	658,560	1,032,170	(373,610)	-36%
42	OMF	Manufactures nec	627,180	883,320	(256,140)	-29%
30	LUM	Wood products	344,890	530,900	(186,010)	-35%
17	GAS	Gas	143,973	140,635	3,338	2%
43	ELY	Electricity	395,490	390,080	5,410	1%
56	OSG	Public Administration, Defense, Education, Health	42,583,140	40,682,660	1,900,480	5%

### Mean Annual Wage:

We observe modest increase in nominal wages across all occupation groups and most sectors.

- *By SOC Occupation Group:* Each occupation group saw an increase of nominal wage, though by various amounts. The three occupation groups incurring the largest wage increases by amount are 11-management occupations, 17-architecture and engineering occupations, and 23-legal occupations. The two occupation groups incurring the smallest wage increases by amount are 39-personal care and service occupations, and 45-farming, fishing and forestry occupations.

Table 5: Top mean annual wage changes by SOC

SOC	SOC-code	2010 Mean A_wage	2007 Mean A_wage	Δ Mean A_Wage	Δ by %
45	farm_occup	22,630	22,164	466	2%
39	pers_care	24,607	23,991	616	3%
31	health_sup	26,933	25,599	1,335	5%
17	arch_enginr	75,217	68,240	6,977	10%
11	management	99,430	91,688	7,742	8%
23	legal	96,882	88,369	8,513	10%

- *By USAGE Sector:* The three sectors incurring the largest wage increases are 3-oil and gas extraction, 24-petroleum and coal products, and 44-funds, trusts and other financial vehicles. The sectors incurring the largest wage decreases are 29-air transportation, and 30-rail transportation.

Table 6: Top mean annual wage changes by USAGE sectors

com65	com65_string	com65_description	2010 Mean A_wage	2007 Mean A_wage	Δ Mean A_Wage	Δ by %
29	AirTrans	Air transportation	54,759	62,920	(8,161)	-13%
30	RailTrans	Rail transportation	53,760	57,256	(3,497)	-6%
24	PetroCoalPrd	Petroleum and coal products	66,317	56,083	10,234	18%
3	OilGasExtrac	Oil and gas extraction	77,427	66,782	10,645	16%
44	FundsTrusts	Funds, trusts, and other financial vehicles	74,143	57,798	16,345	28%

- *By GTAP Sector:* The three sectors incurring the largest wage increases are 16-oil, 17-gas, and 32-petroleum/coal products. The sector incurring the largest wage decrease is 50-air transport.

Table 7: Top mean annual wage changes by GTAP sectors

gtap	gtapcode	gtapdescription	2010 Mean A_Wage	2007 Mean A_Wage	Δ Mean A_Wage	Δ by %
50	ATP	Air transport	54,759	62,920	(8,161)	-13%
9	ctl	Cattle	63,793	66,857	(3,065)	-5%
12	WOL	Wool	68,058	71,465	(3,408)	-5%
16	OIL	Oil	64,593	55,002	9,592	17%
17	GAS	Gas	64,593	55,002	9,592	17%
32	P_C	Petroleum, coal products	66,317	56,083	10,234	18%

## Wage Bill

We observe that the 2010 wage bill is slightly higher than the 2007 wage bill by roughly \$180 billion, or 3%.

- *By SOC Occupation Group:* The two occupation groups incurring the largest increases of wage bill are 29-health practitioners and technical occupations and 11-management occupations. The former is largely due to gains in employment; the latter is largely due to rising wages as its total employment remained stable. The two occupation groups incurring the largest declines in wage bill are 47-construction and 51-production, largely due to the deep losses in employment.

Table 8: Top wage bill changes by SOC

SOC	SOC-code	2010 WB	2007 WB	Δ WB	Δ by %
47	constructn	222,225	271,933	(49,708)	-18%
51	production	278,051	317,336	(39,285)	-12%
53	transport	278,825	289,829	(11,004)	-4%
41	sales	494,276	504,413	(10,137)	-2%
13	bus_finance	409,707	374,025	35,682	10%
25	education	426,309	387,848	38,461	10%
11	management	794,981	730,928	64,053	9%
29	health_prac	523,093	446,674	76,419	17%

- *By USAGE Sector:* The sectors incurring the largest wage bill increases are 53-educational services, 54-Ambulatory health care services, 62-federal government, and 64-state and local general government, due to employment gains in these sectors. The sectors incurring the largest wage bill declines are 7-construction, 15-motor vehicles and parts, 28-retail trade, and 51- administrative and support services, largely due to employment losses.

Table 9: Top wage bill changes by USAGE sectors

com65	com65_string	com65_description	2010 WB	2007 WB	Δ WB	Δ by %
7	Construction	Construction	268,999	332,317	(63,318)	-19%
51	AdminServ	Administrative and support services	235,573	253,487	(17,914)	-7%
15	MotVehParts	Motor vehicles, bodies and trailers, and parts	29,996	44,494	(14,498)	-33%
28	RetailTrd	Retail trade	421,691	433,255	(11,564)	-3%
62	FedGenGov	Federal general government	150,769	115,187	35,582	31%
64	SLGenGov	State and local general government	371,357	335,458	35,899	11%
54	AmbHealthCar	Ambulatory health care services	398,970	348,453	50,517	14%
53	EducatServ	Educational services	631,329	562,896	68,433	12%

- *By GTAP Sector:* The sector incurring the largest wage bill increase is 56-public administration, defense, education and health, due to the largest employment gain in this sector. The sectors incurring the largest wage bill declines are 46-construction, 38-motor vehicles and parts, 42-manufactures, and 50-air transport, largely due to employment losses.

Table 10: Top wage bill changes by GTAP sectors

gtap	gtapcode	gtapdescription	2010 WB	2007WB	Δ WB	Δ by %
46	CNS	Construction	268,999	332,317	(63,318)	-24%
38	MVH	Motor vehicles and parts	29,996	44,494	(14,498)	-48%
50	ATP	Air transport	23,392	30,521	(7,129)	-30%
42	OMF	Manufactures nec	23,985	30,635	(6,650)	-28%
53	ISR	Insurance	123,363	117,105	6,259	5%
54	OBS	Business services nec	958,675	930,320	28,355	3%
56	OSG	Public Administration, Defense, Education, Health	2,066,790	1,805,880	260,910	13%

## 5. FUTURE WORK

Our future work may focus on three major aspects: 1) improving the current methodology; 2) trying simulations in AGE models; and 3) establishing time series for AGE models.

### 5.1 Improving the Current Methodology

- *Mapping NAICS with AGE model sectors*: The most accurate mapping for NAICS 1151 “Support activities for crop production” and 1152 “Support activities for animal production” remains open for debate. These sectors do not have the exactly corresponding GTAP sectors. To be consistent with the 2002 USITC’s aggregation mapping for 1992 U.S. I-O sectors to GTAP sectors which assigned agricultural service to GSC56, we map these two NAICS sectors with GSC56-OSG (public administration, defense, education and health). However, it might be more appropriate to assign them to GSC54-OBS (other business services), or split them among GTAP agricultural sectors that produce crops and animals.
- *Dividing employment estimates between GTAP sectors*: A number of 4-digit NAICS industries correspond to more than one GTAP sectors, thus their employment estimates need to be divided among respective GTAP sectors. Currently, we divide the numbers equally between them. In the future, we would like to refine the method by basing the division upon outputs and/or labor intensity of these GTAP sectors. This may require more detailed data.
- *Updating the USDA census data*: The BLS conducts the OES semi-annually on a rolling basis, and publishes its occupational estimates each year. On the other hand, the USDA conducts the Census of Agriculture every five years, with the latest one in 2007. For 2007 labor disaggregation, we have 2007 data from both OES and the Census. For 2010 labor disaggregation, although we could obtain 2010 data from 2010 OES and are able to use the wage estimate from the OES for farm operators, we still have to rely on the data from 2007 Census of Agriculture

for employment counts for hired farm labor and farm operators as well as the calculation of mean annual wage for hired farm labor. The data inconsistency in employment and wage estimates for agricultural sectors is a problem that needs to be addressed. One potential solution is to use the employment counts for hired farm labor and farm operators in 2007 Census of Agriculture as the baseline and to adjust employment numbers for each following year according to the annual outputs for that year.

- *Disaggregating Occupations further*: By incorporating 22 occupational groups into the AGE models, the level of detail is expansive enough that shocks to the models produce distinct and characteristic results. Understanding the detailed occupations underlying each major group allows for a deeper comprehension of how shocks influence occupation sub-groups in different ways. For instance, SOC-47, “construction and extraction occupations”, includes construction workers such as construction labor, electricians, and carpenters, as well as extraction workers such as mining machine operators, and derrick operators for oil and gas. SOC-51, “production occupations”, includes food processing workers, metal and plastic workers, textile and apparel workers, and medical appliance technicians. These occupation sub-groups differ from each other in terms of industry and skill level. They might very well be affected by trade policies in distinctive ways. Yet, such distinctions are lost in our current 2-digit SOC level aggregation. Investigating labor at 3-digit SOC level for targeted industry sectors may also prove worthwhile.

## 5.2 Testing the results in AGE model simulations

Current efforts are underway to integrate the matrix of labor payment shares into the GTAP and USAGE 2.0 AGE models. Illustrative results with the GTAP model are discussed in Carrico and Tsigas (2012).

## 5.3 Establishing time series for AGE models

We plan to establish time series of labor disaggregation matrices for AGE models and update them yearly. Based on the availability of OES and USDA data, it is possible to go back as early as 1998.



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## Appendix:

Table 1: Mapping between NAICS Industries and USAGE sectors

com65	com64_String	com65_Description	2002 NAICS codes
1	Farms	Farms	111, 112,
2	ForestFish	Forestry, fishing, and related activities	113, 114, 115
3	OilGasExtrac	Oil and gas extraction	211
4	OthMining	Mining, except oil and gas	212
5	MiningServ	Support activities for mining	213
6	Utilities	Utilities	22
7	Construction	Construction	23
8	WoodProd	Wood products	321
9	NonMetMinPrd	Nonmetallic mineral products	327
10	PrimMetals	Primary metals	331
11	FabMetProds	Fabricated metal products	332
12	Machinery	Machinery	333
13	CompElecPrds	Computer and electronic products	334
14	ElectEquip	Electrical equipment, appliances, and components	335
15	MotVehParts	Motor vehicles, bodies and trailers, and parts	3361, 3362, 3363
16	OthTransEqu	Other transportation equipment	3364, 3365, 3366, 3369
17	Furniture	Furniture and related products	337
18	MiscManu	Miscellaneous manufacturing	339
19	FoodBevTob	Food and beverage and tobacco products	311, 312
20	TextMillProd	Textile mills and textile product mills	313, 314
21	Apparel	Apparel and leather and allied products	315, 316
22	PaperPrds	Paper products	322
23	Printing	Printing and related support activities	323
24	PetroCoalPrd	Petroleum and coal products	324
25	ChemicalProd	Chemical products	325
26	PlastRubPrd	Plastics and rubber products	326
27	WholesaleTrd	Wholesale trade	42
28	RetailTrd	Retail trade	44, 45
29	AirTrans	Air transportation	481
30	RailTrans	Rail transportation	482
31	WaterTrans	Water transportation	483
32	TruckTrans	Truck transportation	484
33	TransitGrndP	Transit and ground passenger transportation	485
34	Pipeline	Pipeline transportation	486
35	OthTransServ	Other transportation and support activities	487, 488, 492
36	WareHousStor	Warehousing and storage	493
37	Publishing	Publishing industries (includes software)	511, 516
38	MotPicSndRec	Motion picture and sound recording industries	512
39	BroadTelCom	Broadcasting and telecommunications	515, 517
40	InfoDataProc	Information and data processing services	518, 519
41	FedResCrdInt	Federal Reserve banks, credit intermediation, and related activities	521, 522
42	SecurInvest	Securities, commodity contracts, and investments	523
43	Insurance	Insurance carriers and related activities	524
44	FundsTrusts	Funds, trusts, and other financial vehicles	525
45	RealEstate	Real estate	531
46	RentalLeas	Rental and leasing services and lessors of intangible assets	532, 533
47	LegalServ	Legal services	5411
48	CompServ	Computer systems design and related services	5415
49	MiscServ	Miscellaneous professional, scientific, and technical services	5412-5414, 5416-5419
50	ManagComEnt	Management of companies and enterprises	55
51	AdminServ	Administrative and support services	561
52	WasteManag	Waste management and remediation services	562
53	EducatServ	Educational services	61
54	AmbHealthCar	Ambulatory health care services	62
55	HopsitNurs	Hospitals and nursing and residential care facilities	621
56	SocialServ	Social assistance	624
57	ArtSprtMuseum	Performing arts, spectator sports, museums, and related activities	711, 712
58	AmusGambRec	Amusements, gambling, and recreation industries	713
59	Accommodation	Accommodation	721
60	FoodDrink	Food services and drinking places	722
61	OtherServ	Other services, except government	81
62	FedGenGov	Federal general government	9991
63	FedGovEnt	Federal government enterprises	9991 (includes 491)
64	SLGenGov	State and local general government	9992-9993
65	SLGovEnt	State and local government enterprises	NA
66	ScrpUsed2Hnd	Scrap, used and secondhand goods	NA
67	NComImpROWA	Noncomparable imports and rest-of-the-world adjustment [1]	NA

Table 2: GTAP Sector List

Number	Code	Description
1	pdr	Paddy Rice: rice, husked and unhusked
2	wht	Wheat: wheat and meslin
3	gro	Other Grains: maize (corn), barley, rye, oats, other cereals
4	v_f	Veg & Fruit: vegetables, fruit,vegetables, fruit and nuts, potatoes, cassava, truffles,
5	osd	Oil Seeds: oil seeds and oleaginous fruit; soy beans, copra
6	c_b	Cane & Beet: sugar cane and sugar beet
7	pfb	Plant Fibres: cotton, flax, hemp, sisal and other raw vegetable materials used in textiles
8	ocr	Other Crops: live plants; cut flowers and flower buds; flower seeds and fruit seeds; vegetable seeds, beverage and spice crops, unmanufactured tobacco, cereal straw and husks, unprepared, whether or not chopped, ground, pressed or in the form of pellets; swedes, mangolds, fodder roots, hay, lucerne (alfalfa), clover, sainfoin, forage kale, lupines, vetches and similar forage products, whether or not in the form of pellets, plants and parts of plants used primarily in perfumery, in pharmacy, or for insecticidal, fungicidal or similar purposes, sugar beet seed and seeds of forage plants, other raw vegetable materials
9	ctl	Cattle: cattle, sheep, goats, horses, asses, mules, and hinnies; and semen thereof
10	oap	Other Animal Products: swine, poultry and other live animals; eggs, in shell (fresh or cooked), natural honey, snails (fresh or preserved) except sea snails; frogs' legs, edible products of animal origin n.e.c., hides, skins and furskins, raw , insect waxes and spermaceti, whether or not refined or coloured
11	rmk	Raw milk
12	wol	Wool: wool, silk, and other raw animal materials used in textile
13	frs	Forestry: forestry, logging and related service activities
14	fsh	Fishing: hunting, trapping and game propagation including related service activities, fishing, fish farms; service activities incidental to fishing
15	col	Coal: mining and agglomeration of hard coal, lignite and peat
16	oil	Oil: extraction of crude petroleum and natural gas (part), service activities incidental to oil and gas extraction excluding surveying (part)
17	gas	Gas: extraction of crude petroleum and natural gas (part), service activities incidental to oil and gas extraction excluding surveying (part)
18	omn	Other Mining: mining of metal ores, uranium, gems. other mining and quarrying
19	cmt	Cattle Meat: fresh or chilled meat and edible offal of cattle, sheep, goats, horses, asses, mules, and hinnies. raw fats or grease from any animal or bird.
20	omt	Other Meat: pig meat and offal. preserves and preparations of meat, meat offal or blood, flours, meals and pellets of meat or inedible meat offal; greaves
21	vol	Vegetable Oils: crude and refined oils of soya-bean, maize (corn),olive, sesame, ground-nut, olive, sunflower-seed, safflower, cotton-seed, rape, colza and canola, mustard, coconut palm, palm kernel, castor, tung jojoba, babassu and linseed, perhaps partly or wholly hydrogenated,inter-esterified, re-esterified or elaidinised. Also margarine and similar preparations, animal or vegetable waxes, fats and oils and their fractions, cotton linters, oil-cake and other solid residues resulting from the extraction of vegetable fats or oils; flours and meals of oil seeds or oleaginous fruits, except those of mustard; degreas and other residues resulting from the treatment of fatty substances or animal or vegetable waxes.
22	mil	Milk: dairy products
23	pcr	Processed Rice: rice, semi- or wholly milled
24	sgr	Sugar
25	ofd	Other Food: prepared and preserved fish or vegetables, fruit juices and vegetable juices, prepared and preserved fruit and nuts, all cereal flours, groats, meal and pellets of wheat, cereal groats, meal and pellets n.e.c., other cereal grain products (including corn flakes), other vegetable flours and meals, mixes and doughs for the preparation of bakers' wares, starches and starch products; sugars and sugar syrups n.e.c., preparations used in animal feeding, bakery products, cocoa, chocolate and sugar confectionery, macaroni, noodles, couscous and similar farinaceous products, food products n.e.c.
26	b_t	Beverages and Tobacco products
27	tex	Textiles: textiles and man-made fibres
28	wap	Wearing Apparel: Clothing, dressing and dyeing of fur
29	lea	Leather: tanning and dressing of leather; luggage, handbags, saddlery, harness and footwear
30	lum	Lumber: wood and products of wood and cork, except furniture; articles of straw and plaiting materials
31	ppp	Paper & Paper Products: includes publishing, printing and reproduction of recorded media
32	p_c	Petroleum & Coke: coke oven products, refined petroleum products, processing of nuclear fuel
33	crp	Chemical Rubber Products: basic chemicals, other chemical products, rubber and plastics products
34	nmm	Non-Metallic Minerals: cement, plaster, lime, gravel, concrete
35	i_s	Iron & Steel: basic production and casting
36	nfm	Non-Ferrous Metals: production and casting of copper, aluminium, zinc, lead, gold, and silver
37	fmp	Fabricated Metal Products: Sheet metal products, but not machinery and equipment
38	mvh	Motor Motor vehicles and parts: cars, lorries, trailers and semi-trailers
39	otn	Other Transport Equipment: Manufacture of other transport equipment
40	ele	Electronic Equipment: office, accounting and computing machinery, radio, television and communication equipment and apparatus
41	ome	Other Machinery & Equipment: electrical machinery and apparatus n.e.c., medical, precision and optical instruments, watches and clocks
42	omf	Other Manufacturing: includes recycling
43	ely	Electricity: production, collection and distribution
44	gdt	Gas Distribution: distribution of gaseous fuels through mains; steam and hot water supply
45	wtr	Water: collection, purification and distribution
46	cns	Construction: building houses factories offices and roads
47	trd	Trade: all retail sales; wholesale trade and commission trade; hotels and restaurants; repairs of motor vehicles and personal and household goods; retail sale of automotive fuel
48	otp	Other Transport: road, rail ; pipelines, auxiliary transport activities; travel agencies
49	wtp	Water transport
50	atp	Air transport
51	cmn	Communications: post and telecommunications
52	ofi	Other Financial Intermediation: includes auxiliary activities but not insurance and pension funding (see next)
53	isr	Insurance: includes pension funding, except compulsory social security
54	obs	Other Business Services: real estate, renting and business activities
55	ros	Recreation & Other Services: recreational, cultural and sporting activities, other service activities; private households with employed persons (servants)
56	osg	Other Services (Government): public administration and defense; compulsory social security, education, health and social work, sewage and refuse disposal, sanitation and similar activities, activities of membership organizations n.e.c., extra-territorial organizations and bodies
57	dwe	Dwellings: ownership of dwellings (imputed rents of houses occupied by owners)

Table 3: Mapping between NAICS Industries reported by OES and GTAP sectors

naics4	naics4_description	gtap	gtap code	gtap description
1133	Logging	13	FRS	Forestry
1151	Support Activities for Crop Production	56	OSG	Public Administration, Defense, Education, Health
1152	Support Activities for Animal Production	56	OSG	Public Administration, Defense, Education, Health
2111	Oil and Gas Extraction	16	OIL	Oil
2111	Oil and Gas Extraction	17	GAS	Gas
2121	Coal Mining	15	COA	Coal
2122	Metal Ore Mining	18	OMN	Minerals nec
2123	Nonmetallic Mineral Mining and Quarrying	18	OMN	Minerals nec
2131	Support Activities for Mining	16	OIL	Oil
2131	Support Activities for Mining	17	GAS	Gas
2131	Support Activities for Mining	15	COA	Coal
2131	Support Activities for Mining	18	OMN	Minerals nec
2211	Electric Power Generation, Transmission and Distribution	43	ELY	Electricity
2212	Natural Gas Distribution	44	GDT	Gas manufacture, distribution
2213	Water, Sewage and Other Systems	45	WTR	Water
2361	Residential Building Construction	46	CNS	Construction
2362	Nonresidential Building Construction	46	CNS	Construction
2371	Utility System Construction	46	CNS	Construction
2372	Land Subdivision	46	CNS	Construction
2373	Highway, Street, and Bridge Construction	46	CNS	Construction
2379	Other Heavy and Civil Engineering Construction	46	CNS	Construction
2381	Foundation, Structure, and Building Exterior Contractors	46	CNS	Construction
2382	Building Equipment Contractors	46	CNS	Construction
2383	Building Finishing Contractors	46	CNS	Construction
2389	Other Specialty Trade Contractors	46	CNS	Construction
3111	Animal Food Manufacturing	25	OFD	Food products nec
3112	Grain and Oilseed Milling	21	VOL	Vegetable oils and fats
3112	Grain and Oilseed Milling	23	PCR	Processed rice
3112	Grain and Oilseed Milling	25	OFD	Food products nec
3113	Sugar and Confectionery Product Manufacturing	24	SGR	Sugar
3113	Sugar and Confectionery Product Manufacturing	25	OFD	Food products nec
3114	Fruit and Vegetable Preserving and Specialty Food Manufacturing	25	OFD	Food products nec
3115	Dairy Product Manufacturing	22	MIL	Dairy products
3116	Animal Slaughtering and Processing	19	CMT	Bovine meat products
3116	Animal Slaughtering and Processing	20	OMT	Meat products nec
3117	Seafood Product Preparation and Packaging	25	OFD	Food products nec
3118	Bakeries and Tortilla Manufacturing	25	OFD	Food products nec
3119	Other Food Manufacturing	25	OFD	Food products nec
3121	Beverage Manufacturing	26	B_T	Beverages and tobacco products
3122	Tobacco Manufacturing	26	B_T	Beverages and tobacco products

3131	Fiber, Yarn, and Thread Mills	27	TEX	Textiles
3132	Fabric Mills	27	TEX	Textiles
3133	Textile and Fabric Finishing and Fabric Coating Mills	27	TEX	Textiles
3141	Textile Furnishings Mills	27	TEX	Textiles
3149	Other Textile Product Mills	27	TEX	Textiles
3151	Apparel Knitting Mills	28	WAP	Wearing apparel
3152	Cut and Sew Apparel Manufacturing	27	TEX	Textiles
3159	Apparel Accessories and Other Apparel Manufacturing	27	TEX	Textiles
3161	Leather and Hide Tanning and Finishing	29	LEA	Leather products
3162	Footwear Manufacturing	29	LEA	Leather products
3169	Other Leather and Allied Product Manufacturing	29	LEA	Leather products
3211	Sawmills and Wood Preservation	30	LUM	Wood products
3212	Veneer, Plywood, and Engineered Wood Product Manufacturing	30	LUM	Wood products
3219	Other Wood Product Manufacturing	30	LUM	Wood products
3221	Pulp, Paper, and Paperboard Mills	31	PPP	Paper products, publishing
3222	Converted Paper Product Manufacturing	31	PPP	Paper products, publishing
3231	Printing and Related Support Activities	31	PPP	Paper products, publishing
3241	Petroleum and Coal Products Manufacturing	32	P_C	Petroleum, coal products
3251	Basic Chemical Manufacturing	33	CRP	Chemical, rubber, plastic products
3252	Resin, Synthetic Rubber, and Artificial Synthetic Fibers and Filaments Manufacturing	33	CRP	Chemical, rubber, plastic products
3253	Pesticide, Fertilizer, and Other Agricultural Chemical Manufacturing	33	CRP	Chemical, rubber, plastic products
3254	Pharmaceutical and Medicine Manufacturing	33	CRP	Chemical, rubber, plastic products
3255	Paint, Coating, and Adhesive Manufacturing	33	CRP	Chemical, rubber, plastic products
3256	Soap, Cleaning Compound, and Toilet Preparation Manufacturing	33	CRP	Chemical, rubber, plastic products
3259	Other Chemical Product and Preparation Manufacturing	33	CRP	Chemical, rubber, plastic products
3261	Plastics Product Manufacturing	33	CRP	Chemical, rubber, plastic products
3262	Rubber Product Manufacturing	33	CRP	Chemical, rubber, plastic products
3271	Clay Product and Refractory Manufacturing	34	NMM	Mineral products nec
3272	Glass and Glass Product Manufacturing	34	NMM	Mineral products nec
3273	Cement and Concrete Product Manufacturing	34	NMM	Mineral products nec
3274	Lime and Gypsum Product Manufacturing	34	NMM	Mineral products nec
3279	Other Nonmetallic Mineral Product Manufacturing	34	NMM	Mineral products nec
3311	Iron and Steel Mills and Ferroalloy Manufacturing	35	I_S	Ferrous metals
3312	Steel Product Manufacturing from Purchased Steel	37	FMP	Metal products
3313	Alumina and Aluminum Production and Processing	36	NFM	Metals nec
3314	Nonferrous Metal (except Aluminum) Production and Processing	36	NFM	Metals nec
3315	Foundries	35	I_S	Ferrous metals
3315	Foundries	36	NFM	Metals nec
3321	Forging and Stamping	37	FMP	Metal products
3322	Cutlery and Handtool Manufacturing	37	FMP	Metal products
3323	Architectural and Structural Metals Manufacturing	37	FMP	Metal products

3324	Boiler, Tank, and Shipping Container Manufacturing	37	FMP	Metal products
3325	Hardware Manufacturing	37	FMP	Metal products
3326	Spring and Wire Product Manufacturing	37	FMP	Metal products
3327	Machine Shops; Turned Product; and Screw, Nut, and Bolt Manufacturing	37	FMP	Metal products
3328	Coating, Engraving, Heat Treating, and Allied Activities	37	FMP	Metal products
3329	Other Fabricated Metal Product Manufacturing	37	FMP	Metal products
3331	Agriculture, Construction, and Mining Machinery Manufacturing	41	OME	Machinery and equipment nec
3332	Industrial Machinery Manufacturing	41	OME	Machinery and equipment nec
3333	Commercial and Service Industry Machinery Manufacturing	41	OME	Machinery and equipment nec
3334	Ventilation, Heating, Air-Conditioning, and Commercial Refrigeration Equipment Manufacturing	41	OME	Machinery and equipment nec
3335	Metalworking Machinery Manufacturing	41	OME	Machinery and equipment nec
3336	Engine, Turbine, and Power Transmission Equipment Manufacturing	41	OME	Machinery and equipment nec
3339	Other General Purpose Machinery Manufacturing	41	OME	Machinery and equipment nec
3341	Computer and Peripheral Equipment Manufacturing	40	ELE	Electronic equipment
3342	Communications Equipment Manufacturing	40	ELE	Electronic equipment
3343	Audio and Video Equipment Manufacturing	40	ELE	Electronic equipment
3344	Semiconductor and Other Electronic Component Manufacturing	40	ELE	Electronic equipment
3345	Navigational, Measuring, Electromedical, and Control Instruments Manufacturing	41	OME	Machinery and equipment nec
3346	Manufacturing and Reproducing Magnetic and Optical Media	41	OME	Machinery and equipment nec
3351	Electric Lighting Equipment Manufacturing	41	OME	Machinery and equipment nec
3352	Household Appliance Manufacturing	41	OME	Machinery and equipment nec
3353	Electrical Equipment Manufacturing	41	OME	Machinery and equipment nec
3359	Other Electrical Equipment and Component Manufacturing	41	OME	Machinery and equipment nec
3361	Motor Vehicle Manufacturing	38	MVH	Motor vehicles and parts
3362	Motor Vehicle Body and Trailer Manufacturing	38	MVH	Motor vehicles and parts
3363	Motor Vehicle Parts Manufacturing	38	MVH	Motor vehicles and parts
3364	Aerospace Product and Parts Manufacturing	39	OTN	Transport equipment nec
3365	Railroad Rolling Stock Manufacturing	39	OTN	Transport equipment nec
3366	Ship and Boat Building	39	OTN	Transport equipment nec
3369	Other Transportation Equipment Manufacturing	39	OTN	Transport equipment nec
3371	Household and Institutional Furniture and Kitchen Cabinet Manufacturing	42	OMF	Manufactures nec
3372	Office Furniture (including Fixtures) Manufacturing	42	OMF	Manufactures nec
3379	Other Furniture Related Product Manufacturing	42	OMF	Manufactures nec
3391	Medical Equipment and Supplies Manufacturing	41	OME	Machinery and equipment nec
3399	Other Miscellaneous Manufacturing	42	OMF	Manufactures nec
4231	Motor Vehicle and Motor Vehicle Parts and Supplies Merchant Wholesalers	47	TRD	Trade
4232	Furniture and Home Furnishing Merchant Wholesalers	47	TRD	Trade
4233	Lumber and Other Construction Materials Merchant Wholesalers	47	TRD	Trade

4234	Professional and Commercial Equipment and Supplies Merchant Wholesalers	47	TRD	Trade
4235	Metal and Mineral (except Petroleum) Merchant Wholesalers	47	TRD	Trade
4236	Electrical and Electronic Goods Merchant Wholesalers	47	TRD	Trade
4237	Hardware, and Plumbing and Heating Equipment and Supplies Merchant Wholesalers	47	TRD	Trade
4238	Machinery, Equipment, and Supplies Merchant Wholesalers	47	TRD	Trade
4239	Miscellaneous Durable Goods Merchant Wholesalers	47	TRD	Trade
4241	Paper and Paper Product Merchant Wholesalers	47	TRD	Trade
4242	Drugs and Druggists' Sundries Merchant Wholesalers	47	TRD	Trade
4243	Apparel, Piece Goods, and Notions Merchant Wholesalers	47	TRD	Trade
4244	Grocery and Related Product Wholesalers	47	TRD	Trade
4245	Farm Product Raw Material Merchant Wholesalers	47	TRD	Trade
4246	Chemical and Allied Products Merchant Wholesalers	47	TRD	Trade
4247	Petroleum and Petroleum Products Merchant Wholesalers	47	TRD	Trade
4248	Beer, Wine, and Distilled Alcoholic Beverage Merchant Wholesalers	47	TRD	Trade
4249	Miscellaneous Nondurable Goods Merchant Wholesalers	47	TRD	Trade
4251	Wholesale Electronic Markets and Agents and Brokers	47	TRD	Trade
4411	Automobile Dealers	47	TRD	Trade
4412	Other Motor Vehicle Dealers	47	TRD	Trade
4413	Automotive Parts, Accessories, and Tire Stores	47	TRD	Trade
4421	Furniture Stores	47	TRD	Trade
4422	Home Furnishings Stores	47	TRD	Trade
4431	Electronics and Appliance Stores	47	TRD	Trade
4441	Building Material and Supplies Dealers	47	TRD	Trade
4442	Lawn and Garden Equipment and Supplies Stores	47	TRD	Trade
4451	Grocery Stores	47	TRD	Trade
4452	Specialty Food Stores	47	TRD	Trade
4453	Beer, Wine, and Liquor Stores	47	TRD	Trade
4461	Health and Personal Care Stores	47	TRD	Trade
4471	Gasoline Stations	47	TRD	Trade
4481	Clothing Stores	47	TRD	Trade
4482	Shoe Stores	47	TRD	Trade
4483	Jewelry, Luggage, and Leather Goods Stores	47	TRD	Trade
4511	Sporting Goods, Hobby, and Musical Instrument Stores	47	TRD	Trade
4512	Book, Periodical, and Music Stores	47	TRD	Trade
4521	Department Stores	47	TRD	Trade
4529	Other General Merchandise Stores	47	TRD	Trade
4531	Florists	47	TRD	Trade
4532	Office Supplies, Stationery, and Gift Stores	47	TRD	Trade
4533	Used Merchandise Stores	47	TRD	Trade
4539	Other Miscellaneous Store Retailers	47	TRD	Trade
4541	Electronic Shopping and Mail-Order Houses	47	TRD	Trade



4542	Vending Machine Operators	47	TRD	Trade
4543	Direct Selling Establishments	47	TRD	Trade
4811	Scheduled Air Transportation	50	ATP	Air transport
4812	Nonscheduled Air Transportation	50	ATP	Air transport
4821	Rail Transportation	48	OTP	Transport nec
4831	Deep Sea, Coastal, and Great Lakes Water Transportation	49	WTP	Water transport
4832	Inland Water Transportation	49	WTP	Water transport
4841	General Freight Trucking	48	OTP	Transport nec
4842	Specialized Freight Trucking	48	OTP	Transport nec
4851	Urban Transit Systems	48	OTP	Transport nec
4852	Interurban and Rural Bus Transportation	48	OTP	Transport nec
4853	Taxi and Limousine Service	48	OTP	Transport nec
4854	School and Employee Bus Transportation	48	OTP	Transport nec
4855	Charter Bus Industry	48	OTP	Transport nec
4859	Other Transit and Ground Passenger Transportation	48	OTP	Transport nec
4861	Pipeline Transportation of Crude Oil	48	OTP	Transport nec
4862	Pipeline Transportation of Natural Gas	48	OTP	Transport nec
4869	Other Pipeline Transportation	48	OTP	Transport nec
4871	Scenic and Sightseeing Transportation, Land	48	OTP	Transport nec
4872	Scenic and Sightseeing Transportation, Water	48	OTP	Transport nec
4879	Scenic and Sightseeing Transportation, Other	48	OTP	Transport nec
4881	Support Activities for Air Transportation	48	OTP	Transport nec
4882	Support Activities for Rail Transportation	48	OTP	Transport nec
4883	Support Activities for Water Transportation	48	OTP	Transport nec
4884	Support Activities for Road Transportation	48	OTP	Transport nec
4885	Freight Transportation Arrangement	48	OTP	Transport nec
4889	Other Support Activities for Transportation	48	OTP	Transport nec
4911	Postal Service	56	OSG	Public Administration, Defense, Education, Health
4921	Couriers	48	OTP	Transport nec
4922	Local Messengers and Local Delivery	48	OTP	Transport nec
4931	Warehousing and Storage	48	OTP	Transport nec
5111	Newspaper, Periodical, Book, and Directory Publishers	31	PPP	Paper products, publishing
5112	Software Publishers	31	PPP	Paper products, publishing
5121	Motion Picture and Video Industries	31	PPP	Paper products, publishing
5122	Sound Recording Industries	31	PPP	Paper products, publishing
5151	Radio and Television Broadcasting	51	CMN	Communication
5152	Cable and Other Subscription Programming	51	CMN	Communication
5161	Internet Publishing and Broadcasting	51	CMN	Communication
5171	Wired Telecommunications Carriers	51	CMN	Communication
5172	Wireless Telecommunications Carriers (except Satellite)	51	CMN	Communication
5173	Telecommunications Resellers	51	CMN	Communication
5174	Satellite Telecommunications	51	CMN	Communication
5175	Cable and Other Program Distribution	51	CMN	Communication



5179	Other Telecommunications	51	CMN	Communication
5181	Internet Service Providers and Web Search Portals	51	CMN	Communication
5182	Data Processing, Hosting, and Related Services	51	CMN	Communication
5191	Other Information Services	51	CMN	Communication
5211	Monetary Authorities - Central Bank	56	OSG	Public Administration, Defense, Education, Health
5221	Depository Credit Intermediation	52	OFI	Financial services nec
5222	Nondepository Credit Intermediation	52	OFI	Financial services nec
5223	Activities Related to Credit Intermediation	52	OFI	Financial services nec
5231	Securities and Commodity Contracts Intermediation and Brokerage	52	OFI	Financial services nec
5232	Securities and Commodity Exchanges	52	OFI	Financial services nec
5239	Other Financial Investment Activities	52	OFI	Financial services nec
5241	Insurance Carriers	53	ISR	Insurance
5242	Agencies, Brokerages, and Other Insurance Related Activities	53	ISR	Insurance
5251	Insurance and Employee Benefit Funds	53	ISR	Insurance
5259	Other Investment Pools and Funds	53	ISR	Insurance
5311	Lessors of Real Estate	54	OBS	Business services nec
5312	Offices of Real Estate Agents and Brokers	54	OBS	Business services nec
5313	Activities Related to Real Estate	54	OBS	Business services nec
5321	Automotive Equipment Rental and Leasing	54	OBS	Business services nec
5322	Consumer Goods Rental	54	OBS	Business services nec
5323	General Rental Centers	54	OBS	Business services nec
5324	Commercial and Industrial Machinery and Equipment Rental and Leasing	54	OBS	Business services nec
5331	Lessors of Nonfinancial Intangible Assets (except Copyrighted Works)	54	OBS	Business services nec
5411	Legal Services	54	OBS	Business services nec
5412	Accounting, Tax Preparation, Bookkeeping, and Payroll Services	54	OBS	Business services nec
5413	Architectural, Engineering, and Related Services	54	OBS	Business services nec
5414	Specialized Design Services	54	OBS	Business services nec
5415	Computer Systems Design and Related Services	54	OBS	Business services nec
5416	Management, Scientific, and Technical Consulting Services	54	OBS	Business services nec
5417	Scientific Research and Development Services	54	OBS	Business services nec
5418	Advertising and Related Services	54	OBS	Business services nec
5419	Other Professional, Scientific, and Technical Services	54	OBS	Business services nec
5511	Management of Companies and Enterprises	54	OBS	Business services nec
5611	Office Administrative Services	54	OBS	Business services nec
5612	Facilities Support Services	54	OBS	Business services nec
5613	Employment Services	54	OBS	Business services nec
5614	Business Support Services	54	OBS	Business services nec
5615	Travel Arrangement and Reservation Services	54	OBS	Business services nec
5616	Investigation and Security Services	54	OBS	Business services nec
5617	Services to Buildings and Dwellings	54	OBS	Business services nec
5619	Other Support Services	54	OBS	Business services nec

5621	Waste Collection	56	OSG	Public Administration, Defense, Education, Health
5622	Waste Treatment and Disposal	56	OSG	Public Administration, Defense, Education, Health
5629	Remediation and Other Waste Management Services	56	OSG	Public Administration, Defense, Education, Health
6111	Elementary and Secondary Schools	56	OSG	Public Administration, Defense, Education, Health
6112	Junior Colleges	56	OSG	Public Administration, Defense, Education, Health
6113	Colleges, Universities, and Professional Schools	56	OSG	Public Administration, Defense, Education, Health
6114	Business Schools and Computer and Management Training	56	OSG	Public Administration, Defense, Education, Health
6115	Technical and Trade Schools	56	OSG	Public Administration, Defense, Education, Health
6116	Other Schools and Instruction	56	OSG	Public Administration, Defense, Education, Health
6117	Educational Support Services	56	OSG	Public Administration, Defense, Education, Health
6211	Offices of Physicians	56	OSG	Public Administration, Defense, Education, Health
6212	Offices of Dentists	56	OSG	Public Administration, Defense, Education, Health
6213	Offices of Other Health Practitioners	56	OSG	Public Administration, Defense, Education, Health
6214	Outpatient Care Centers	56	OSG	Public Administration, Defense, Education, Health
6215	Medical and Diagnostic Laboratories	56	OSG	Public Administration, Defense, Education, Health
6216	Home Health Care Services	56	OSG	Public Administration, Defense, Education, Health
6219	Other Ambulatory Health Care Services	56	OSG	Public Administration, Defense, Education, Health
6221	General Medical and Surgical Hospitals	56	OSG	Public Administration, Defense, Education, Health
6222	Psychiatric and Substance Abuse Hospitals	56	OSG	Public Administration, Defense, Education, Health
6223	Specialty (except Psychiatric and Substance Abuse) Hospitals	56	OSG	Public Administration, Defense, Education, Health
6231	Nursing Care Facilities	56	OSG	Public Administration, Defense, Education, Health
6232	Residential Mental Retardation, Mental Health and Substance Abuse Facilities	56	OSG	Public Administration, Defense, Education, Health
6233	Community Care Facilities for the Elderly	56	OSG	Public Administration, Defense, Education, Health
6239	Other Residential Care Facilities	56	OSG	Public Administration, Defense, Education, Health
6241	Individual and Family Services	56	OSG	Public Administration, Defense, Education, Health
6242	Community Food and Housing, and Emergency and Other Relief Services	56	OSG	Public Administration, Defense, Education, Health
6243	Vocational Rehabilitation Services	56	OSG	Public Administration, Defense, Education, Health
6244	Child Day Care Services	56	OSG	Public Administration, Defense, Education, Health
7111	Performing Arts Companies	55	ROS	Recreational and other services
7112	Spectator Sports	55	ROS	Recreational and other services

7113	Promoters of Performing Arts, Sports, and Similar Events	55	ROS	Recreational and other services
7114	Agents and Managers for Artists, Athletes, Entertainers, and Other Public Figures	55	ROS	Recreational and other services
7115	Independent Artists, Writers, and Performers	55	ROS	Recreational and other services
7121	Museums, Historical Sites, and Similar Institutions	55	ROS	Recreational and other services
7131	Amusement Parks and Arcades	55	ROS	Recreational and other services
7132	Gambling Industries	55	ROS	Recreational and other services
7139	Other Amusement and Recreation Industries	55	ROS	Recreational and other services
7211	Traveler Accommodation	47	TRD	Trade
7212	RV (Recreational Vehicle) Parks and Recreational Camps	47	TRD	Trade
7213	Rooming and Boarding Houses	47	TRD	Trade
7221	Full-Service Restaurants	47	TRD	Trade
7222	Limited-Service Eating Places	47	TRD	Trade
7223	Special Food Services	47	TRD	Trade
7224	Drinking Places (Alcoholic Beverages)	47	TRD	Trade
8111	Automotive Repair and Maintenance	47	TRD	Trade
8112	Electronic and Precision Equipment Repair and Maintenance	47	TRD	Trade
8113	Commercial and Industrial Machinery and Equipment (except Automotive and Electronic) Repair and Maintenance	47	TRD	Trade
8114	Personal and Household Goods Repair and Maintenance	47	TRD	Trade
8121	Personal Care Services	47	TRD	Trade
8122	Death Care Services	47	TRD	Trade
8123	Drycleaning and Laundry Services	47	TRD	Trade
8129	Other Personal Services	47	TRD	Trade
8131	Religious Organizations	56	OSG	Public Administration, Defense, Education, Health
8132	Grantmaking and Giving Services	56	OSG	Public Administration, Defense, Education, Health
8133	Social Advocacy Organizations	56	OSG	Public Administration, Defense, Education, Health
8134	Civic and Social Organizations	56	OSG	Public Administration, Defense, Education, Health
8139	Business, Professional, Labor, Political, and Similar Organizations	56	OSG	Public Administration, Defense, Education, Health
9991	Federal Executive Branch (OES Designation)	56	OSG	Public Administration, Defense, Education, Health
9992	State Government (OES Designation)	56	OSG	Public Administration, Defense, Education, Health
9993	Local Government (OES Designation)	56	OSG	Public Administration, Defense, Education, Health

\*Yellow color highlights the multiple correspondences between NAICS industry and GTAP sectors.

Table 4: Mapping between NAICS Industries reported by the Census of Agriculture and GTAP sectors

naics4	naics4_description	gtap	gtapcode	gtapdescription
1111	oilseed and grain farming	1	PDR	Paddy rice
1111	oilseed and grain farming	2	WHT	Wheat
1111	oilseed and grain farming	3	GRO	Other grain
1111	oilseed and grain farming	5	OSD	Oil seeds
1112	vegetable and melon farming	4	V_F	Veg fruit
1113	fruit and tree nut farming	4	V_F	Veg fruit
1114	greenhouse, nursery, and floriculture production	8	OCR	Other crops
11191	tobacco farming	8	OCR	Other crops
11192	cotton faming	7	PFB	Plant fibers
11193 11194 11199	sugarcane, hay, and all other crop farming	6	C_B	Sugar cane beet
11193 11194 11199	sugarcane, hay, and all other crop farming	8	OCR	Other crops
112111	beef cattle ranching and farming	9	CTL	Cattle
112112	cattle feedlots	9	CTL	Cattle
11212	dairy cattle and milk production	11	RMK	Raw milk
1122	hog and pig farming	10	OAP	Other animal products
1123	poultry and egg production	10	OAP	Other animal products
1124	sheep and goat farming	9	CTL	Cattle
1124	sheep and goat farming	12	WOL	Wool
1125 1129	animal aquaculture and other animal production	10	OAP	Other animal products
1125 1129	animal aquaculture and other animal production	14	FSH	Fishing
1125 1129	animal aquaculture and other animal production	9	CTL	Cattle



Table 6: USAGE- Shares of wage bill Matrix (2010)

com6 5	com65_string	com65_description	Wagebill Share																								Total WB
			11	13	15	17	19	21	23	25	27	29	31	33	35	37	39	41	43	45	47	49	51	53			
1	Farms	Farms	0.879639	0	0.00E+00	0	0	0	0	0	0.00E+00	0.00E+00	0.00E+00	0	0.00E+00	0	0	0	0	0.120361	0	0	0	0	0		
2	ForestFish	Forestry, fishing, and related activities	0.059223	0.010714	0.001245	0	0.010647	0	0	0	0.001103	0.000501	0.001021	0	0.000662	0	0.011563	0.013302	0.012083	0.062385	0.626574	0.002265	0.02707	0.032578	0.127108		
3	OilGasExtrac	Oil and gas extraction	0.172335	0.086399	0.024709	0.24445	0.096773	0	0.014857	0	0.001142	0.003279	0	0	0.0007	0.000415	0	0.012152	0.061228	0.000257	0.127044	0.033515	0.060199	0.060548	0.178869		
4	OthMining	Mining, except oil and gas	0.070974	0.018833	0.002511	0.034627	0.011209	0	0	0	0	0.004606	0	0.001275	0	0.001508	0	0.007624	0.046578	0.000187	0.393135	0.139196	0.08887	0.178869	0.178869		
5	MiningServ	Support activities for mining	0.113945	0.027681	0.00861	0.061416	0.026958	0	0.000878	0	0.000321	0.005148	0	0.000407	0	0.000751	0	0.024726	0.0531	0	0.47179	0.061977	0.045557	0.096735	0.178869		
6	Utilities	Utilities	0.114915	0.082737	0.033412	0.111929	0.017054	0	0.004977	0.000412	0.003658	0.003371	0	0.006505	0	0.003165	0	0.017373	0.13381	0.000193	0.051027	0.252322	0.146049	0.016452	0.178869		
7	Construction	Construction	0.124711	0.042715	0.002222	0.017717	0.000115	7.34E-06	0.000413	0	0.000986	0.000598	0	0.000042	8.28E-05	0.003058	9.32E-05	0.025255	0.072697	4.28E-05	0.594026	0.075013	0.012385	0.027444	0.178869		
8	WoodProd	Wood products	0.102359	0.026011	0.002658	0.019945	0.004711	0	0	0	0.001435	0.001035	0	0.001658	0	0.004266	0	0.047066	0.072987	0.015283	0.049155	0.056398	0.439861	0.155172	0.178869		
9	NonMetMinPrd	Nonmetallic mineral products	0.110282	0.024558	0.005501	0.029663	0.002351	0	0	0	0.038378	0.000949	0	0.000217	0	0.002235	0	0.048565	0.082445	0	0.062392	0.068535	0.332617	0.225811	0.178869		
10	PrimMetals	Primary metals	0.104685	0.027047	0.010373	0.056903	0.00359	0	0	0	0.000292	0.004305	0	0.001581	4.45E-05	0.002745	0	0.026519	0.060728	0	0.023566	0.113977	0.489132	0.074513	0.178869		
11	FabMetPrds	Fabricated metal products	0.138914	0.040939	0.011437	0.055712	0.001839	0	0.000267	0	0.001552	0.001188	0	0.001318	0	0.003442	0	0.039561	0.089666	0	0.028802	0.035224	0.511198	0.038974	0.178869		
12	Machinery	Machinery	0.151313	0.049865	0.027024	0.130533	0.001925	0	0.000794	0	0.005069	0.000847	0	0.00174	0	0.002783	0	0.054985	0.084395	0	0.010586	0.041368	0.413956	0.024384	0.178869		
13	CompElecPrds	Computer and electronic products	0.203711	0.080452	0.17043	0.253466	0.004228	0	0.003029	7.25E-05	0.007333	0.000644	0	0.000951	2.39E-05	0.001239	0	0.043089	0.057815	0	0.00067	0.018434	0.1467	0.007715	0.178869		
14	ElectEquip	Electrical equipment, appliances, and component	0.155978	0.055046	0.025896	0.136758	0.001734	0	0.001335	0	0.00472	0.000922	0	0.000155	0	0.002325	0	0.044497	0.080917	0	0.004585	0.045172	0.404783	0.053179	0.178869		
15	MotVehParts	Motor vehicles, bodies and trailers, and parts	0.094265	0.028486	0.009411	0.115016	0.000321	0	0	0.002535	0.000895	0	0.000231	0	0.002137	0.019473	0.049564	0	0.017905	0.060334	0.554011	0.000298	0.000298	0.555739	0.178869		
16	OthTransEqu	Other transportation equipment	0.116426	0.101031	0.089074	0.245867	0.001547	0	0.001408	0.000267	0.006691	0.002117	0	0.004243	0	0.001916	0	0.009232	0.053757	0	0.033118	0.063277	0.252092	0.017939	0.178869		
17	Furniture	Furniture and related products	0.120299	0.033222	0.008058	0.026788	0	0	0	0.009572	0.000188	0	0.000309	0	0.003767	0	0.046977	0.095184	0	0.03209	0.022773	0.540717	0.060056	0.178869	0.178869		
18	MiscManu	Miscellaneous manufacturing	0.172628	0.05192	0.02648	0.072107	0.009184	0	0.002485	0	0.020285	0.009664	0.000263	0.000619	0.000153	0.003094	0	0.057325	0.113989	0	0.005932	0.035224	0.511198	0.038974	0.178869		
19	FoodBevTob	Food and beverage and tobacco products	0.097097	0.026131	0.003943	0.009354	0.012299	4.67E-05	0.000179	0	0.002009	0.001789	0	0.001014	0.012365	0.011582	1.38E-04	0.052203	0.07378	0.010791	0.00361	0.079559	0.438642	0.163471	0.178869		
20	TextMillProd	Textile mills and textile product mills	0.118467	0.025685	0.006305	0.016893	0.002279	0	0	0.011247	0.000559	0	0.00372	0	0.003763	0.00E+00	0.048842	0.097147	0	0.010438	0.068708	0.52855	0.060746	0.178869	0.178869		
21	Apparel	Apparel and leather and allied products	0.143968	0.038163	0.012186	0.003936	0	0	0	0.050028	0	0	0.000516	0	0.00392	0	0.06568	0.126961	0	0.01994	0.492253	0.04245	0.178869	0.178869	0.178869		
22	PaperPrds	Paper products	0.115605	0.030654	0.009455	0.030811	0.003359	0	0	0.008633	0.001515	0	0.000811	0	0.002699	0	0.042055	0.079667	0.001507	0.01511	0.097387	0.462369	0.098362	0.178869	0.178869		
23	Printing	Printing and related support activities	0.125545	0.036737	0.018657	0.002387	0.000292	0	0	0.037118	0.000191	0	0.000168	0	0.002819	0	0.02923	0.155597	0	0.000447	0.018336	0.457702	0.051474	0.178869	0.178869		
24	PetroCoalPrd	Petroleum and coal products	0.136299	0.082885	0.031196	0.1221	0.03543	0	0.009965	0	0.000799	0.006563	0	0.001495	0	0.000199	0	0.017637	0.048289	0	0.045485	0.070086	0.34194	0.049629	0.178869		
25	ChemicalProd	Chemical products	0.179279	0.066907	0.033143	0.072133	0.129542	0	0.003025	8.83E-05	0.004218	0.006788	0.000627	0.001187	2.56E-05	0.002704	9.85E-05	0.039839	0.073822	0.000271	0.006096	0.059923	0.280053	0.040233	0.178869		
26	PlastRubProd	Plastics and rubber products	0.13189	0.028117	0.008694	0.052837	0.001747	0	0	0.003346	0.000853	0	0.00025	0	0.003172	0	0.037689	0.082796	0	0.007324	0.063345	0.489716	0.088224	0.178869			
27	WholesaleTrd	Wholesale trade	0.147347	0.055045	0.045731	0.014848	0.002958	0	0.001007	5.34E-05	0.009168	0.00297	0.000105	0.000484	0.000304	0.002482	0.000111	0.341569	0.154197	0.004122	0.003357	0.035933	0.03199	0.12699	0.178869		
28	RetailTrd	Retail trade	0.069759	0.017486	0.007729	0.000588	1.27E-05	3.08E-05	0.00015	0.000384	0.007194	0.063642	0.002511	0.003953	0.024637	0.004376	0.003329	0.48864	0.152316	0.000993	0.003586	0.060014	0.027078	0.058843	0.178869		
29	AirTrans	Air transportation	0.051194	0.004471	0.000761	0.00803	0	0	0.00177	0	0.001554	0.000487	7.03E-05	0.000604	0.000269	0.001005	0.009536	0.01058	0.23796	0	0.000448	0.0115385	0.000298	0.555739	0.178869		
30	RailTrans	Rail transportation	0.084777	0.034811	0.015462	0.014892	0	0	0.00346	0	0.006647	0.001253	0	0.006652	0.001146	0.001322	0.00111	0.003291	0.054668	0	0.088038	0.139425	0.044335	0.504844	0.178869		
31	WaterTrans	Water transportation	0.123739	0.055493	0.016403	0.017312	0	0.00E+00	0	0.002568	0.000855	0	0.000776	0.019916	0	0.026398	0.101676	0	0.000594	0.023833	0.008818	0.601618	0.178869	0.178869			
32	TruckTrans	Truck transportation	0.064525	0.015431	0.00342	0.000331	4.96E-05	0	0	0.000591	0	0.000471	0	0.001261	9.81E-05	0.018976	0.108098	0.000494	0.002417	0.047433	0.001471	0.734935	0.178869	0.178869			
33	TransitGrndP	Transit and ground passenger transportation	0.052007	0.009979	0.000858	0	0	0.000144	0	0.00E+00	8.89E-05	0.001966	0.000280	0.00E+00	0.002238	1.92E-02	0.005703	0.010494	0	0.000154	0.057156	0	0.746558	0.178869			
34	Pipeline	Pipeline transportation	0.152957	0.102593	0.033824	0.131972	0.01918	0	0.007073	0.000909	0.003849	0	0	0	0	0	0.010368	0.05904	0	0.030929	0.117237	0.268954	0.06638	0.178869			
35	OthTransServ	Other transportation and support activities	0.081338	0.034617	0.008763	0.008107	0.000184	0	0.000425	0.000798	0.000593	6.53E-05	0	0.001822	1.17E-03	0.002379	0.006108	0.031791	0.220565	8.58E-05	0.00199	0.085541	0.012854	0.500807	0.178869		
36	WareHousStor	Warehousing and storage	0.080931	0.026766	0.013052	0.005777	0.000814	0	0.000119	0	0.002908	0.002056	0.000139	0.006255	2.17E-04	0.013435	0.000301	0.029616	0.218774	0.000658	0.001241	0.040332	0.039169	0.51744	0.178869		
37	Publishing	Publishing industries (includes software)	0.183903	0.085918	0.263321	0.004796	0.000683	0	0.005592	0.001181	0.165206	7.11E-05	0	0.000336	0	0.001412	0	0.122671	0.104553	0	0.000581	0.003749	0.035014	0.021014	0.178869		
38	MotPicSndRec	Motion picture and sound recording industries	0.183136	0.050179	0.037885	0.005773	0	7.42E-05	0.002702	0.000303	0.465413	0	0	0.002594	0.042202	0.004297	0.056977	0.053701	0.070783	0	0.008923	0.003686	0.003733	0.0076			



Table 7: USAGE-Total Employment Matrix (2007)

			Employment (equivalent to annual full time employment)																							
com65	com65_string	com65_description	11	13	15	17	19	21	23	25	27	29	31	33	35	37	39	41	43	45	47	49	51	53	Total EMP	
management	bus_finance	comp_math	arch_engnr	sciences	social_serv	legal	education	entertain	health_prac	health_sup	protective	food_service	build_maint	pers_care	sales	admin_supp	farm_occup	constructn	maint_repr	production	transport					
1	Farms	Farms	1,972,402	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	997,467	-	-	-	-	-	2,969,869	
2	ForestFish	Forestry, fishing, and related activities	6,340	1,280	230	80	2,310	-	-	60	230	170	-	360	-	4,950	5,540	2,380	20,870	740	7,360	11,640	47,240	385,120		
3	OilGasExtrac	Oil and gas extraction	15,260	16,820	5,040	13,340	11,470	-	1,400	-	190	650	-	60	-	190	80	3,090	21,750	-	19,570	5,340	14,330	11,610	140,190	
4	OthMining	Mining, except oil and gas	7,330	3,600	380	4,570	1,740	-	-	-	60	670	-	570	-	600	-	1,980	15,440	200	82,200	28,830	22,820	50,420	221,410	
5	MiningServ	Support activities for mining	12,510	5,160	2,090	7,140	5,080	-	240	-	50	1,310	-	-	310	550	-	4,100	22,180	-	153,760	17,800	16,200	33,680	282,160	
6	Utilities	Utilities	31,470	36,100	15,870	46,670	9,190	-	1,390	130	2,150	1,370	-	4,650	-	2,950	40	10,820	114,640	340	31,330	142,920	78,100	11,930	542,060	
7	Construction	Construction	368,880	218,060	6,840	78,700	3,240	-	1,420	-	7,500	2,050	-	5,210	40	41,550	1,260	149,250	744,540	940	5,085,990	554,790	108,190	275,330	7,653,380	
8	WoodProd	Wood products	16,560	8,430	1,130	6,290	1,470	-	-	-	560	230	-	1,030	-	3,620	-	13,230	37,420	8,650	38,590	22,800	270,520	100,370	530,900	
9	NonMetMinPrd	Nonmetallic mineral products	18,550	6,800	1,180	8,000	780	-	-	-	2,980	200	-	360	-	2,470	-	16,050	44,480	-	32,240	31,340	199,360	144,980	509,770	
10	PrimMetals	Primary metals	16,040	8,140	2,110	13,650	1,980	-	-	-	80	690	-	950	-	2,430	-	7,740	31,420	-	10,570	45,500	271,830	43,000	456,130	
11	FabMetProds	Fabricated metal products	73,680	41,490	6,800	52,310	2,520	-	-	-	1,610	1,260	-	300	-	10,130	-	37,190	161,660	-	31,740	53,930	964,890	101,650	1,541,160	
12	Machinery	Machinery	67,700	40,600	19,640	97,010	3,410	-	-	260	50	5,110	550	-	280	-	7,070	-	41,160	127,570	90	15,440	48,260	656,800	47,770	1,178,770
13	CompElecPrds	Computer and electronic products	123,580	85,880	136,620	278,220	14,840	-	1,980	320	10,380	920	-	2,300	170	3,900	-	45,200	125,380	-	1,310	37,560	395,650	24,620	1,288,830	
14	ElectEquip	Electrical equipment, appliances, and com	22,810	12,720	5,950	33,780	1,540	-	160	-	2,410	230	-	170	-	1,870	-	11,830	42,520	-	2,120	16,370	253,780	23,370	431,630	
15	MotVehParts	Motor vehicles, bodies and trailers, and pa	31,880	27,780	6,810	64,230	1,020	-	40	-	2,050	940	-	510	90	4,190	-	10,540	56,820	-	25,400	61,860	676,540	61,470	1,032,170	
16	OthTransEqu	Other transportation equipment	39,040	57,030	30,960	131,800	2,170	-	290	480	4,150	1,270	-	340	-	2,730	-	5,850	53,760	-	30,820	57,070	262,820	17,520	701,160	
17	Furniture	Furniture and related products	19,870	10,250	2,610	8,150	260	-	-	-	3,270	110	-	270	40	2,860	-	15,020	52,420	-	22,070	10,210	348,500	43,980	539,890	
18	MiscManu	Miscellaneous manufacturing	36,600	19,890	9,880	24,630	6,130	-	420	-	13,430	3,720	400	590	60	3,570	80	28,470	94,490	-	4,820	17,920	352,000	34,920	652,020	
19	FoodBevTob	Food and beverage and tobacco products	48,480	22,900	4,960	7,270	16,090	40	30	-	3,350	1,780	-	2,000	35,000	25,740	190	76,270	121,590	25,390	5,400	103,070	851,440	305,040	1,656,030	
20	TextMillProd	Textile mills and textile product mills	10,740	4,190	1,190	2,710	950	-	-	-	2,490	170	-	330	-	1,730	-	8,400	34,090	-	2,830	21,080	210,230	30,110	331,240	
21	Apparel	Apparel and leather and allied products	8,240	3,340	1,260	690	350	-	-	-	5,370	-	-	180	-	1,510	-	7,970	29,000	-	-	4,870	180,050	15,500	258,330	
22	PaperPrds	Paper products	18,510	9,270	3,850	7,640	1,110	-	-	-	2,760	430	-	320	-	1,950	-	11,150	40,620	240	4,970	37,390	252,360	66,280	458,850	
23	Printing	Printing and related support activities	25,280	16,520	6,830	1,080	1,080	-	40	40	21,830	80	-	180	50	2,970	-	38,270	120,270	-	360	9,780	334,900	49,290	628,850	
24	PetroCoalPrd	Petroleum and coal products	5,850	5,720	1,720	9,060	4,580	-	160	-	80	300	-	230	-	100	-	2,590	9,580	-	6,640	10,690	48,220	9,120	114,640	
25	ChemicalProd	Chemical products	65,200	35,900	18,660	36,700	90,730	-	1,270	120	2,620	4,080	500	1,720	60	5,360	550	28,070	96,960	240	6,880	61,660	339,210	60,980	857,470	
26	PlastRubProd	Plastics and rubber products	31,700	12,900	4,160	20,040	1,800	-	70	-	1,680	380	-	180	-	3,950	30	16,270	67,600	-	4,600	38,970	470,690	87,050	762,070	
27	WholesaleTrd	Wholesale trade	328,440	233,310	167,020	64,720	30,440	180	2,130	680	54,150	16,600	1,190	5,040	5,150	26,240	1,190	1,584,980	1,423,310	51,110	21,280	387,640	317,940	1,239,610	5,962,350	
28	RetailTrd	Retail trade	350,570	162,200	59,310	4,550	4,710	370	1,310	5,380	119,550	430,430	52,470	73,550	487,520	129,590	85,670	8,515,410	2,609,930	19,230	57,920	804,850	432,090	1,194,440	15,601,050	
29	AirTrans	Air transportation	9,260	15,120	4,470	2,030	420	-	240	130	1,060	600	50	410	410	790	109,770	4,430	167,020	-	200	45,960	790	121,920	485,080	
30	RailTrans	Rail transportation	8,260	5,490	2,450	910	190	-	430	-	80	200	-	1,220	-	90	570	760	16,190	-	17,830	33,960	9,060	114,550	212,240	
31	WaterTrans	Water transportation	3,200	2,090	430	-	-	-	-	-	-	-	-	-	-	3,060	40	430	1,660	7,500	-	540	550	39,740	59,240	
32	TruckTrans	Truck transportation	35,590	15,590	2,700	90	320	-	-	-	140	360	-	1,400	-	2,900	100	21,200	178,290	1,570	3,470	69,470	3,220	1,107,920	1,444,330	
33	TransitGrndP	Transit and ground passenger transportati	6,360	2,970	200	30	-	-	-	-	-	960	-	1,600	-	870	17,530	3,340	43,430	-	100	17,360	70	323,170	417,990	
34	Pipeline	Pipeline transportation	2,560	3,970	870	3,970	460	-	70	-	70	120	-	-	-	40	-	230	3,430	-	1,750	5,980	10,530	3,890	37,940	
35	OthTransServ	Other transportation and support activities	35,300	31,780	6,050	5,670	720	-	380	590	890	420	-	5,440	3,830	4,290	18,680	29,090	295,590	160	2,740	80,250	14,470	646,220	1,182,560	
36	WareHousStr	Warehousing and storage	18,470	13,080	3,790	2,250	340	-	80	-	1,310	730	-	2,000	8,750	170	16,990	174,940	430	700	20,930	27,340	377,260	672,570	762,570	
37	Publishing	Publishing industries (includes software)	73,130	42,170	162,390	4,200	14,930	60	2,080	1,710	177,500	140	-	890	200	3,090	140	125,820	193,060	-	570	7,070	69,300	57,210	935,660	
38	MotPicSndRec	Motion picture and sound recording indus	31,480	14,800	7,080	2,270	1,180	-	890	50	116,540	40	-	-	45,080	4,800	56,170	39,050	43,790	-	1,650	1,400	2,310	4,480	373,060	
39	BroadTelCom	Broadcasting and telecommunications	59,850	71,840	106,410	50,720	8,740	40	2,590	160	161,030	170	-	950	-	1,770	280	212,090	329,860	-	2,230	282,390	1,020	3,890	1,296,030	
40	InfoDataProc	Information and data processing services	37,770	32,790	132,000	7,990	4,600	-	950	13,170	11,540	760	-	810	-	1,720	-	25,570	126,980	-	140	5,890	4,410	1,790	408,880	
41	FedResCrdInt	Federal Reserve banks, credit intermediat	228,950	606,840	100,840	1,160	10,470	40	7,290	270	7,180	40	-	8,170	290	8,070	80	202,810	1,711,500	-	140	6,060	1,160	1,270	2,902,630	
42	SecurInvest	Securities, commodity contracts, and invest	87,920	209,420	65,930	580	7,140	-	5,980	350	3,900	60	-	1,250	560	1,690	250	180,920	271,950	80	520	1,530	140	850	841,020	
43	Insurance	Insurance carriers and related activities	137,000	484,980	136,760	1,050	11,200	2,800	40,100	500	8,180	30,450	1,920	2,670	640	4,220	390	364,280	921,680	-	450	4,520	1,510	1,020	2,156,320	
44	FundsTrusts	Funds, trusts, and other financial vehicles	8,670	12,230	4,760	-	200	-	1,950	450	290	1,140	140	60	40	1,210	260	3,070	35,360	-	520	1,020	-	50	71,420	
45	RealEstate	Real estate	173,010	87,150	9,500	2,910	4,030	1,900	6,720	320	5,030	2,190	3,040	33,370	21,120	156,730	22,160	253,280	404,880	970	20,790	256,820	3,460	14,030	1,483,410	
46	RentalLeas	Rental and leasing services and lessors of	24,770	15,460	3,950	560	1,200	-	1,320	60	6,790	4,550	590	870	1,610	3,840	1,070	282,420	92,120	30	6,580	68,140	8,710	131,440	656,080	
47	LegalServ	Legal services	20,940	20,480	14,010	200	1,660	480	590,510	2,720	1,800	620	-	1,750	180	4,300	240	4,540	509,150	140	-	580	-	190	1,174,490	
48	CompServ	Computer systems design and related serv	125,710	100,670	746,480	44,250	12,020	-	2,480	3,040	27,550	1,350	-	1,830	230	1,000	-	86,870	165,880	-	510	22,130	4,890	2,050	1,348,940	
49	MiscServ	Miscellaneous professional, scientific, and	378,770	781,130	288,060	864,680	340,760	5,160	13,680	13,780	294,750	144,950	70,260	8,800	4,250	37,730	29,410	253,490	1,174,380	3,670	61,520	54,120	107,770	53,320	4,984,440	
50	ManagComEnt	Management of companies and enterprise	324,040	334,540	188,470	49,550	33,690																			

Table 8: USAGE-Total Employment Matrix (2010)

		Employment (equivalent to annual full time employment)																							YEAR 2010	
com65	com65_string	com65_description	11	13	15	17	19	21	23	25	27	29	31	33	35	37	39	41	43	45	47	49	51	53	Total Emp	
com65	com65_string	com65_description	management	bus_finance	comp_math	arch_enginr	sciences	social_serv	legal	education	entertain	health_prac	health_sup	protective	food_service	build_maint	pers_care	sales	admin_supp	farm_occup	construct	maint_repr	production	transport	Total Emp	
1	Farms	Farms	1,972,402	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	997,467	-	-	-	-	2,969,869	
2	ForestFish	Forestry, fishing, and related activities	6,360	2,060	200	-	2,070	-	-	320	140	120	-	410	-	4,030	4,230	1,920	19,990	260,570	560	7,200	12,820	45,000	368,000	
3	Oil&GasExtr	Oil and gas extraction	14,930	13,070	3,470	24,630	10,880	-	1,840	-	190	520	-	-	310	-	-	2,160	18,680	120	29,930	6,840	12,000	15,110	154,900	
4	OthMining	Mining, except oil and gas	6,320	2,900	380	4,660	1,870	-	-	-	-	710	-	-	-	-	540	-	1,220	12,850	60	80,290	27,940	19,960	204,000	
5	MiningServ	Support activities for mining	12,550	5,600	1,320	8,990	5,290	-	120	-	70	1,040	-	-	-	-	420	-	4,150	20,270	-	142,480	18,040	13,680	266,090	
6	Utilities	Utilities	34,490	39,450	14,910	49,600	8,380	-	1,330	80	1,960	1,640	-	-	-	-	3,110	-	9,500	108,130	240	32,140	146,720	82,200	12,120	550,540
7	Construction	Construction	315,360	178,440	9,000	67,370	540	60	1,040	-	5,740	2,640	-	3,410	1,000	30,200	1,030	-	113,890	567,550	460	3,627,050	458,400	83,180	195,630	5,661,990
8	WoodProd	Wood products	12,490	5,520	530	4,320	970	-	-	-	360	220	-	830	-	-	2,110	-	9,510	26,260	5,520	16,300	16,460	176,930	66,560	344,890
9	NonMetMinPrd	Nonmetallic mineral products	15,850	6,140	1,210	7,070	590	-	-	-	1,700	240	-	130	-	-	1,300	-	12,850	34,940	-	24,940	23,750	148,570	99,460	378,740
10	PrimMetals	Primary metals	14,660	6,840	2,490	13,250	1,120	-	-	-	100	1,090	-	760	30	1,520	-	-	6,020	25,240	-	7,110	37,810	204,890	32,260	355,190
11	FabMetPrds	Fabricated metal products	67,390	36,540	9,030	46,400	1,350	-	110	-	1,560	1,040	-	1,550	-	-	-	-	32,000	135,640	-	35,710	44,010	773,370	70,230	1,263,340
12	Machinery	Machinery	62,550	37,580	17,650	92,910	1,170	-	-	-	4,390	640	-	390	-	-	-	-	36,210	107,140	-	11,260	42,460	524,250	36,620	980,590
13	CompElecPrds	Computer and electronic products	113,290	79,120	134,440	230,650	4,070	-	1,530	80	8,460	680	-	1,720	60	3,180	-	-	38,930	103,230	-	920	27,050	319,370	18,580	1,085,360
14	ElectEquip	Electrical equipment, appliances, and compo	21,490	13,750	5,850	33,380	390	-	190	-	1,340	250	-	80	-	-	1,400	-	9,870	35,370	-	1,670	15,450	196,050	18,030	354,560
15	MotVehParts	Motor vehicles, bodies and trailers, and parts	26,070	13,560	5,890	47,660	190	-	-	-	1,300	430	-	250	-	-	2,320	-	9,040	41,150	-	10,690	35,850	426,940	37,220	658,560
16	OthTransEq	Other transportation equipment	38,950	55,630	38,620	121,360	610	-	430	210	4,170	1,240	-	3,730	-	-	2,500	-	5,170	49,220	-	30,210	48,670	239,160	15,990	655,870
17	Furniture	Furniture and related products	15,260	7,850	1,870	6,390	-	-	-	-	2,580	50	-	170	-	-	2,120	-	10,250	37,380	-	10,770	7,500	231,860	27,900	361,750
18	MiscManuf	Miscellaneous manufacturing	36,140	20,460	9,600	26,070	3,490	-	490	-	11,180	3,590	190	480	150	2,950	-	-	23,670	81,570	-	3,510	15,780	302,860	27,590	569,770
19	Food&Bev	Food and beverage and tobacco products	50,580	23,640	3,300	7,160	13,610	60	80	-	3,200	1,860	-	2,110	30,820	24,630	320	7,340	121,290	23,420	4,950	101,070	837,240	300,630	1,624,310	
20	TextMillProd	Textile mills and textile product mills	8,940	3,380	890	2,160	360	-	-	-	2,000	90	-	120	-	-	-	-	6,450	24,290	-	2,190	14,710	152,340	18,890	238,060
21	Apparel	Apparel and leather and allied products	7,240	3,730	550	-	-	-	-	-	4,470	-	-	110	-	-	-	-	6,700	23,190	-	-	3,250	122,650	11,170	185,360
22	PaperPrds	Paper products	17,880	8,500	2,480	7,240	990	-	-	-	2,880	440	-	430	-	-	-	-	9,660	36,570	590	4,890	32,740	213,500	53,040	393,490
23	Printing	Printing and related support activities	22,550	12,810	6,010	740	110	-	-	-	18,190	70	-	110	-	-	-	-	30,570	90,790	-	1,880	8,130	263,500	38,680	494,730
24	PetroCoalPrd	Petroleum and coal products	7,440	7,340	2,610	9,130	3,550	-	380	-	60	640	-	230	-	-	50	-	1,930	8,260	-	6,460	8,900	45,730	9,190	111,920
25	ChemicalProd	Chemical products	64,020	41,990	18,380	39,880	83,300	-	1,030	70	3,080	4,680	700	1,330	40	4,250	130	-	23,400	82,980	370	5,100	52,840	309,940	55,270	792,580
26	PlastRubPrd	Plastics and rubber products	28,890	11,610	3,290	19,360	770	-	-	-	1,520	340	-	190	-	-	-	-	13,600	56,180	-	4,030	34,880	368,600	75,260	621,430
27	WholesaleTrd	Wholesale trade	330,160	228,820	163,730	11,620	-	-	2,350	270	52,710	12,750	980	4,480	3,980	26,990	1,250	1,477,420	1,271,090	47,010	21,850	350,910	283,210	1,115,330	5,462,150	
28	RetailTrd	Retail trade	317,520	131,750	52,250	3,800	100	350	1,020	4,630	97,710	461,850	46,720	60,190	467,370	83,580	65,220	8,051,130	2,529,770	18,090	41,110	687,740	401,130	1,035,420	14,558,450	
29	AirTrans	Air transportation	11,000	1,760	2,340	70	-	-	340	70	-	630	160	40	350	220	890	7,430	4,080	150,360	-	250	47,830	150	199,000	427,180
30	RailTrans	Rail transportation	9,930	5,740	2,190	2,470	-	-	350	-	110	220	-	-	1,350	410	410	320	580	14,390	-	21,320	33,230	11,620	122,160	226,800
31	WaterTrans	Water transportation	3,260	2,740	690	670	-	-	-	-	160	40	-	60	2,170	-	-	-	1,590	8,530	-	40	1,660	700	36,310	58,620
32	TruckTrans	Truck transportation	33,920	14,280	2,770	260	50	-	-	-	-	620	-	900	-	2,420	200	16,660	159,350	890	3,390	61,230	2,030	944,270	1,243,240	
33	TransitGndPrd	Transit and ground passenger transportation	7,220	2,600	190	-	-	50	-	-	40	840	-	1,240	-	1,210	12,060	2,190	45,690	-	50	19,050	-	344,150	436,580	
34	Pipeline	Pipeline transportation	3,380	3,870	1,190	4,450	450	-	150	-	40	150	-	-	-	-	-	-	460	3,660	-	1,560	5,890	12,730	3,950	41,930
35	OthTransServ	Other transportation and support activities	36,140	25,460	6,090	4,850	190	-	150	700	560	60	-	2,510	2,690	4,330	12,110	26,640	282,720	140	2,350	81,950	15,040	576,750	1,081,430	
36	WareHousStor	Warehousing and storage	19,880	10,580	4,520	1,710	350	-	30	-	1,650	810	90	4,380	180	8,960	250	15,170	152,960	550	570	20,860	27,760	367,860	639,120	
37	Publishing	Publishing industries (includes software)	66,570	52,000	148,880	2,660	420	-	2,020	1,020	149,530	50	-	470	-	-	-	104,160	141,080	-	430	3,910	46,380	35,690	757,750	
38	MotPicSndRec	Motion picture and sound recording industrie	25,670	13,790	10,030	1,400	-	40	520	110	132,290	-	-	1,600	45,570	3,840	53,890	33,360	37,040	-	2,900	1,610	2,060	4,860	370,580	
39	BroadTelCom	Broadcasting and telecommunications	63,470	73,240	126,270	43,680	690	110	1,880	140	143,030	290	-	790	60	6,080	110	194,590	259,240	-	1,410	282,380	650	3,230	1,201,340	
40	InfoDataProc	Information and data processing services	36,180	32,870	122,420	3,180	240	100	2,070	13,590	18,010	370	30	610	-	1,580	50	25,230	112,280	-	-	3,370	2,880	2,230	377,290	
41	FedResCrDint	Federal Reserve banks, credit intermediation	207,980	539,050	101,740	390	540	-	6,860	190	6,620	-	-	8,470	220	6,410	40	178,440	1,499,620	-	80	4,740	510	1,370	2,563,270	
42	SecurInvest	Securities, commodity contracts, and investm	79,240	232,860	46,720	110	330	-	5,810	50	3,290	30	-	1,000	620	1,450	630	172,120	249,830	-	70	930	40	1,160	796,290	
43	Insurance	Insurance carriers and related activities	146,170	476,050	151,530	2,220	880	4,410	31,870	630	9,620	27,740	1,400	2,260	460	3,400	240	354,720	837,020	30	340	3,820	1,390	910	2,057,110	
44	FundsTrusts	Funds, trusts, and other financial vehicles	8,700	13,330	7,900	-	-	80	1,470	50	360	730	-	-	40	690	280	5,470	17,560	-	150	510	-	220	57,540	
45	RealEstate	Real estate	161,610	82,590	9,290	2,370	80	-	1,990	5,150	90	4,700	1,030	1,970	25,860	16,610	144,720	1								



Table 9: USAGE- Mean Annual Wage Matrix (2007, US\$)

		Annual Wage_mean																								
		11	13	15	17	19	21	23	25	27	29	31	33	35	37	39	41	43	45	47	49	51	53			
com65	com65_string	com65_description	management	bus_finance	comp_math	arch_enginr	sciences	social_serv	legal	education	entertain	health_prac	health_sup	protective	food_servic	build_maint	pers_care	sales	admin_supp	farm_occup	constructn	maint_repr	production	transport	Weighted_a_mean	
1	Farms	Farms	78,001	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	59,228	
2	ForestFish	Forestry, fishing, and related activities	79,704	55,164	57,975	59,150	44,907	-	-	27,160	48,000	-	-	24,036	-	25,278	25,540	48,869	26,640	20,968	33,444	31,531	24,281	24,764	23,625	
3	OilGasExtrac	Oil and gas extraction	118,480	70,480	72,890	100,710	93,630	-	100,170	-	63,910	70,930	-	41,620	-	18,060	37,970	70,920	35,860	-	42,480	47,250	56,120	42,370	66,782	
4	OthMining	Mining, except oil and gas	96,520	60,488	64,058	63,587	52,191	-	-	61,005	60,646	-	-	30,869	-	26,710	-	59,983	31,877	24,730	42,372	44,279	38,341	35,862	42,771	
5	MiningServ	Support activities for mining	101,220	59,420	67,420	76,250	64,350	-	81,240	-	59,450	58,410	-	-	24,190	20,300	-	61,140	31,990	-	39,090	39,390	39,120	35,660	43,283	
6	Utilities	Utilities	108,129	68,738	72,812	73,185	69,195	-	112,570	62,380	64,952	68,243	-	44,066	-	31,778	38,160	54,065	39,158	24,880	52,137	55,336	56,336	43,377	57,806	
7	Construction	Construction	96,802	61,057	62,218	62,500	60,572	-	93,835	-	49,445	55,982	-	23,543	24,680	25,516	23,281	57,546	31,822	24,041	40,893	40,129	35,293	34,533	43,421	
8	WoodProd	Wood products	90,530	50,839	56,436	49,902	55,330	-	-	44,826	47,959	-	-	22,338	-	22,510	-	55,382	30,572	30,253	32,107	36,819	27,123	25,548	31,348	
9	NonMetMinPrd	Nonmetallic mineral products	97,009	55,649	60,223	59,523	52,042	-	-	30,436	54,020	-	-	28,034	-	25,151	-	52,655	33,312	-	34,869	40,799	30,940	32,597	36,417	
10	PrimMetals	Primary metals	104,204	58,247	62,673	63,684	51,729	-	-	52,430	55,801	-	-	30,169	-	25,494	-	67,547	35,544	-	48,505	45,163	34,402	33,493	40,288	
11	FabMetPrds	Fabricated metal products	100,488	56,025	58,792	59,051	57,603	-	-	46,969	54,601	-	-	23,200	-	23,412	-	62,445	32,523	-	40,452	39,889	32,374	27,222	38,103	
12	Machinery	Machinery	105,885	58,492	68,899	62,884	65,285	-	120,541	48,040	52,748	52,761	-	29,663	-	24,264	-	65,691	34,143	28,120	39,043	42,424	33,952	28,536	43,352	
13	CompElecPrds	Computer and electronic products	122,615	68,174	87,323	75,786	79,525	-	132,450	66,655	63,292	65,633	-	38,328	26,198	25,930	-	76,894	38,068	-	51,457	46,307	31,948	27,929	61,893	
14	ElectEquip	Electrical equipment, appliances, and comp	106,646	58,510	71,537	62,530	66,216	-	94,274	-	54,422	56,487	-	26,784	-	25,320	-	66,389	34,092	-	43,023	42,459	30,973	28,654	40,716	
15	MotVehParts	Motor vehicles, bodies and trailers, and part	101,791	66,822	70,278	51,875	62,664	-	92,670	-	61,072	65,241	-	31,762	27,287	25,347	-	59,427	35,309	-	60,327	51,350	37,903	36,648	43,107	
16	OthTransEqu	Other transportation equipment	111,273	67,199	83,989	74,957	76,796	-	115,490	68,630	64,773	62,278	-	38,930	-	26,669	-	67,502	40,621	-	41,020	46,410	38,858	40,379	55,379	
17	Furniture	Furniture and related products	95,362	52,653	56,163	52,729	58,553	-	-	48,447	19,596	-	-	25,984	21,420	22,037	-	55,882	30,699	-	36,434	37,288	28,471	26,853	33,316	
18	MiscManu	Miscellaneous manufacturing	110,190	59,205	66,661	66,085	64,138	-	112,421	-	44,389	61,148	31,920	31,474	25,490	24,205	33,810	59,599	32,545	-	39,149	40,119	30,487	24,948	40,096	
19	FoodBevTob	Food and beverage and tobacco products	96,997	56,298	65,231	67,247	49,671	37,600	111,010	-	34,181	46,083	-	25,033	20,159	24,980	24,989	37,136	31,594	23,321	46,636	40,269	27,033	27,901	31,631	
20	TextMillProd	Textile mills and textile product mills	97,538	51,192	54,794	58,416	44,286	-	-	42,597	45,452	-	-	24,746	-	22,102	-	52,134	29,785	-	35,866	33,734	25,238	23,431	30,254	
21	Apparel	Apparel and leather and allied products	104,976	56,983	61,560	59,638	55,380	-	-	66,158	-	-	-	23,300	-	19,556	-	57,633	29,695	-	-	33,526	22,519	21,521	28,664	
22	PaperPrds	Paper products	106,904	57,599	63,614	70,903	55,159	-	-	50,769	58,727	-	-	32,921	-	27,252	-	72,668	36,472	39,180	52,504	48,378	35,416	30,164	41,193	
23	Printing	Printing and related support activities	105,280	53,490	59,970	59,020	53,470	-	109,100	39,250	40,320	57,340	-	27,270	20,670	24,100	-	59,310	32,530	-	47,360	42,870	33,290	25,770	38,212	
24	PetroCoalPrd	Petroleum and coal products	115,390	72,070	78,780	84,830	67,380	-	150,310	-	85,790	64,090	-	43,670	-	23,140	-	65,680	37,260	-	47,020	51,180	48,910	35,600	56,083	
25	ChemicalProd	Chemical products	114,047	63,702	73,669	74,161	62,404	-	111,671	52,710	56,775	57,718	31,330	31,789	23,790	26,180	31,440	69,909	36,918	26,120	50,346	47,245	37,976	30,298	51,079	
26	PlastRubPrd	Plastics and rubber products	99,454	54,341	65,452	62,641	56,222	-	112,450	-	51,166	51,855	-	34,394	-	24,881	-	26,880	22,100	66,146	33,049	-	39,414	40,260	26,125	35,486
27	WholesaleTrd	Wholesale trade	114,056	61,965	74,340	69,529	69,249	66,240	117,794	48,776	46,564	56,780	28,220	29,907	19,631	23,678	24,070	60,432	31,348	21,793	40,350	39,868	30,249	29,074	46,826	
28	RetailTrd	Retail trade	87,640	52,345	52,424	62,306	56,356	38,617	46,739	33,319	29,948	56,415	21,138	27,256	20,661	21,244	19,849	24,734	24,398	21,428	36,212	35,696	26,983	22,641	27,771	
29	AirTrans	Air transportation	95,457	57,043	66,609	73,683	62,475	-	103,160	63,780	39,920	47,286	35,980	34,123	-	28,007	58,993	51,623	35,176	-	48,240	54,793	51,210	106,434	62,920	
30	RailTrans	Rail transportation	106,000	68,330	86,320	75,420	65,740	-	119,600	-	65,520	73,380	-	57,640	-	26,000	26,090	71,140	43,700	-	46,780	50,810	42,360	58,860	57,256	
31	WaterTrans	Water transportation	107,242	58,996	69,091	-	-	-	-	-	-	-	-	-	-	28,674	25,850	23,170	55,803	35,958	-	-	50,970	41,349	50,647	50,932
32	TruckTrans	Truck transportation	87,461	50,302	53,807	56,910	43,851	-	-	-	39,503	50,167	-	25,667	-	23,848	25,200	56,815	32,235	30,130	37,678	36,256	34,230	37,482	38,390	
33	TransitGrndP	Transit and ground passenger transportation	84,718	45,596	63,795	66,030	-	-	-	-	-	28,330	-	28,127	-	21,174	20,779	32,647	28,616	-	46,210	38,347	41,270	27,225	28,627	
34	Pipeline	Pipeline transportation	107,039	66,005	68,924	72,728	61,681	-	122,420	-	54,160	61,745	-	-	-	25,480	-	63,230	37,912	-	50,161	50,292	53,877	48,150	58,553	
35	OthTransServ	Other transportation and support activities	98,798	62,203	62,851	72,614	57,733	-	12,949	40,484	45,680	55,577	-	29,613	24,844	24,975	22,056	53,086	33,753	25,972	38,980	44,584	34,744	36,079	39,056	
36	WareHousStor	Warehousing and storage	90,970	52,220	58,130	70,600	62,190	-	90,140	-	44,890	61,720	-	30,640	27,030	32,210	19,770	41,800	31,310	21,490	46,640	40,640	29,600	29,890	33,459	
37	Publishing	Publishing industries (includes software)	118,641	68,886	78,425	75,451	75,366	43,260	104,961	50,317	49,537	70,280	-	31,304	32,430	24,644	30,040	52,244	32,837	-	57,400	42,115	35,046	26,847	55,745	
38	MotPicSndRec	Motion picture and sound recording industr	127,463	61,360	72,939	74,730	56,303	-	129,495	38,310	62,783	72,510	-	16,994	21,940	18,980	31,051	36,794	-	55,740	41,254	37,725	33,628	48,944	48,944	
39	BroadTelCom	Broadcasting and telecommunications	114,343	67,260	71,781	69,638	73,265	42,560	121,540	50,520	47,790	74,258	-	39,531	-	25,117	29,553	49,191	37,000	-	41,278	52,655	45,207	36,848	53,540	
40	InfoDataProc	Information and data processing services	120,984	68,022	72,722	74,586	78,799	-	114,653	38,561	58,430	59,134	-	31,402	-	26,112	-	69,093	31,171	-	37,550	48,380	29,890	29,090	61,066	
41	FedResCrdInt	Federal Reserve banks, credit intermediatio	102,632	62,485	71,098	85,868	66,333	43,890	89,324	49,234	52,412	61,060	-	39,351	30,102	22,066	26,890	50,735	30,016	-	22,639	36,186	35,497	32,777	45,794	
42	SecurInvest	Securities, commodity contracts, and invest	140,402	91,764	83,098	82,280	77,033	-	113,748	61,448	62,033	49,500	-	35,552	25,483	26,934	-	100,848	38,161	25,460	34,793	39,283	43,510	20,701	80,060	
43	Insurance	Insurance carriers and related activities	116,720	58,278	70,470	71,108	60,255	47,329	65,023	50,545	54,812	60,948	29,308	41,323	21,500	23,507	26,689	59,826	33,565	-	48,686	39,108	38,677	36,173	52,427	
44	FundsTrusts	Funds, trusts, and other financial vehicles	117,447	62,570	77,020	-	70,510	-	89,929	46,000	64,420	63,840	32,630	42,810	29,780	26,710	23,500	92,450	36,442	-	31,458	36,763	-	-	57,798	
45	RealEstate	Real estate	66,963	59,308	57,925	66,617	52,729	35,671	64,659	36,033	46,289	43,420	28,198	20,599	24,052	25,353	50,863	29,644	23,294	41,690	31,041	43,673	25,539	39,513		
46	RentalLeas	Rental and leasing services and lessors of im	93,932	59,485	69,490	87,041	60,265	-	94,544	52,780	42,099	48,104	33,420	27,781	17,970	22,504	20,682	27,087	30,391	25,110	41,282	36,650	27,675	26,012	32,531	
47	LegalServ	Legal services	117,590	67,220	63,850	89,170	62,490	41,130	93,690	55,420	63,930	61,540	-	46,540	28,240	2										

Table 10: USAGE- Mean Annual Wage Matrix (2010, US\$)

		Annual Wage_mean																											Year 2010
com65	com65_string	com65_description	11	13	15	17	19	21	23	25	27	29	31	33	35	37	39	41	43	45	47	49	51	53	Weighted_a_mean				
com65	com65_string	com65_description	management	bus_finance	comp_math	arch_enginr	sciences	social_serv	legal	education	entertain	health_prac	health_sup	protective	ood_service	build_maint	pers_care	sales	admin_suppl	farm_occu	constructn	maint_repr	production	transport	weighted_a_mean				
1	Farms	Farms	81,064	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	21,933	-	-	-	-	61,248				
2	ForestFish	Forestry, fishing, and related activities	87,202	48,706	58,288	-	48,166	-	-	32,265	33,520	79,695	-	14,155	-	26,869	29,450	58,936	29,225	22,519	37,870	35,209	23,798	26,452	25,454				
3	OilGasExtrac	Oil and gas extraction	138,470	79,300	85,420	119,600	106,700	-	96,860	-	72,100	75,640	-	-	27,070	22,650	-	67,490	39,320	25,650	50,920	58,780	60,180	48,070	77,427				
4	OthMining	Mining, except oil and gas	109,463	63,299	64,398	72,430	58,427	-	-	-	-	63,229	-	31,872	-	27,219	-	60,910	35,332	30,350	47,727	48,561	43,399	39,706	47,773				
5	MiningServ	Support activities for mining	119,850	65,250	86,100	90,180	67,270	-	96,620	-	60,590	65,340	-	21,480	-	23,610	-	78,650	34,580	-	43,710	45,350	43,960	40,130	49,612				
6	Utilities	Utilities	116,428	73,287	78,306	78,856	71,116	-	130,764	61,830	65,222	71,820	-	50,071	-	35,563	-	63,903	43,243	28,030	55,479	60,312	62,087	47,435	63,479				
7	Construction	Construction	106,212	64,294	66,294	70,631	56,930	32,870	106,532	-	46,141	60,804	-	33,051	22,225	27,199	24,314	59,558	34,403	24,975	43,987	43,951	39,990	37,678	47,510				
8	WoodProd	Wood products	96,598	55,542	59,115	54,419	57,247	-	-	-	46,990	55,454	-	23,546	-	23,833	-	58,336	32,761	32,635	35,545	40,387	29,304	27,479	34,175				
9	NonMetMinPrd	Nonmetallic mineral products	105,732	60,780	69,090	63,758	60,541	-	-	-	34,665	60,080	-	25,385	-	26,123	-	57,432	35,857	-	38,016	43,851	34,021	34,501	40,106				
10	PrimMetals	Primary metals	111,646	61,824	65,133	67,144	50,119	-	-	-	45,624	61,744	-	32,521	23,200	28,238	-	68,873	37,618	-	51,822	47,137	37,325	36,113	44,014				
11	FabMetPrds	Fabricated metal products	110,327	59,964	67,791	64,263	72,920	-	129,753	-	52,145	61,119	-	45,502	-	24,863	-	66,167	35,381	-	43,169	42,837	35,378	29,702	42,399				
12	Machinery	Machinery	113,088	62,030	71,577	65,679	76,920	-	115,934	-	53,981	61,866	-	20,907	-	25,758	-	70,988	36,824	-	43,951	45,546	36,913	31,128	47,713				
13	CompElecPrds	Computer and electronic products	132,633	75,003	93,507	81,858	76,621	-	146,034	66,820	63,935	69,820	-	40,778	29,330	28,735	-	81,642	41,311	-	53,683	50,267	33,882	30,626	67,941				
14	ElectEquip	Electrical equipment, appliances, and co	116,679	64,356	71,162	65,862	71,469	-	112,934	-	56,620	59,316	-	31,075	-	26,694	-	72,474	36,777	-	44,135	47,001	33,191	31,366	45,357				
15	MotVehParts	Motor vehicles, bodies and trailers, and	108,620	63,107	48,000	72,495	50,680	-	-	-	58,581	62,504	-	27,789	-	27,669	-	64,708	36,183	-	50,316	50,556	38,981	36,654	45,548				
16	OthTransEq	Other transportation equipment	119,587	72,659	92,274	81,053	101,440	-	130,960	50,850	64,198	68,289	-	45,515	-	30,667	-	71,444	43,695	-	43,858	52,014	42,171	44,883	61,011				
17	Furniture	Furniture and related products	103,218	55,411	56,417	54,889	-	-	-	-	48,575	49,200	-	23,820	-	23,268	-	60,008	33,341	-	39,013	39,756	30,535	28,387	36,218				
18	MiscManu	Miscellaneous manufacturing	120,748	64,149	69,726	69,918	66,518	-	128,223	-	45,866	68,049	34,960	32,592	25,760	26,514	-	61,221	35,326	-	42,719	44,094	33,149	26,751	44,279				
19	FoodBevTob	Food and beverage and tobacco products	104,889	60,397	65,281	71,380	49,377	42,570	122,050	-	34,296	52,538	-	26,251	21,922	25,693	23,564	38,369	33,237	25,175	39,847	43,010	28,626	29,711	33,662				
20	TextMillProd	Textile mills and textile product mills	103,864	59,562	55,525	61,300	49,610	-	-	-	44,078	48,664	-	24,285	-	23,594	-	59,532	31,348	-	37,358	36,610	27,194	25,205	32,912				
21	Apparel	Apparel and leather and allied products	120,343	61,919	60,947	43,304	-	-	-	-	67,733	-	-	28,375	-	21,763	-	59,327	33,133	-	-	37,131	24,289	23,000	32,652				
22	PaperPrds	Paper products	112,244	62,606	66,188	73,880	58,909	-	-	-	52,039	59,776	-	32,745	-	28,224	-	75,578	37,819	44,330	53,644	51,639	37,596	32,194	44,130				
23	Printing	Printing and related support activities	112,790	58,100	62,890	65,306	-	-	-	-	41,340	55,130	-	30,960	-	24,940	-	61,320	34,720	-	50,330	45,690	35,190	26,960	40,917				
24	PetroCoalPrd	Petroleum and coal products	136,000	83,830	88,730	99,280	74,090	-	194,670	-	98,880	73,820	-	49,260	-	29,510	-	67,840	43,400	-	52,270	58,460	55,510	40,090	66,317				
25	ChemicalProd	Chemical products	125,212	71,245	80,625	80,874	69,534	-	131,320	56,370	61,237	67,745	40,020	39,901	28,640	28,445	33,870	76,123	39,778	32,699	53,441	50,706	40,401	32,548	56,390				
26	PlastRubPrd	Plastics and rubber products	109,235	57,947	63,232	65,302	54,272	-	-	-	52,678	60,014	-	31,499	-	26,078	-	66,309	35,264	-	43,484	43,455	31,790	28,049	38,479				
27	WholesaleTrd	Wholesale trade	123,455	66,545	77,264	74,354	70,410	-	118,506	54,713	48,112	64,432	29,599	29,906	21,106	25,438	24,539	63,954	33,558	24,255	42,505	42,532	32,427	31,496	50,657				
28	RetailTrd	Retail trade	92,688	55,992	62,810	65,306	53,750	37,130	62,027	34,951	31,060	60,601	22,675	27,708	22,240	22,086	21,536	25,605	25,402	23,162	36,804	36,815	28,479	23,976	28,965				
29	AirTrans	Air transportation	108,718	59,340	63,490	80,162	-	-	121,606	-	57,606	71,110	41,050	40,310	28,580	26,389	29,981	60,577	36,970	-	41,830	56,354	46,340	65,218	54,759				
30	RailTrans	Rail transportation	104,160	73,990	86,140	73,560	-	-	120,620	-	71,770	69,460	-	58,920	34,100	39,330	-	42,310	69,230	46,350	-	50,380	51,190	46,550	53,760				
31	WaterTrans	Water transportation	121,685	64,929	76,213	82,838	-	-	-	-	51,460	68,530	-	41,450	29,424	-	-	53,226	38,213	-	47,600	46,028	40,385	53,118	54,718				
32	TruckTrans	Truck transportation	95,581	54,296	62,030	63,861	49,860	-	-	-	-	47,904	-	26,276	-	26,184	24,658	57,230	34,085	27,880	35,830	38,924	36,419	39,107	40,387				
33	TransitGrndP	Transit and ground passenger transporta	97,133	51,756	60,855	-	38,800	-	-	-	29,980	31,560	-	30,532	-	24,945	21,522	35,113	29,836	-	41,430	40,458	-	29,252	30,957				
34	Pipeline	Pipeline transportation	123,044	72,080	77,283	80,636	72,009	-	128,200	-	61,760	69,771	-	-	-	-	-	61,281	43,860	-	53,907	54,120	57,446	47,070	64,867				
35	OthTransServ	Other transportation and support activit	103,150	62,315	65,950	76,607	44,490	-	129,822	52,240	48,517	49,900	-	33,263	19,876	25,183	23,115	54,692	35,756	28,088	38,811	47,840	39,917	49,779	42,424				
36	WareHousStr	Warehousing and storage	92,960	57,770	65,940	77,140	53,100	-	90,840	-	40,240	57,960	35,210	32,610	27,540	34,240	27,500	44,580	32,660	27,300	49,700	44,150	32,220	32,120	35,713				
37	Publishing	Publishing industries (includes software	131,500	78,649	84,190	85,821	77,357	-	131,768	55,105	52,591	67,720	-	34,000	-	27,094	-	56,060	35,276	-	64,360	45,646	35,936	32,027	62,771				
38	MotPicSndRec	Motion picture and sound recording ind	149,528	76,266	79,166	86,431	-	38,870	108,922	57,717	73,737	-	-	33,980	19,410	23,455	22,160	33,739	40,053	-	64,490	47,987	37,976	32,939	56,537				
39	BroadTelCom	Broadcasting and telecommunications	124,643	72,755	75,152	78,738	81,886	41,610	123,974	48,194	51,865	65,469	-	45,290	27,050	30,043	27,650	53,833	38,669	-	41,988	54,232	45,087	33,562	58,360				
40	InfoDataRec	Information and data processing services	135,760	73,912	79,121	89,718	78,251	49,450	86,039	40,186	61,247	39,876	31,830	35,011	-	28,286	28,240	73,702	33,491	-	49,871	33,743	33,383	33,383	66,807				
41	FedResCrDnt	Federal Reserve banks, credit intermedi	110,743	64,981	76,923	91,594	119,676	-	100,164	15,243	55,179	-	-	40,311	18,659	23,569	27,430	54,164	32,023	-	51,410	39,729	35,034	27,168	48,922				
42	SecurInvest	Securities, commodity contracts, and inv	161,109	97,261	87,913	99,530	103,759	-	133,685	73,850	65,363	-	-	38,298	32,703	31,130	24,960	109,330	42,087	-	41,020	42,683	40,220	42,102	87,987				
43	Insurance	Insurance carriers and related activities	128,507	63,835	76,342	77,588	68,612	53,321	71,900	48,040	58,554	65,366	31,476	47,546	25,850	24,712	30,027	63,329	36,226	20,240	55,640	42,657	37,496	38,965	57,987				
44	FundsTrusts	Funds, trusts, and other financial vehicle	139,029	69,770	85,721	-	-	65,850	91,826	59,320	65,766	63,228	-	-	24,650	25,163	30,240	85,547	40,490	-	45,810	42,687	-	17,764	74,143				
45	RealEstate	Real estate	78,844	61,849	66,450	68,421	48,170	40,307	80,180	33,930	50,477	50,916	25,178	29,979	22,807	25,598	28,821	46,659	32,182	29,260	44,888	33,934	45,184	28,470	42,230				
46	RentalLeas	Rental and leasing services and lessors o	101,553	63,317	67,273	73,431	95,650	43,650	107,963	58,590	46,138	50,851	32,960	29,640	22,790	24,043	24,633	30,280	32,247	-	36,484	40,192	29,425	27,617	36,186				
47	LegalServ	Legal services	130,130	69,400	68,570	70,330	82,850	40,640	102,730	62,530	96,710	55,480	-	48,470	31,370														

Table 11: USAGE-Wage Bill Matrix (2007, US\$ in millions)

			WageBill in US\$ million																											
			11	13	15	17	19	21	23	25	27	29	31	33	35	37	39	41	43	45	47	49	51	53						
com65	com65_string	com65_description	management	bus_finance	comp_math	arch_enginr	sciences	social_serv	legal	education	entertain	health_prac	health_sup	protective	food_service	build_maint	pers_care	sales	admin_supp	farm_occup	constructn	maint_repr	production	transport	Total WB					
1	Farms	Farms	154,000	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	21,900	-	-	-	-	175,900					
2	ForestFish	Forestry, fishing, and related activities	505	71	13	5	104	-	-	-	6	8	-	9	-	125	141	116	556	5,730	25	232	283	1,170	9,098					
3	OilGasExtrac	Oil and gas extraction	1,810	1,190	367	1,340	1,070	-	140	-	12	46	-	2	-	3	3	219	780	-	831	252	804	492	9,362					
4	OthMining	Mining, except oil and gas	707	218	24	291	91	-	-	-	4	41	-	18	-	16	-	119	492	5	3,480	1,280	875	1,810	9,470					
5	MiningServ	Support activities for mining	1,270	307	141	544	327	-	20	-	3	77	-	-	7	11	-	251	710	-	6,010	701	634	1,200	12,213					
6	Utilities	Utilities	3,400	2,480	1,160	3,420	636	-	156	8	140	94	-	205	-	94	2	585	4,490	8	1,630	7,910	4,400	517	31,334					
7	Construction	Construction	35,700	13,300	426	4,920	196	-	133	-	371	115	-	123	1	1,060	29	8,590	23,700	23	208,000	22,300	3,820	9,510	332,317					
8	WoodProd	Wood products	1,500	429	64	314	81	-	-	-	25	11	-	23	-	82	-	733	1,140	262	1,240	839	7,340	2,560	16,643					
9	NonMetMinPrd	Nonmetallic mineral products	1,800	378	71	476	41	-	-	-	91	11	-	10	-	62	-	845	1,480	-	1,120	1,280	6,170	4,730	18,564					
10	PrimMetals	Primary metals	1,670	474	132	869	102	-	-	-	4	39	-	29	-	62	-	523	1,120	-	513	2,050	9,350	1,440	18,376					
11	FabMetProds	Fabricated metal products	7,400	2,320	400	3,090	145	-	-	-	76	69	-	7	-	237	-	2,320	5,260	-	1,280	2,150	31,200	2,770	58,723					
12	Machinery	Machinery	7,170	2,370	1,350	6,100	223	-	31	2	270	29	-	8	-	172	-	2,700	4,360	3	603	2,050	22,300	1,360	51,102					
13	CompElecPrds	Computer and electronic products	15,200	5,850	11,900	21,100	1,180	-	262	21	657	60	-	88	4	101	-	3,480	4,770	-	67	1,740	12,600	688	79,769					
14	ElectEquip	Electrical equipment, appliances, and compo	2,430	744	426	2,110	102	-	15	-	131	13	-	5	-	47	-	785	1,450	-	91	695	7,860	670	17,574					
15	MotVehParts	Motor vehicles, bodies and trailers, and parts	3,250	1,860	479	3,330	64	-	4	-	125	61	-	16	2	106	-	626	2,010	-	1,530	3,180	25,600	2,250	44,494					
16	OthTransEqu	Other transportation equipment	4,340	3,830	2,600	9,880	167	-	34	33	269	80	-	132	-	73	-	395	2,180	-	1,260	2,650	10,200	707	38,830					
17	Furniture	Furniture and related products	1,890	540	147	430	15	-	-	-	158	2	-	7	1	63	-	839	1,610	-	804	381	9,920	1,180	17,987					
18	MiscManu	Miscellaneous manufacturing	4,030	1,180	659	1,630	393	-	47	-	596	227	13	19	2	86	3	1,700	3,080	-	189	719	10,700	871	26,143					
19	FoodBevTob	Food and beverage and tobacco products	4,700	1,290	324	489	799	2	3	-	115	82	-	50	706	643	5	2,830	3,840	592	252	4,150	23,000	8,510	52,382					
20	TextMillProd	Textile mills and textile product mills	1,050	214	65	158	42	-	-	-	106	8	-	8	-	38	-	484	1,020	-	101	711	5,310	706	10,021					
21	Apparel	Apparel and leather and allied products	865	190	78	41	19	-	-	-	355	-	-	4	-	30	-	415	861	-	-	163	4,050	334	7,405					
22	PaperPrds	Paper products	1,980	534	245	542	61	-	-	-	140	25	-	11	-	53	-	810	1,480	9	261	1,810	8,940	2,000	18,902					
23	Printing	Printing and related support activities	2,660	884	410	64	58	-	4	2	880	5	-	5	1	72	-	2,270	3,910	-	17	419	11,100	1,270	24,029					
24	PetroCoalPrd	Petroleum and coal products	675	412	136	769	309	-	24	-	7	19	-	10	-	2	-	165	357	-	312	547	2,360	325	6,429					
25	ChemicalProd	Chemical products	7,440	2,290	1,370	2,720	5,660	-	142	6	149	235	16	60	1	140	17	1,960	3,580	6	346	2,910	12,900	1,850	43,799					
26	PlastRubPrd	Plastics and rubber products	3,150	701	272	1,260	101	-	8	-	86	20	-	6	-	98	1	1,080	2,230	-	181	1,580	14,000	2,270	27,043					
27	WholesaleTrd	Wholesale trade	37,500	14,500	12,400	4,500	2,110	12	251	33	2,520	943	34	151	101	621	29	95,800	44,600	1,110	859	15,500	9,620	36,000	279,193					
28	RetailTrd	Retail trade	30,700	8,490	3,110	283	265	14	61	179	3,580	24,300	1,110	2,000	10,100	2,750	1,700	211,000	63,700	412	2,100	28,700	11,700	27,000	433,255					
29	AirTrans	Air transportation	884	862	298	150	26	-	25	8	42	28	2	14	-	22	6,480	229	5,880	-	10	2,520	41	13,000	30,521					
30	RailTrans	Rail transportation	876	375	211	69	13	-	51	-	5	15	-	70	-	2	15	54	708	-	834	1,730	384	6,740	12,152					
31	WaterTrans	Water transportation	343	123	30	-	-	-	-	-	-	-	-	-	88	1	10	93	270	-	-	28	23	2,010	3,017					
32	TruckTrans	Truck transportation	3,110	784	145	5	14	-	-	-	6	18	-	36	-	69	3	1,200	5,750	47	131	2,520	110	41,500	55,448					
33	TransitGrndP	Transit and ground passenger transportation	539	135	13	2	-	-	-	-	-	27	-	18	-	18	364	109	1,240	-	5	666	3	8,800	11,966					
34	Pipeline	Pipeline transportation	274	262	60	289	28	-	9	-	4	7	-	-	-	1	-	15	130	-	88	301	567	187	2,221					
35	OthTransServ	Other transportation and support activities	3,490	1,980	380	412	42	-	5	24	41	23	-	161	95	107	412	1,540	9,980	4	107	3,580	503	23,300	46,186					
36	WareHousStor	Warehousing and storage	1,680	683	220	159	21	-	7	-	59	45	-	147	5	282	3	710	5,480	9	33	851	809	11,300	22,504					
37	Publishing	Publishing industries (includes software)	8,680	2,900	12,700	317	1,130	3	218	86	8,790	10	-	28	6	76	4	6,570	6,340	-	33	298	2,430	1,540	52,159					
38	MotPicSndRec	Motion picture and sound recording industrie	4,010	908	516	170	66	-	115	2	7,320	3	-	-	766	105	1,070	1,210	1,610	-	92	58	87	151	18,259					
39	BroadTelCom	Broadcasting and telecommunications	6,840	4,830	7,640	3,530	640	2	315	8	7,700	13	-	38	-	45	8	10,400	12,200	-	92	14,900	46	143	69,389					
40	InfoDataProc	Information and data processing services	4,570	2,230	9,600	596	362	-	109	508	674	45	-	25	-	45	-	1,770	3,960	-	5	285	132	52	24,969					
41	FedResCrldnt	Federal Reserve banks, credit intermediation	23,500	37,900	7,170	100	695	2	651	13	376	2	-	321	9	178	2	10,300	51,400	-	3	219	41	42	132,924					
42	SecurInvest	Securities, commodity contracts, and investm	12,300	19,200	5,480	48	550	-	680	22	242	3	-	44	14	46	-	18,200	10,400	2	18	60	6	18	67,332					
43	Insurance	Insurance carriers and related activities	16,000	28,300	9,640	75	675	133	2,610	25	448	1,860	56	110	14	99	10	21,800	30,900	-	22	177	58	37	113,050					
44	FundsTrusts	Funds, trusts, and other financial vehicles	1,020	765	367	-	14	-	175	21	19	73	5	3	1	32	6	284	1,290	-	16	38	-	-	4,128					
45	RealEstate	Real estate	11,600	5,170	550	194	212	68	435	12	233	95	69	941	435	3,770	562	12,900	12,000	23	867	7,970	151	358	58,614					
46	RentalLeas	Rental and leasing services and lessors of int	2,330	920	274	49	72	-	125	3	286	219	20	24	29	86	22	7,650	2,800	1	272	2,500	241	3,420	21,343					
47	LegalServ	Legal services	2,460	1,380	895	18	104	20	55,300	151	115	38	-	81	5	96	5	242	18,200	3	-	22	-	7	79,142					
48	CompServ	Computer systems design and related service	16,200	7,400	57,200	3,720	960	-	286	170	1,660	76	-	83	5	25	-	7,070	6,020	-	25	1,040	179	62	102,182					
49	MiscServ	Miscellaneous professional, scientific, and te	46,600	55,500	22,400	57,100	21,600	234	1,300	809	15,800	7,560	1,560	336	96	935	607	13,900	38,600	100	2,930	2,380	3,750	1,570	295,667					
50	ManagComEnt	Management of companies and enterprises	37,500	21,700	13,600	3,800	2,350	587	2,470	225	1,940	1,570	228	353	393	429	247	6,200	19,800	44	543	1,950	1,240	2,120	119,289					
51	AdminServ	Administrative and support services	20,800	16,200	9,570	4,560	1,340	447	1,680	1,420	2,390	12,200	2,710	16,700	2,300	38,800	1,570	17,400	51,700	430	7,560	6,610	18,200	18,900	253,487					
52	WasteManag	Waste management and remediation service	1,440	433	82	515	271	-	8	-	20	51	-	10	-	68	1	454	1,330	2	2,720	789	521	5,260	13,974					
53	EducateServ	Educational services	45,300	12,000	9,670	1,280	8,760	13,900	270	358,000	7,760	13,500	989	3,320	9,830	14,600	5,110	1,310	41,500	88	1,840	5,470	829	7,570	562,896					
54	AmbHealthCar	Ambulatory health care services	23,100	6,390	3,360	271	2,380	12,700	126	1,830	640	191,000	45,000	1,730	10,100	8,110	5,270	606	29,100	3	710	3,630	1,630	767	348,453					
54	HospitNurs	Hospitals and nursing and residential care fac	4,320	989	494	18	726	755	-	109	84	89,500	9,690	32	12	292	120	115	24,100	-	4	110	154	47	131,671					
55	HospitNurs	Hospitals and nursing and residential care fac	7,420	1,730	693	25	1,870	6,040	24	206	177	72,900	22,200	38	66	376	4,250	776	21,400	-	-	337	389	613	141,530					
56	SocialServ	Social assistance	7,180	2,060																										

Table 12: USAGE-Wage Bill Matrix (2010, US\$ in millions)

com65	com65_string	com65_description	WageBill in US\$ million																							Total WB
			11	13	15	17	19	21	23	25	27	29	31	33	35	37	39	41	43	45	47	49	51	53		
			management	bus_finance	comp_math	arch_enginr	sciences	social_serv	legal	education	entertain	health_prac	health_sup	protective	food_service	build_maint	pers_care	sales	admin_supp	farm_occup	constructn	maint_repr	production	transport		
1	Farms	Farms	160,000	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	21,900	-	-	-	-	181,900	
2	ForestFish	Forestry, fishing, and related activities	555	100	12	-	100	-	-	10	5	10	-	6	-	108	125	113	584	5,870	21	254	305	1,190	9,367	
3	OilGasExtrac	Oil and gas extraction	2,070	1,040	296	2,930	1,160	-	178	-	14	39	-	-	8	-	5	-	746	734	3	1,520	402	722	11,993	
4	OthMining	Mining, except oil and gas	692	184	25	338	109	-	-	-	-	45	-	12	-	15	-	14	454	2	3,830	1,360	866	1,740	9,746	
5	MiningServ	Support activities for mining	1,500	365	114	811	356	-	12	-	4	68	-	5	-	10	-	326	701	-	6,230	818	601	1,280	13,201	
6	Utilities	Utilities	4,020	2,890	1,170	3,910	596	-	174	5	128	118	-	227	-	111	-	607	4,680	7	1,780	8,850	5,100	575	34,948	
7	Construction	Construction	33,500	11,500	597	4,760	31	2	111	-	265	161	-	113	22	821	25	6,780	19,500	12	160,000	20,100	3,330	7,370	268,999	
8	WoodProd	Wood products	1,210	307	31	235	56	-	-	-	17	12	-	-	-	20	-	555	860	180	579	665	5,180	1,830	11,787	
9	NonMetMinPrd	Nonmetallic mineral products	1,680	373	84	451	36	-	-	-	59	14	-	-	-	3	-	738	1,250	-	948	1,040	5,050	3,430	15,190	
10	PrimMetals	Primary metals	1,640	423	162	890	56	-	-	-	5	67	-	-	25	1	43	-	415	949	-	368	1,780	7,650	1,160	15,633
11	FabMetProds	Fabricated metal products	7,430	2,190	612	2,980	98	-	14	-	81	64	-	71	-	184	-	2,120	4,800	-	1,540	1,890	27,400	2,090	53,564	
12	Machinery	Machinery	7,070	2,330	1,260	6,100	90	-	37	-	237	40	-	8	-	130	-	2,570	3,950	-	495	1,930	19,400	1,140	46,787	
13	CompElecPrds	Computer and electronic products	15,000	5,930	12,600	18,700	312	-	223	5	541	48	-	70	2	91	-	3,180	4,260	-	49	1,360	10,800	569	73,741	
14	ElectEquip	Electrical equipment, appliances, and compon	2,510	885	416	2,200	28	-	22	-	76	15	-	2	-	37	-	715	1,300	-	74	726	6,510	566	16,082	
15	MotVehParts	Motor vehicles, bodies and trailers, and parts	2,830	856	283	3,460	10	-	-	-	76	27	-	-	7	-	64	-	585	1,490	-	538	1,810	16,600	1,360	29,996
16	OthTransEqu	Other transportation equipment	4,660	4,040	3,560	9,840	62	-	56	11	268	85	-	170	-	77	-	369	2,150	-	1,320	2,530	10,100	718	40,015	
17	Furniture	Furniture and related products	1,580	435	106	351	-	-	-	-	125	2	-	-	4	-	-	615	1,250	-	420	298	7,080	786	13,102	
18	MiscManu	Miscellaneous manufacturing	4,360	1,310	669	1,820	232	-	63	-	513	244	7	16	4	79	-	1,450	2,880	-	150	696	10,000	738	25,229	
19	FoodBevTob	Food and beverage and tobacco products	5,310	1,430	215	511	672	3	10	-	110	98	-	55	676	633	8	2,850	4,030	590	197	4,350	24,000	8,930	54,677	
20	TextMillProd	Textile mills and textile product mills	929	201	49	132	18	-	-	-	88	4	-	-	3	-	30	-	383	761	-	82	539	4,140	476	7,835
21	Apparel	Apparel and leather and allied products	871	231	74	24	-	-	-	-	303	-	-	-	3	-	24	-	397	768	-	-	121	2,980	257	6,052
22	PaperPrds	Paper products	2,010	532	164	535	58	-	-	-	150	26	-	-	14	-	47	-	730	1,380	26	262	1,690	8,030	1,710	17,365
23	Printing	Printing and related support activities	2,540	744	378	48	6	-	-	-	752	4	-	-	3	-	57	-	1,870	3,150	-	9	371	9,270	1,040	20,243
24	PetroCoalPrd	Petroleum and coal products	1,010	615	232	906	263	-	74	-	6	49	-	-	11	-	1	-	131	358	-	338	520	2,540	368	7,422
25	ChemicalProd	Chemical products	8,020	2,990	1,480	3,230	5,790	-	135	4	189	303	28	53	1	121	4	1,780	3,300	12	273	2,680	12,500	1,800	44,694	
26	PlastRubProd	Plastics and rubber products	3,160	673	208	1,260	42	-	-	-	80	20	-	6	-	76	-	902	1,980	-	175	1,520	11,700	2,110	23,912	
27	WholesaleTrd	Wholesale trade	40,800	15,200	12,700	4,110	818	-	278	15	2,540	822	29	134	84	687	31	94,500	42,700	1,140	929	14,900	9,180	35,100	276,691	
28	RetailTrd	Retail trade	29,400	7,380	3,280	248	5	13	63	162	3,030	28,000	1,060	1,670	10,400	1,850	1,400	206,000	64,300	419	1,510	25,300	11,400	24,800	421,691	
29	AirTrans	Air transportation	1,200	104	18	188	-	-	41	-	36	11	2	14	6	24	223	247	5,560	-	11	2,700	7	13,000	23,392	
30	RailTrans	Rail transportation	1,030	425	189	182	-	-	42	-	8	15	-	80	14	16	14	40	667	-	1,070	1,700	541	6,160	12,193	
31	WaterTrans	Water transportation	397	178	53	56	-	-	-	-	8	3	-	-	2	64	-	-	85	326	-	2	76	28	1,930	3,208
32	TruckTrans	Truck transportation	3,240	775	172	17	2	-	-	-	-	-	-	24	-	63	5	953	5,430	25	121	2,380	74	36,900	50,210	
33	TransitGrndP	Transit and ground passenger transportation	701	135	12	-	-	2	-	-	1	30	-	38	-	30	260	77	1,360	-	2	771	-	10,100	13,515	
34	Pipeline	Pipeline transportation	416	279	92	359	32	-	19	-	2	11	-	-	-	-	-	28	161	-	84	319	731	186	2,720	
35	OthTransServ	Other transportation and support activities	3,730	1,590	402	372	8	-	20	37	27	3	-	84	54	109	280	1,460	10,100	4	91	3,920	589	23,000	45,879	
36	WareHousStor	Warehousing and storage	1,850	611	298	132	19	-	3	-	66	47	3	143	5	307	7	676	5,000	15	28	921	894	11,800	22,825	
37	Publishing	Publishing industries (includes software)	8,750	4,090	12,500	228	33	-	266	56	7,860	3	-	16	-	67	-	5,840	4,980	-	28	178	1,670	1,000	47,565	
38	MotPicSndRec	Motion picture and sound recording industries	3,840	1,050	794	121	-	2	57	6	9,750	-	-	54	885	90	1,190	1,130	1,480	-	187	77	78	160	20,952	
39	BroadTelCom	Broadcasting and telecommunications	7,910	5,330	9,490	3,420	57	5	233	7	7,420	19	-	36	2	183	3	10,500	10,000	-	59	15,300	29	108	70,110	
40	InfoDataProc	Information and data processing services	4,910	2,430	9,690	285	19	5	178	546	1,100	15	1	21	-	45	1	1,860	3,760	-	-	168	97	74	25,206	
41	FedResCrdInt	Federal Reserve banks, credit intermediation,	23,000	35,000	7,830	36	65	-	687	3	365	-	-	341	4	151	1	9,670	48,000	-	4	188	18	37	125,400	
42	SecurInvest	Securities, commodity contracts, and investme	12,800	22,600	4,110	11	34	-	777	4	215	-	-	38	20	45	16	18,800	10,500	-	3	40	2	49	70,063	
43	Insurance	Insurance carriers and related activities	18,800	30,400	11,600	172	60	235	2,290	30	563	1,810	44	107	12	84	7	22,500	30,300	1	19	163	52	35	119,285	
44	FundsTrusts	Funds, trusts, and other financial vehicles	1,210	930	677	-	-	5	135	3	24	46	-	-	1	17	8	468	711	-	7	19	-	4	4,266	
45	RealEstate	Real estate	12,700	5,110	617	162	4	80	413	3	237	52	50	775	379	3,700	569	12,100	11,100	21	939	8,930	103	389	58,433	
46	RentalLeas	Rental and leasing services and lessors of intan	2,560	881	295	51	3	4	112	3	385	198	23	13	22	78	22	6,740	2,540	-	37	2,320	188	2,940	19,414	
47	LegalServ	Legal services	2,640	1,450	946	11	21	19	60,900	149	216	31	-	73	5	107	2	244	17,400	1	-	23	-	9	84,246	
48	CompServ	Computer systems design and related services	20,300	10,400	65,500	3,600	178	-	358	129	1,850	56	1	166	6	33	6	7,580	6,200	-	24	1,100	174	61	117,722	
49	MiscServ	Miscellaneous professional, scientific, and tec	53,300	65,600	25,000	58,500	20,700	322	1,200	740	15,700	9,030	1,620	400	151	651	718	13,500	38,000	107	2,890	1,860	3,680	1,680	315,349	
50	ManagComEnt	Management of companies and enterprises	44,500	26,700	14,600	-	1,270	549	2,420	202	2,100	1,750	173	319	302	263	163	6,130	21,000	30	306	1,840	868	1,850	127,335	
51	AdminServ	Administrative and support services	22,600	16,600	8,730	3,550	553	404	1,180	1,430	1,870	9,840	2,630	18,500	1,400	39,000	1,130	16,800	47,900	216	5,600	6,840	14,100	14,700	235,573	
52	WasteManag	Waste management and remediation services	1,750	449	80	283	259	-	11	-	17	136	-	8	-	56	-	484	1,440	2	2,930	830	493	5,600	14,828	
53	EducatServ	Educational services	54,100	14,700	11,700	1,990	9,570	16,600	379	395,000	9,910	16,000	1,220	3,790	10,600	15,800	5,810	1,770	45,400	106	1,920	6,120	844	8,000	631,329	
54	AmbHealthCar	Ambulatory health care services	28,300	7,640	4,070	199	2,720	13,600	148	2,120	834	222,000	50,600	1,910	11,000	8,980	5,610	581	31,400	3	738	4,010	1,660	847	398,970	
54	HospitNurs	Hospitals and nursing and residential care faci	5,360	1,080	692	23	669	838	-	52	100	108,000	11,700	23	20	311	223	98	26,200	-	7	156	132	41	155,725	
55	HospitNurs	Hospitals and nursing and residential care faci	10,000	2,310	1,130	27	2,060	7,080	31	361	265	88,400	27,300	61	73	444	4,670	1,130	24,500	-	5	393	381	668	171,289	
56	SocialServ	Social assistance	8,770	2,330	315	7	584	14,700																		



Table 13: GTAP-Shares of wage bill Matrix (2007)

			Wagebill Share																									
			11	13	15	17	19	21	23	25	27	29	31	33	35	37	39	41	43	45	47	49	51	53				
gtap	gtapcode	gtapdescription	management	bus_finance	comp_math	arch_enginr	sciences	social_serv	legal	education	entertain	health_prac	health_sup	protective	food_service	build_maint	pers_care	sales	admin_supp	farm_occup	constructr	maint_repr	production	transport	Total WB			
1	PDR	Paddy rice	0.919414	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.080586	0	0	0	0	0	1		
2	WHT	Wheat	0.919414	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.080586	0	0	0	0	0	0	1	
3	GRO	Other grain	0.919414	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.080586	0	0	0	0	0	0	1	
4	V_F	Veg fruit	0.641218	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.358782	0	0	0	0	0	0	1	
5	OSD	Oil seeds	0.919414	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.080586	0	0	0	0	0	0	1	
6	C_B	Sugar cane beet	0.966605	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.033395	0	0	0	0	0	0	1	
7	PFB	Plant fibres	0.726313	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.273687	0	0	0	0	0	0	1	
8	OCR	Other crops	0.798589	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.201411	0	0	0	0	0	0	1	
9	ctI	Cattle	0.957328	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.042673	0	0	0	0	0	0	1	
10	OAP	Other animal products	0.857889	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.142111	0	0	0	0	0	0	1	
11	RMK	Raw milk	0.657992	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.342008	0	0	0	0	0	0	1	
12	WOL	Wool	0.988297	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.011703	0	0	0	0	0	0	1	
13	FRS	Forestry	0.043974	0.008107	0	0	0.020873	0	0	0	0	0	0	0.00137	0	0.001243	0	0.002034	0.056537	0.612333	0.008907	0.034712	0.03574	0.174173	0	1		
14	FSH	Fishing	0.941141	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.05886	0	0	0	0	0	0	1	
15	COA	Coal	0.082614	0.019402	0.006178	0.035524	0.013619	0	0.000742	0	0.000428	0.00543	0	0.001298	0.000286	0.000908	0	0.010326	0.042688	0	0.492578	0.100734	0.053577	0.13367	0	1		
16	OIL	Oil	0.157806	0.086545	0.028303	0.104445	0.07999	0	0.009696	0	0.000881	0.005454	0	0.000161	0.000242	0.000583	0.000196	0.022269	0.073354	0	0.248013	0.038973	0.072471	0.07062	0	1		
17	GAS	Gas	0.157806	0.086545	0.028303	0.104445	0.07999	0	0.009696	0	0.000881	0.005454	0	0.000161	0.000242	0.000583	0.000196	0.022269	0.073354	0	0.248013	0.038973	0.072471	0.07062	0	1		
18	OMN	Minerals nec	0.088627	0.027056	0.006022	0.036592	0.018303	0	0.000541	0	0.00026	0.004801	0	0.001008	0.000208	0.001738	0	0.019577	0.062921	0.000549	0.361294	0.10723	0.093275	0.169999	0	1		
19	CMT	Bovine meat products	0.052662	0.016473	0.001681	0.004287	0.005551	0.000114	0	0	0.000314	0.003123	0	0.001547	0.002526	0.012075	0.00E+00	0.015917	0.047776	0.015772	0.002317	0.066017	0.621979	0.12987	0	1		
20	OMT	Meat products nec	0.052662	0.016473	0.001681	0.004287	0.005551	0.000114	0	0	0.000314	0.003123	0	0.001547	0.002526	0.012075	0.00E+00	0.015917	0.047776	0.015772	0.002317	0.066017	0.621979	0.12987	0	1		
21	VOL	Vegetable oils and fats	0	0	0.006813	0.047568	0.05884	0	0	0	0	0.003538	0	0	0	0.012835	0	0.023922	0.090022	0.006397	0.012187	0.108449	0.500748	0.128682	0	1		
22	MIL	Dairy products	0.09944	0.025214	0.007024	0.011452	0.022659	0	0	0	0.000914	0.001226	0	0.00076	0.006627	0.006641	0	0.040418	0.088781	0.003038	0.004152	0.083383	0.376607	0.221366	0	1		
23	PCR	Processed rice	0	0	0.006813	0.047568	0.05884	0	0	0	0	0.003538	0	0	0	0.012835	0	0.023922	0.090022	0.006397	0.012187	0.108449	0.500748	0.128682	0	1		
24	SGR	Sugar	0.089205	0.026925	0.004171	0.012346	0.018053	0	0	0	0.002276	0.001207	0	0.00109	0.012592	0.012094	0	0.071832	0.07072	0.005206	0.01242	0.102404	0.437929	0.119529	0	1		
25	OFD	Food products nec	0.102654	0.028482	0.007142	0.023242	0.016835	0	0	0	0.001063	0.000942	0	0.000661	0.023002	0.015288	3.40E-05	0.057905	0.081983	0.009302	0.004953	0.074232	0.398733	0.167732	0	1		
26	B_T	Beverages and tobacco pro	0.123799	0.029963	0.010937	0.010044	0.014362	0	0.000428	0	0.009781	0.000751	0	0.001059	0.010341	0.007058	0.00051	0.115117	0.079623	0.017326	0.005384	0.101597	0.276769	0.185152	0	1		
27	TEX	Textiles	0.109912	0.022664	0.007756	0.011703	0.003642	0	0	0	0.027661	0.000495	0	0.000792	0	0.003809	0	0.05338	0.109805	0	0.006505	0.049718	0.532032	0.060126	0	1		
28	WAP	Wearing apparel	0.109123	0.023715	0.017681	0.01369	0.003374	0	0	0	0.019358	0	0	0	0	0.005676	0	0.029245	0.087816	0	0	0.08534	0.531453	0.073528	0	1		
29	LEA	Leather products	0.108226	0.032032	0.006951	0.005388	0.001826	0	0	0	0.013723	0	0	0	0	0.00362	0	0.043277	0.091476	0	0	0.026997	0.626789	0.039695	0	1		
30	LUM	Wood products	0.090062	0.025746	0.003831	0.018856	0.004886	0	0	0	0.001508	0.000663	0	0.001382	0	0.004895	0	0.044017	0.068726	0.015721	0.074433	0.050431	0.440793	0.154049	0	1		
31	PPP	Paper products, publishing	0.151455	0.045476	0.118468	0.009805	0.010416	2.34E-05	0.003049	0.000732	0.151593	0.000384	0	0.000391	0.00698	0.002763	0.009658	0.095389	0.117812	8.48E-05	0.003633	0.023383	0.203904	0.044702	0	1		
32	P_C	Petroleum, coal products	0.105035	0.064144	0.021084	0.119588	0.048018	0	0.003742	0	0.001068	0.002992	0	0.001563	0	0.00036	0	0.025663	0.055541	0	0.04858	0.085131	0.366972	0.050519	0	1		
33	CRP	Chemical, rubber, plastic p	0.149426	0.042165	0.023242	0.056124	0.081329	0	0.002113	8.93E-05	0.003312	0.003601	0.000221	0.000924	2.01E-05	0.003367	2.53E-04	0.04288	0.082042	8.85E-05	0.007447	0.063452	0.379741	0.058165	0	1		
34	NMM	Mineral products nec	0.096939	0.020385	0.003828	0.025652	0.002187	0	0	0	0.004886	0.000582	0	0.000544	0	0.003347	0	0.045526	0.079821	0	0.060559	0.06888	0.332282	0.254583	0	1		
35	I_S	Ferrous metals	0.074216	0.023315	0.006624	0.04878	0.003281	0	0	0	0.000134	0.001853	0	0.001769	0.00E+00	0.003109	0	0.02107	0.052231	0	0.029099	0.141057	0.507742	0.085721	0	1		
36	NFM	Metals nec	0.097614	0.027266	0.007969	0.049288	0.008356	0	0	0	0.000368	0.002417	0	0.001461	0.00E+00	0.003655	0	0.031357	0.061396	0	0.028068	0.09714	0.516264	0.06738	0	1		
37	FMP	Metal products	0.125683	0.039113	0.006775	0.051895	0.002463	0	0	0	0.001238	0.001188	0	0.000162	0	0.004001	0	0.039556	0.089295	0	0.021908	0.038074	0.529684	0.048967	0	1		
38	MVH	Motor vehicles and parts	0.07288	0.04169	0.010749	0.074805	0.001436	0	8.32E-05	0	0.002812	0.001377	0	0.000364	5.52E-05	0.002385	0	0.014067	0.045058	0	0.034413	0.07134	0.575894	0.050594	0	1		
39	QTN	Transport equipment nec	0.117795	0.098626	0.066919	0.254307	0.004289	0	0.000862	0.000848	0.006918	0.002068	0	0.003406	0	0.001874	0	0.010162	0.0562	0	0.032535	0.068163	0.262823	0.018206	0	1		
40	ELE	Electronic equipment	0.185851	0.069624	0.167099	0.261481	0.013975	0	0.003686	0.000105	0.006826	0.000508	0	0.000739	4.77E-05	0.001116	0	0.044374	0.053408	0	0.000627	0.020931	0.162909	0.006694	0	1		
41	OME	Machinery and equipment	0.157673	0.055103	0.050316	0.155664	0.009881	0	0.001387	1.63E-04	0.007345	0.002672	1.15E-04	0.000643	3.21E-05	0.002751	0	0.048608	0.083744	2.27E-05	0.006694	0.033368	0.359021	0.024798	0	1		
42	OMF	Manufactures nec	0.121316	0.033668	0.015009	0.025907	0.003451	0	0.000491	0	0.021156	0.000284	0	0.000573	2.79E-05	0.003476	8.82E-05	0.060079	0.105436	0	0.03185	0.026285	0.496397	0.054507	0	1		
43	ELY	Electricity	0.11281	0.077915	0.041054	0.124511	0.023543	0	0.005165	0.000347	0.004617	0.003573	0	0.007589	0	0.003403	6.54E-05	0.013382	0.120829	0	0.035572	0.278338	0.135278	0.012011	0	1		
44	GDT	Gas manufacture, distribut	0.093308	0.098635	0.029893	0.071868	0.011187	0	0.00537	0	0.004727	0.001647	0	0.004531	0	0.000783	0	0.038235	0.207369	0	0.097523	0.194736	0.110642	0.029548	0	1		
45	WTR	Water	0.106272	0.031376	0.007553	0.036924	0.009558	0	0.001621	0	0.001564	0	0	0	0	0.00511	0	0.020624	0.213899	0.004544	0.110495	0.117229	0.303086	0.030143	0	1		



Table 15: GTAP-Total Employment Matrix (2007)

		Employment (equivalent to annual full time employment)																								
		11	13	15	17	19	21	23	25	27	29	31	33	35	37	39	41	43	45	47	49	51	53			
gtap	gtapcode	gtapdescription	management	bus_finance	comp_math	arch_engineer	sciences	social_serv	legal	education	entertain	health_prac	health_sup	protective	food_service	build_maint	pers_care	sales	admin_supp	farm_occup	constructn	maint_repr	production	transport	Total EMP	
1	PDR	Paddy rice	78,224	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	26,626	-	-	-	-	104,850	
2	WHT	Wheat	78,224	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	26,626	-	-	-	-	104,850	
3	GRO	Other grain	78,224	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	26,626	-	-	-	-	104,850	
4	V_F	Veg fruit	131,240	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	295,578	-	-	-	-	426,818	
5	OSD	Oil seeds	78,224	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	26,626	-	-	-	-	104,850	
6	C_B	Sugar cane beet	214,246	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	32,986	-	-	-	-	247,232	
7	PFB	Plant fibres	9,996	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	11,010	-	-	-	-	21,006	
8	OCR	Other crops	276,718	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	208,173	-	-	-	-	484,891	
9	cti	Cattle	695,371	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	153,002	-	-	-	-	848,373	
10	OAP	Other animal products	161,309	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	77,763	-	-	-	-	239,072	
11	RMK	Raw milk	69,854	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	92,040	-	-	-	-	161,894	
12	WOL	Wool	29,114	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	3,166	-	-	-	-	32,280	
13	FRS	Forestry	1,020	340	-	-	750	-	-	-	-	-	-	130	-	130	-	80	4,450	37,180	540	2,040	2,270	11,270	60,200	
14	FSH	Fishing	71,658	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	17,246	-	-	-	-	88,904	
15	COA	Coal	5,448	2,160	603	3,325	1,440	-	60	-	43	598	-	270	78	258	-	1,085	8,655	-	76,990	15,320	8,680	22,960	147,970	
16	OIL	Oil	10,758	9,700	3,043	8,455	7,005	-	760	-	108	653	-	30	78	233	40	2,570	16,420	-	48,225	7,120	11,215	14,225	140,635	
17	GAS	Gas	10,758	9,700	3,043	8,455	7,005	-	760	-	108	653	-	30	78	233	40	2,570	16,420	-	48,225	7,120	11,215	14,225	140,635	
18	OMN	Minerals nec	8,138	4,020	823	4,815	2,840	-	60	-	43	728	-	300	78	618	-	2,945	17,875	200	82,090	22,410	22,240	44,300	214,520	
19	CMT	Bovine meat products	3,945	2,105	205	445	1,000	20	-	-	55	490	-	450	815	3,530	-	2,130	11,160	4,210	420	12,530	172,080	36,265	251,855	
20	OMT	Meat products nec	3,945	2,105	205	445	1,000	20	-	-	55	490	-	450	815	3,530	-	2,130	11,160	4,210	420	12,530	172,080	36,265	251,855	
21	VOL	Vegetable oils and fats	-	-	73	433	750	-	-	-	-	43	-	-	-	287	-	277	1,743	140	167	1,627	9,380	2,740	17,660	
22	MIL	Dairy products	5,000	2,170	520	880	2,410	-	-	-	100	120	-	140	1,760	1,200	-	4,350	12,950	550	420	9,240	55,850	32,190	129,850	
23	PCR	Processed rice	-	-	73	433	750	-	-	-	-	43	-	-	-	287	-	277	1,743	140	167	1,627	9,380	2,740	17,660	
24	SGR	Sugar	1,075	655	80	240	445	-	-	-	60	30	-	45	765	540	-	3,320	2,695	315	315	2,940	18,405	5,790	37,715	
25	OFD	Food products nec	25,165	11,925	2,653	3,373	7,715	-	-	-	580	463	-	635	27,335	14,297	30	42,257	61,498	10,035	2,702	44,447	354,695	144,130	753,935	
26	B_T	Beverages and tobacco products	9,350	3,940	1,150	1,020	2,020	-	30	-	280	2,500	100	-	280	3,510	2,070	160	21,530	18,640	5,790	790	18,130	59,570	195,500	
27	TEX	Textiles	16,860	6,550	2,080	3,120	1,210	-	-	-	7,300	170	-	-	2,820	-	-	-	14,860	57,130	-	2,830	22,980	345,690	40,990	525,100
28	WAP	Wearing apparel	980	410	250	200	60	-	-	-	310	10	-	-	260	-	-	-	520	2,760	-	2,250	19,580	3,040	30,620	
29	LEA	Leather products	1,140	570	120	80	30	-	-	-	250	-	-	-	160	-	-	-	990	3,200	-	-	720	25,010	33,850	
30	LUM	Wood products	16,560	8,430	1,130	6,290	1,470	-	-	-	560	230	-	1,030	-	3,620	-	13,230	37,420	8,650	38,590	22,800	270,520	100,370	530,900	
31	PPP	Paper products, publishing	144,210	79,820	169,350	15,120	15,870	60	2,850	1,650	312,780	690	-	1,390	45,330	12,810	56,310	209,400	389,860	240	7,550	55,560	658,730	177,200	2,356,780	
32	P_C	Petroleum, coal products	5,850	5,720	1,720	9,060	4,580	-	160	-	80	300	-	230	-	100	-	2,590	9,580	-	6,640	10,690	48,220	9,120	114,640	
33	CRP	Chemical, rubber, plastic products	96,900	48,800	22,820	56,740	92,530	-	1,340	120	4,300	4,460	500	1,900	60	9,310	580	44,340	164,560	240	11,480	100,630	809,900	148,030	1,619,540	
34	NMM	Mineral products nec	18,550	6,800	1,180	8,000	780	-	-	-	2,980	200	-	360	-	2,470	-	16,050	44,480	-	32,240	31,340	199,360	144,980	509,770	
35	I_S	Ferrous metals	5,300	2,860	760	5,540	475	-	-	-	20	250	-	405	-	895	-	2,270	10,680	-	4,165	21,960	103,955	17,305	176,840	
36	NFM	Metals nec	8,150	4,140	1,120	6,780	1,395	-	-	-	60	360	-	445	-	1,225	-	4,020	15,140	-	5,215	19,440	133,485	18,625	219,600	
37	FMP	Metal products	76,270	42,630	7,030	53,640	2,630	-	-	-	1,610	1,340	-	400	-	10,440	-	38,640	167,260	-	32,930	58,030	999,280	108,720	1,600,850	
38	MVH	Motor vehicles and parts	31,880	27,780	6,810	64,230	1,020	-	40	-	2,050	940	-	510	90	4,190	-	10,540	56,820	-	25,400	61,860	676,540	61,470	1,032,170	
39	OTN	Transport equipment nec	39,040	57,030	30,960	131,800	2,170	-	290	480	4,150	1,270	-	3,400	-	2,730	-	5,850	53,760	-	30,820	57,070	262,820	17,520	701,160	
40	ELE	Electronic equipment	75,900	51,110	94,440	174,580	8,740	-	1,390	80	5,060	380	-	1,020	100	2,250	-	28,770	71,390	-	580	22,850	263,200	12,080	813,920	
41	OME	Machinery and equipment nec	157,300	98,970	72,810	252,870	15,710	-	1,280	290	14,710	4,910	400	1,980	130	12,290	-	79,200	266,890	90	18,670	86,170	1,210,290	98,940	2,393,900	
42	OMF	Manufactures nec	37,360	19,260	7,450	14,340	1,730	-	150	-	14,830	240	-	610	40	4,730	80	33,710	104,100	-	26,510	21,300	533,240	63,640	883,320	
43	ELY	Electricity	24,180	26,650	13,370	39,740	7,910	-	1,100	130	1,710	1,230	-	4,220	-	2,430	40	5,690	71,900	-	15,170	115,800	52,180	6,630	390,080	
44	GDT	Gas manufacture, distribution	5,150	8,500	2,280	5,890	900	-	260	-	390	140	-	430	-	150	-	4,390	29,410	-	11,120	21,400	11,450	3,490	105,350	
45	WTR	Water	2,140	950	220	1,040	380	-	30	-	50	-	-	-	370	-	-	740	13,330	340	5,040	5,720	14,470	1,810	46,630	
46	CNS	Construction	368,880	218,060	6,840	78,700	3,240	-	1,420	-	7,500	2,050	-	5,210	40	41,550	1,260	149,250	744,540	940	5,085,590	554,790	108,190	275,330	7,653,380	
47	TRD	Trade	1,035,120	465,730	235,730	74,900	36,600	1,200	3,790	8,720	192,850	454,050	88,400	147,240	9,522,270	798,660	768,200	10,640,190	4,750,820	70,930	95,640	1,925,800	1,151,380	2,989,790	35,458,010	
48	OTP	Transport nec	106,540	72,880	16,060	12,920	2,030	-	960	590	2,490	2,790	-	14,470	4,030	16,940	37,050	71,610	711,870	2,160	26,590	227,950	64,690	2,573,010	3,967,630	
49	WTP	Water transport	3,200	2,090	430	-	-	-	-	-	-	-	-	-	3,060	40	430	1,660	7,500	-	-	540	550	39,740	59,240	
50	ATP	Air transport	9,260	15,120	4,470	2,030	420	-	240	130	1,060	600	50	410	790	109,770	4,430	167,020	-	200	45,960	790	121,920	485,080		
51	CMN	Communication	101,810	107,570	249,210	58,780	15,770	40	3,700	13,480	178,420	930	-	1,760	-	3,490	280	242,550	464,720	-	2,370	288,360	5,570	5,740	1,744,550	
52	OFI	Financial services nec	315,090	812,490	163,280	1,740	17,340	40	13,220	580	10,870	100	-	7,940	810	9,620	330	383,730	1,975,450	80	610	7,140	1,260	2,120	3,723,840	
53	ISR	Insurance	145,670	497,210	141,520	1,050	11,400	2,800	42,050	950	8,470	31,590	2,060	2,730	680	5,430	650	367,350	957,040	-	970	5,540	1,510	1,070	2,227,740	
54	OB5	Business services nec	1,267,310	1,619,670	1,396,510	1,035,000	417,690	35,330	661,840	60,120	420,510	378,780	184,900	746,910	154,890	1,911,280	132,390	1,500,740	4,752,200	24,040	344,380	630,490	939,420	1,102,950	19,717,350	
55	ROS	Recreational and other services	65,100	37,060	4,220	850	4,240	260	230	30,280	186,750	6,650	5,430	74,310	315,620	190,570	533,130	154,010	184,480	4,310	9,590	68,550	4,810	37,820	1,918,270	
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Table 16: GTAP-Total Employment Matrix (2010)

		Employment (equivalent to annual full time employment)																											Year 2010
gtap	gtapcode	gtapdescription	11	13	15	17	19	21	23	25	27	29	31	33	35	37	39	41	43	45	47	49	51	53	Total EMP				
			management	bus_finance	comp_math	arch_enginr	sciences	social_serv	legal	education	entertain	health_prac	health_sup	protective	food_service	build_maint	pers_care	sales	admin_supp	farm_occup	constructn	maint_repr	production	transport					
1	PDR	Paddy rice	78,224	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	26,626	-	-	-	-	104,850				
2	WHT	Wheat	78,224	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	26,626	-	-	-	-	104,850				
3	GRO	Other grain	78,224	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	26,626	-	-	-	-	104,850				
4	V_F	Veg fruit	131,240	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	295,578	-	-	-	-	426,818				
5	OSD	Oil seeds	78,224	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	26,626	-	-	-	-	104,850				
6	C_B	Sugar cane beet	214,246	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	32,986	-	-	-	-	247,232				
7	PFB	Plant fibres	9,996	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	11,010	-	-	-	-	21,006				
8	OCR	Other crops	276,718	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	208,173	-	-	-	-	484,891				
9	cti	Cattle	695,371	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	153,002	-	-	-	-	848,373				
10	OAP	Other animal products	161,309	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	77,763	-	-	-	-	239,072				
11	RMK	Raw milk	69,854	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	92,040	-	-	-	-	161,894				
12	WOL	Wool	29,114	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	3,166	-	-	-	-	32,280				
13	FRS	Forestry	870	260	-	-	540	-	-	-	-	-	-	160	-	210	-	-	4,100	29,640	560	1,980	730	9,890	48,940				
14	FSH	Fishing	71,658	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	17,246	-	-	-	-	88,904				
15	COA	Coal	5,008	2,360	400	3,848	1,433	-	-	30	-	18	540	-	213	-	265	-	1,038	8,228	-	77,490	15,180	7,270	22,525	145,843			
16	OIL	Oil	10,603	7,935	2,065	14,563	6,763	-	-	950	-	113	520	-	63	155	215	-	2,118	14,408	60	50,585	7,930	9,420	15,510	143,973			
17	GAS	Gas	10,603	7,935	2,065	14,563	6,763	-	-	950	-	113	520	-	63	155	215	-	2,118	14,408	60	50,585	7,930	9,420	15,510	143,973			
18	OMN	Minerals nec	7,588	3,340	640	5,308	3,083	-	-	30	-	18	690	-	303	-	485	-	2,258	14,758	60	74,040	21,780	19,530	37,295	191,203			
19	CMT	Bovine meat products	4,035	2,165	195	450	1,065	30	-	-	-	50	475	-	520	295	3,485	30	1,865	11,150	4,840	455	12,990	164,000	38,180	246,275			
20	OMT	Meat products nec	4,035	2,165	195	450	1,065	30	-	-	-	50	475	-	520	295	3,485	30	1,865	11,150	4,840	455	12,990	164,000	38,180	246,275			
21	VOL	Vegetable oils and fats	947	507	87	360	553	-	-	-	-	23	-	-	-	240	-	-	347	1,643	113	150	1,753	9,850	2,657	19,230			
22	MIL	Dairy products	4,450	2,240	390	770	2,060	-	-	-	-	80	140	-	160	1,070	1,170	-	3,630	12,240	480	230	9,540	60,530	30,830	130,010			
23	PCR	Processed rice	947	507	87	360	553	-	-	-	-	23	-	-	-	240	-	-	347	1,643	113	150	1,753	9,850	2,657	19,230			
24	SGR	Sugar	1,190	515	90	290	400	-	-	-	-	85	35	-	45	375	360	-	2,880	2,800	-	240	2,745	16,225	5,595	33,370			
25	OFD	Food products nec	26,377	11,762	1,407	3,400	6,813	-	-	-	-	775	598	-	645	25,335	14,010	90	40,667	61,833	8,623	2,420	43,578	358,915	138,892	746,140			
26	B_T	Beverages and tobacco p	8,600	3,780	850	1,080	1,100	-	-	80	-	2,160	90	-	220	3,450	1,640	170	22,740	18,830	4,410	850	15,720	53,870	43,640	183,280			
27	TEX	Textiles	14,610	6,150	1,790	2,420	360	-	-	-	-	6,040	90	-	180	-	2,100	-	12,160	42,790	-	2,190	15,970	245,500	26,680	379,030			
28	WAP	Wearing apparel	430	190	90	80	-	-	-	-	-	140	-	-	140	-	140	-	210	1,560	-	-	1,270	10,750	1,760	16,620			
29	LEA	Leather products	1,140	770	220	210	-	-	-	-	-	290	-	-	50	-	100	-	780	3,130	-	-	720	18,740	1,620	27,770			
30	LUM	Wood products	12,490	5,520	530	4,320	970	-	-	-	-	360	220	-	830	-	2,110	-	9,510	26,260	5,520	16,300	16,460	176,930	66,560	344,890			
31	PPP	Paper products, publishi	132,670	87,100	167,400	12,040	1,520	40	2,540	1,130	302,890	560	-	2,610	45,570	10,270	53,890	177,750	305,480	590	8,400	46,390	525,440	132,270	2,016,550				
32	P_C	Petroleum, coal product	7,440	7,340	2,610	9,130	3,550	-	-	380	-	60	660	-	230	-	50	-	1,930	8,260	-	6,460	8,900	45,730	9,190	111,920			
33	CRP	Chemical, rubber, plastk	92,910	53,600	21,670	59,240	84,070	-	-	1,030	70	4,600	4,820	700	1,520	40	7,160	130	37,000	139,160	370	9,130	87,720	678,540	130,530	1,414,010			
34	NMM	Mineral products nec	15,850	6,140	1,210	7,070	590	-	-	-	-	1,700	240	-	130	-	1,300	-	12,850	34,940	-	24,940	23,750	148,570	99,460	378,740			
35	L_S	Ferrous metals	5,125	2,385	930	5,995	365	-	-	-	-	30	430	-	325	15	515	-	1,720	8,240	-	3,375	18,830	77,530	12,940	138,750			
36	NFM	Metals nec	7,145	3,405	1,170	6,165	705	-	-	-	-	70	520	-	345	15	795	-	2,610	11,900	-	2,665	14,930	97,820	13,920	164,180			
37	FMP	Metal products	69,780	37,590	9,420	47,490	1,400	-	-	110	-	1,560	1,180	-	1,640	-	7,620	-	33,690	140,740	-	36,780	48,060	802,910	75,630	1,315,600			
38	MVH	Motor vehicles and parts	26,070	13,560	5,890	47,660	190	-	-	-	-	1,300	430	-	250	-	2,320	-	9,040	41,150	-	10,690	35,850	426,940	37,220	658,560			
39	OTN	Transport equipment nec	38,950	55,630	38,620	121,360	610	-	-	430	210	4,170	1,240	-	3,730	-	2,500	-	5,170	49,220	-	30,210	48,670	239,160	15,990	655,870			
40	ELE	Electronic equipment	69,600	46,040	89,140	135,570	1,540	-	-	-	-	3,980	180	-	610	-	1,800	-	21,690	55,000	-	470	15,940	206,030	9,040	656,800			
41	OME	Machinery and equipme	147,980	96,510	74,100	241,350	7,240	-	-	1,320	80	11,660	4,860	190	1,790	210	9,440	-	71,840	232,420	-	13,660	77,190	999,700	76,510	2,068,050			
42	OMF	Manufactures nec	31,150	16,210	6,170	12,480	340	-	-	140	-	12,310	170	-	440	-	3,460	-	25,400	77,270	-	14,000	16,010	368,660	42,970	627,180			
43	ELY	Electricity	25,160	28,440	11,210	42,070	7,660	-	-	1,080	80	1,650	1,310	-	4,270	-	2,730	-	5,210	67,200	-	15,410	118,550	56,920	6,540	395,490			
44	GDT	Gas manufacture, distrib	6,560	9,890	3,460	6,570	390	-	-	250	-	260	270	-	210	-	90	-	3,690	28,150	-	12,060	22,190	10,290	3,840	108,170			
45	WTR	Water	2,770	1,120	240	960	330	-	-	-	-	50	60	-	60	-	290	-	600	12,780	240	4,670	5,980	14,990	1,740	46,880			
46	CNS	Construction	315,360	178,440	9,000	67,370	540	60	1,040	-	5,740	2,640	-	3,410	1,000	30,200	1,030	113,890	567,550	460	3,627,050	458,400	83,180	195,630	5,661,990				
47	TRD	Trade	971,700	425,940	225,150	64,470	11,930	1,000	3,490	6,650	167,400	480,420	88,150	132,290	9,349,880	711,920	773,000	10,065,600	4,482,820	65,460	77,950	1,715,030	1,041,350	2,672,000	33,533,600				
48	OTP	Transport nec	110,470	62,530	16,950	13,740	1,040	50	680	700	2,400	2,700	90	10,380	3,280	17,330	24,940	61,700	658,770	1,580	29,240	222,210	69,180	2,359,140	3,669,100				
49	WTP	Water transport	3,260	2,740	690	670	-	-	-	-	-	160	40	-	60	-	2,170	-	1,590	8,530	-	40	1,660	700	36,310	58,620			
50	ATP	Air transport	11,000	1,760	280	2,340	70	-	-	340	-	630	160	40	350	220	890	7,430	4,080	150,360	-	250	47,830	150	199,000	427,180			
51	CMN	Communication	99,650	106,110	248,690	46,860	930	210	3,950	13,730	161,040	660	30	1,400	60	7,660	160	219,820	371,520	-	1,410	285,750	3,530	5,460	1,578,630				
52	OFI	Financial services nec	284,960	767,090	145,070	430	440	-	-	12,590	110	9,630	30	-	8,120	840	7,750	670	350,450	1,743,610	-	150	5,180	510	2,530	3,340,160			
53	ISR	Insurance	154,870	489,380	159,430	2,220	880	4,490	33,340	680	9,980	28,470	1,400	2,260	500	4,090	520	360,190	854,580	30	490	4,330	1,390	1,130	2,114,650				
54	OB5	Business services nec	1,318,330	1,771,720	1,451,610	890,010	328,660	32,540	650,440	53,500	392,310	346,530	174,190	747,090	97,950	1,775,960	109,260	1,366,200	4,254,380	14,350	247,420	599,500	679,310	838,820	18,140,080				
55	ORS	Recreational and other s	63,270	41,110	6,630	1,820	1,900	470	270	29,510	180,																		



Table 17: GTAP- Mean Annual Wage Matrix (2007, \$US)

			Annual Wage_mean																							
gtap	gtapcode	gtapdescription	11	13	15	17	19	21	23	25	27	29	31	33	35	37	39	41	43	45	47	49	51	53	Weighted_a_mean	
			management	bus_financ_e	comp_mat_h	arch_enginr	sciences	social_serv	legal	education	entertain	health_prac	health_sup	protective	food_service	build_maint	pers_care	sales	admin_supp	farm_occup	construct	maint_repr	production	transport		
1	PDR	Paddy rice	77,840	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	20,044	-	-	-	-	63,176	
2	WHT	Wheat	77,840	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	20,044	-	-	-	-	63,176	
3	GRO	Other grain	77,840	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	20,044	-	-	-	-	63,176	
4	V_F	Veg fruit	77,840	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	19,338	-	-	-	-	37,299	
5	OSD	Oil seeds	77,840	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	20,044	-	-	-	-	63,176	
6	C_B	Sugar cane beet	77,840	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	17,467	-	-	-	-	69,878	
7	PFB	Plant fibres	77,840	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	26,630	-	-	-	-	50,985	
8	OCR	Other crops	77,840	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	26,096	-	-	-	-	55,538	
9	cti	Cattle	78,150	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	15,832	-	-	-	-	66,857	
10	OAP	Other animal products	78,150	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	26,854	-	-	-	-	61,446	
11	RMK	Raw milk	78,150	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	30,829	-	-	-	-	51,268	
12	WOL	Wool	78,150	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	8,510	-	-	-	-	71,465	
13	FRS	Forestry	89,210	49,340	-	-	57,590	-	-	-	-	-	-	21,800	-	19,780	-	52,610	26,290	34,080	34,130	35,210	32,580	31,980	34,416	
14	FSH	Fishing	78,150	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	20,308	-	-	-	-	66,926	
15	COA	Coal	99,589	58,985	67,334	70,159	62,107	-	81,240	-	66,092	59,680	-	31,560	24,190	23,147	-	62,496	32,389	-	42,014	43,179	40,534	38,231	44,350	
16	OIL	Oil	113,462	69,009	71,951	95,546	88,322	-	98,676	-	63,391	64,646	-	41,620	24,190	19,385	37,970	67,019	34,553	-	39,778	42,338	49,981	38,398	55,002	
17	GAS	Gas	113,462	69,009	71,951	95,546	88,322	-	98,676	-	63,391	64,646	-	41,620	24,190	19,385	37,970	67,019	34,553	-	39,778	42,338	49,981	38,398	55,002	
18	OMN	Minerals nec	98,079	60,610	65,930	68,437	58,038	-	81,240	-	55,003	59,427	-	30,247	24,190	25,341	-	59,863	31,699	24,730	39,634	43,090	37,769	34,558	41,964	
19	CMT	Bovine meat products	88,120	51,660	54,140	63,600	36,640	37,600	-	-	37,630	42,070	-	22,690	20,460	22,580	-	49,330	28,260	24,730	36,420	34,780	23,860	23,640	26,227	
20	OMT	Meat products nec	88,120	51,660	54,140	63,600	36,640	37,600	-	-	37,630	42,070	-	22,690	20,460	22,580	-	49,330	28,260	24,730	36,420	34,780	23,860	23,640	26,227	
21	VOL	Vegetable oils and fats	-	-	60,630	71,640	51,200	-	-	-	-	53,280	-	-	-	29,220	-	56,430	33,700	29,820	47,720	43,510	34,840	30,650	36,968	
22	MIL	Dairy products	93,730	54,760	63,660	61,330	44,310	-	-	-	43,080	48,130	-	25,580	18,550	26,080	-	43,790	32,310	26,030	46,590	42,530	31,780	32,410	36,231	
23	PCR	Processed rice	-	-	60,630	71,640	51,200	-	-	-	-	53,280	-	-	-	29,220	-	56,430	33,700	29,820	47,720	43,510	34,840	30,650	36,968	
24	SGR	Sugar	100,370	49,720	63,060	62,220	49,070	-	-	-	45,890	48,660	-	29,300	19,910	27,090	-	26,170	31,740	19,990	47,690	42,130	28,780	24,970	32,093	
25	OFD	Food products nec	98,035	57,621	63,764	66,141	52,977	-	-	-	46,862	49,854	-	25,989	19,895	25,598	26,050	33,548	32,027	21,931	47,689	41,169	27,328	27,748	32,091	
26	B_T	Beverages and tobacco products	103,052	59,190	74,019	76,642	55,335	-	111,010	-	30,450	58,470	-	29,434	22,930	26,539	24,790	41,615	33,246	23,290	53,043	43,615	36,161	32,080	39,791	
27	TEX	Textiles	101,719	53,989	58,181	58,529	46,959	-	-	-	59,123	45,452	-	24,235	-	21,077	-	56,050	29,989	-	35,866	33,758	24,014	22,887	29,698	
28	WAP	Wearing apparel	94,560	49,120	60,060	58,130	47,750	-	-	-	53,030	-	-	-	18,540	-	47,760	27,020	-	-	-	32,210	23,050	20,540	27,720	
29	LEA	Leather products	92,029	54,476	56,153	65,290	59,000	-	-	-	53,212	-	-	-	21,930	-	42,375	27,711	-	-	-	36,348	24,294	24,354	28,657	
30	LUM	Wood products	90,530	50,839	56,436	49,902	55,330	-	-	-	44,826	47,959	-	22,338	-	22,510	-	55,382	30,572	30,253	32,107	36,819	27,123	25,548	31,348	
31	PPP	Paper products, publishing	116,395	63,141	77,529	71,869	72,737	43,260	118,573	49,155	53,714	61,709	-	31,154	17,066	23,902	19,008	50,486	33,491	39,180	53,335	46,443	34,306	27,959	47,047	
32	P_C	Petroleum, coal products	115,390	72,070	78,780	84,830	67,380	-	150,310	-	85,790	64,090	-	43,670	-	23,140	-	63,680	37,260	-	47,020	51,180	48,910	35,600	56,083	
33	CRP	Chemical, rubber, plastic products	109,273	61,228	72,171	70,092	62,284	-	111,712	52,710	54,584	57,218	31,330	34,467	23,790	25,629	30,957	68,528	35,328	26,120	45,966	44,682	33,225	27,844	43,759	
34	NMM	Mineral products nec	97,009	55,649	60,223	59,523	52,042	-	-	-	30,436	54,020	-	28,034	-	25,151	-	52,655	33,312	-	34,869	40,799	30,940	32,597	36,417	
35	I_S	Ferrous metals	102,169	59,480	63,589	64,243	50,392	-	-	-	48,730	54,069	-	31,876	-	25,349	-	67,722	35,682	-	50,975	46,866	35,636	36,142	41,231	
36	NFM	Metals nec	104,894	57,678	62,311	63,665	52,460	-	-	-	53,663	58,808	-	28,759	-	26,128	-	68,313	35,515	-	47,136	43,762	33,871	31,683	39,883	
37	FMP	Metal products	100,682	56,057	58,878	59,111	57,211	-	-	-	46,969	54,188	-	24,782	-	23,412	-	62,547	32,618	-	40,647	40,087	32,386	27,518	38,196	
38	MVH	Motor vehicles and parts	101,791	66,822	70,278	51,857	62,664	-	92,670	-	61,072	65,241	-	31,762	27,287	25,347	-	59,427	35,309	-	60,327	51,350	37,903	36,648	43,107	
39	OTN	Transport equipment nec	111,273	67,199	83,989	74,975	76,796	-	115,490	68,630	64,773	63,278	-	38,930	-	26,669	-	67,502	40,621	-	41,020	46,410	38,858	40,379	55,379	
40	ELE	Electronic equipment	123,811	68,879	89,465	75,732	80,851	-	134,064	66,420	68,212	67,528	-	36,646	24,110	25,068	-	77,987	37,827	-	54,613	46,317	31,296	28,020	62,101	
41	OME	Machinery and equipment nec	111,654	62,018	76,977	68,570	70,060	-	120,691	62,407	55,620	60,623	31,920	36,185	27,477	24,934	-	68,364	34,951	28,120	39,937	43,133	33,043	27,918	46,531	
42	OMF	Manufactures nec	99,603	53,620	61,793	55,414	61,193	-	100,400	-	43,757	36,238	-	28,808	21,420	22,541	33,810	54,667	31,067	-	36,852	37,851	28,554	26,271	34,682	
43	ELY	Electricity	108,910	68,250	71,680	73,140	69,480	-	109,600	62,380	63,030	67,810	-	41,980	-	32,690	38,160	54,900	39,230	-	54,740	56,110	60,520	42,290	59,856	
44	GDT	Gas manufacture, distribution	110,980	71,080	80,310	74,740	76,140	-	126,520	-	74,240	72,050	-	64,540	-	31,980	-	53,350	43,190	-	53,720	55,740	59,190	51,860	58,112	
45	WTR	Water	92,440	61,480	63,910	66,090	46,820	-	100,590	-	58,240	-	-	-	25,710	-	51,880	29,870	24,880	40,810	38,150	38,990	31,000	-	39,919	
46	CNS	Construction	96,802	61,057	62,218	62,500	60,572	-	93,835	-	49,445	55,982	-	23,543	24,680	25,516	23,281	57,546	31,822	24,041	40,893	40,129	35,293	34,533	43,421	
47	TRD	Trade	86,846	56,622	68,135	68,691	66,838	39,589	88,167	34,197	34,924	56,274	26,933	26,279	19,084	20,546	24,521	29,946	26,550	21,728	38,103	36,375	26,999	24,902	28,832	
48	OTP	Transport nec	93,570	57,857	64,138	72,371	57,935	-	75,134	40,484	45,793	48,649	-	31,771	24,952	28,331	21,512	50,783	32,705	28,102	45,005	42,286	36,733	35,696	37,926	
49	WTP	Water transport	107,242	58,996	69,091	-	-	-	-	-	-	-	-	-	28,674	25,850	23,170	55,803	35,958	-	-	50,970	41,349	50,647	50,932	
50	ATP	Air transport	95,457	57,043	66,609	73,683	62,475	-	103,160	63,780	39,920	47,286	35,980	34,123	-	28,007	58,993	51,623	35,176	-	48,240	54,793	51,210	106,434	62,920	
51	CMN	Communication	117,441	67,427	72,286	70,318	73,501	42,560	114,516	38,898	48,756	61,898	-	35,790	-	25,608	29,553	51,510	35,399	-	41,057	52,564	32,692	34,354	55,650	
52	OFI	Financial services nec	113,087	69,992	75,866	84,672	70,409	43,890	100,180	56,027	55,728	54,124	-	39,769	26,868	22,785	6,519	74,362	31,123	25,460	29,660	36,214	35,931	27,935	53,487	
53	ISR	Insurance	116,763	58,384	70,690	7																				

Table 18: GTAP- Mean Annual Wage Matrix (2010, \$US)

			Annual Wage_mean																				Year 2010		
gtap	gtapcode	gtapdescription	11	13	15	17	19	21	23	25	27	29	31	33	35	37	39	41	43	45	47	49	51	53	Weighted a_mean
1	PDR	Paddy rice	88,340	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	20,044	-	-	-	-	70,997
2	WHT	Wheat	88,340	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	20,044	-	-	-	-	70,997
3	GRO	Other grain	88,340	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	20,044	-	-	-	-	70,997
4	V_F	Veg fruit	88,340	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	19,338	-	-	-	-	40,579
5	OSD	Oil seeds	88,340	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	20,044	-	-	-	-	70,997
6	C_B	Sugar cane beet	88,340	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	17,467	-	-	-	-	78,776
7	PFB	Plant fibres	88,340	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	26,630	-	-	-	-	55,984
8	OCR	Other crops	88,340	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	26,096	-	-	-	-	61,519
9	ctl	Cattle	74,370	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	15,832	-	-	-	-	63,793
10	OAP	Other animal products	74,370	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	26,854	-	-	-	-	58,936
11	RMK	Raw milk	74,370	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	30,829	-	-	-	-	49,662
12	WOL	Wool	74,370	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	8,510	-	-	-	-	68,058
13	FRS	Forestry	93,030	52,040	-	-	-	54,480	-	-	-	-	-	-	-	-	-	-	-	27,470	37,870	37,890	29,390	33,390	35,950
14	FSH	Fishing	74,370	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	20,308	-	-	-	-	63,889
15	COA	Coal	116,317	63,635	80,703	81,784	65,989	-	96,620	-	60,590	63,867	-	23,167	-	27,468	-	78,650	35,333	-	47,827	47,845	46,957	42,963	50,342
16	OIL	Oil	132,960	76,821	85,529	114,603	98,989	-	96,852	-	70,310	70,490	-	21,480	27,070	23,119	-	72,958	37,653	25,650	45,843	51,142	54,291	43,998	64,593
17	GAS	Gas	132,960	76,821	85,529	114,603	98,989	-	96,852	-	70,310	70,490	-	21,480	27,070	23,119	-	72,958	37,653	25,650	45,843	51,142	54,291	43,998	64,593
18	OMN	Minerals nec	113,530	64,697	76,588	80,682	62,501	-	96,620	-	60,590	64,321	-	33,693	-	25,520	-	69,063	34,815	30,350	43,757	47,730	42,271	37,920	47,101
19	CMT	Bovine meat products	96,740	53,470	60,820	69,760	37,260	42,570	-	-	37,130	47,730	-	24,800	22,610	23,600	22,290	47,150	29,480	26,150	42,270	37,560	25,270	25,190	27,897
20	OMT	Meat products nec	96,740	53,470	60,820	69,760	37,260	42,570	-	-	37,130	47,730	-	24,800	22,610	23,600	22,290	47,150	29,480	26,150	42,270	37,560	25,270	25,190	27,897
21	VOL	Vegetable oils and fats	104,010	60,000	58,050	75,500	54,910	-	-	-	-	63,930	-	-	-	29,820	-	64,880	35,840	29,900	53,300	46,390	37,090	33,640	43,092
22	MIL	Dairy products	102,260	58,760	67,890	70,260	44,280	-	-	-	45,450	54,650	-	27,910	20,170	28,320	-	47,320	34,720	28,200	50,520	45,360	33,290	34,690	38,261
23	PCR	Processed rice	104,010	60,000	58,050	75,500	54,910	-	-	-	-	63,930	-	-	-	29,820	-	64,880	35,840	29,900	53,300	46,390	37,090	33,640	43,092
24	SGR	Sugar	107,200	60,620	67,630	63,850	46,270	-	-	-	46,420	64,180	-	26,120	24,200	27,280	-	27,000	33,980	-	48,330	45,240	30,920	27,890	35,283
25	OFD	Food products nec	105,774	61,569	64,015	70,241	53,093	-	-	-	39,520	56,135	-	26,367	21,647	26,122	20,190	35,427	33,797	23,406	49,408	44,078	29,070	29,862	34,208
26	B_T	Beverages and tobacco p	111,057	65,734	69,452	76,392	54,934	-	122,050	-	31,400	65,660	-	31,590	24,120	27,494	25,800	41,392	34,317	25,920	-	46,487	37,081	33,376	41,030
27	TEX	Textiles	111,439	61,101	60,710	56,072	49,610	-	-	-	60,508	48,664	-	25,333	-	22,761	-	60,168	32,321	-	37,358	36,763	25,970	24,546	32,996
28	WAP	Wearing apparel	107,780	56,570	-	66,290	-	-	-	-	51,590	-	-	-	-	23,020	-	53,720	29,400	-	-	34,530	24,090	21,590	28,312
29	LEA	Leather products	109,961	59,427	65,875	72,512	-	-	-	-	62,871	-	-	29,510	-	21,940	-	47,922	32,235	-	-	39,536	26,003	24,775	32,999
30	LUM	Wood products	96,598	55,542	59,115	54,419	57,247	-	-	-	46,990	55,454	-	23,546	-	23,833	-	58,336	32,761	32,635	35,545	40,387	29,304	27,479	34,175
31	PPP	Paper products, publishi	129,213	73,684	82,858	77,453	63,635	38,870	127,091	136,000	61,146	59,905	-	33,653	19,410	25,436	22,160	53,836	35,995	44,330	57,866	49,965	36,245	29,567	52,618
32	P_C	Petroleum, coal product	136,000	83,830	88,730	99,280	74,030	-	194,670	-	98,880	73,820	-	48,260	-	29,510	-	67,840	43,400	-	52,270	58,460	55,510	40,090	66,317
33	CRP	Chemical, rubber, plastic	120,244	68,365	77,984	75,785	69,394	-	131,320	56,370	58,409	67,199	40,020	38,851	28,640	27,483	33,870	72,516	37,956	32,699	49,046	47,823	35,723	29,954	48,530
34	NMM	Mineral products nec	105,732	60,780	69,090	63,758	60,541	-	-	-	34,665	60,080	-	25,385	-	26,123	-	57,432	35,857	-	38,016	43,851	34,021	34,501	40,106
35	I_S	Ferrous metals	111,342	60,730	67,299	66,084	50,078	-	-	-	44,500	61,310	-	34,460	23,200	28,303	-	68,592	38,629	-	52,930	48,228	39,312	39,918	45,671
36	NFM	Metals nec	111,184	62,506	64,142	67,900	49,698	-	-	-	46,106	61,451	-	31,748	23,200	28,431	-	67,772	37,255	-	49,415	45,693	36,262	33,267	42,954
37	FMP	Metal products	110,442	60,024	67,590	64,365	72,329	-	129,753	-	52,145	61,481	-	44,568	-	24,932	-	66,403	35,433	-	43,493	43,215	35,387	30,032	42,398
38	MVH	Motor vehicles and parts	108,620	63,107	48,000	72,495	50,680	-	-	-	58,581	62,504	-	27,789	-	27,669	-	64,708	36,183	-	50,316	50,556	38,981	36,654	45,548
39	OTN	Transport equipment nec	119,587	72,659	92,274	81,053	101,440	-	130,960	50,850	64,198	68,289	-	45,515	-	30,667	-	71,444	43,695	-	43,858	52,014	42,171	44,883	61,011
40	ELE	Electronic equipment	134,095	76,064	95,220	80,765	72,056	-	150,834	-	70,289	63,960	-	38,662	-	27,182	-	83,948	41,069	-	55,753	49,737	32,971	29,078	68,153
41	OME	Machinery and equipment	120,641	66,931	83,039	72,447	73,221	-	126,144	66,820	56,255	67,514	34,960	35,853	26,780	26,942	-	73,094	37,742	-	44,266	46,811	35,665	30,648	51,402
42	OMF	Manufactures nec	107,882	57,752	62,322	58,954	61,130	-	120,830	-	45,180	53,096	-	28,889	-	24,020	-	57,337	33,748	-	39,801	40,747	30,793	27,720	38,242
43	ELY	Electricity	116,460	72,500	75,510	78,590	71,340	-	124,330	61,830	64,230	72,040	-	49,860	-	36,210	-	59,180	43,370	-	59,050	61,060	66,330	47,270	65,236
44	GDT	Gas manufacture, distrib	119,490	76,270	88,220	81,930	76,890	-	158,560	-	72,020	73,820	-	56,660	-	34,690	-	71,500	47,450	-	55,710	60,450	63,800	53,220	64,539
45	WTR	Water	108,890	66,920	65,950	69,480	59,090	-	-	-	62,600	58,010	-	42,010	-	29,740	-	58,190	33,310	28,030	43,100	44,970	44,800	35,290	46,241
46	CNS	Construction	106,212	64,294	66,294	70,631	56,930	32,870	106,532	-	46,141	60,804	-	33,051	22,225	27,199	24,314	59,558	34,403	24,975	43,987	43,951	39,990	37,678	47,510
47	TRD	Trade	94,374	61,069	73,234	73,197	69,838	38,230	101,130	35,199	37,414	60,656	28,887	27,364	20,892	22,142	27,030	31,141	27,878	23,978	39,946	38,388	28,786	26,800	30,527
48	OTP	Transport nec	99,298	60,952	68,654	77,189	59,553	38,800	123,008	52,240	43,804	48,852	35,210	35,392	22,075	30,324	22,647	52,382	34,499	27,697	47,923	45,071	40,903	37,348	40,143
49	WTP	Water transport	121,685	64,929	76,213	82,838	-	-	-	-	51,660	68,530	-	41,450	-	29,424	-	53,226	38,213	-	47,600	46,028	40,385	53,118	54,718
50	ATP	Air transport	108,718	59,340	63,490	80,162	-	121,606	-	57,606	71,110	41,050	40,310	28,580	26,389	29,981	60,577	36,970	-	41,830	56,354	46,340	65,218	54,759	
51	CMN	Communication	128,680	73,114	77,105	79,110	80,948	45,343	104,094	40,268	52,915	51,121	31,830	40,811	27,050	29,680	27,834	56,113	37,104	-	41,988	54,180	35,832	33,489	60,389
52	OFI	Financial services nec	124,515	74,665	80,308	95,489	105,936	-	115,219	59,897	58,294	-	-	40,385	29,025	24,873	25,107	81,255	33,442	-	46,561	39,297	34,681	34,015	58,166
53	ISR	Insurance	129,098	63,996	76,807	77,588	68,612	53,545	72,779	48,869	58,814	65,312	31,476	47,546	25,754	24,788	30,142	63,667	36,313	20,240	52,631	42,119	37,496	34,821	

Table 19: GTAP-Wage Bill Matrix (2007, \$US in million)

		WageBill in US\$ million																							
gtap	gtapcode	gtapdescription	11	13	15	17	19	21	23	25	27	29	31	33	35	37	39	41	43	45	47	49	51	53	Total WB
			management	bus_finance	comp_math	arch_enginr	sciences	social_serv	legal	education	entertain	health_prac	health_sup	protective	food_service	build_maint	pers_care	sales	admin_supp	farm_occup	constructn	maint_repr	production	transport	
1	PDR	Paddy rice	6,090	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	534	-	-	-	-	6,624
2	WHT	Wheat	6,090	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	534	-	-	-	-	6,624
3	GRO	Other grain	6,090	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	534	-	-	-	-	6,624
4	V_F	Veg fruit	10,200	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	5,720	-	-	-	-	15,920
5	OSD	Oil seeds	6,090	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	534	-	-	-	-	6,624
6	C_B	Sugar cane beet	16,700	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	576	-	-	-	-	17,276
7	PFB	Plant fibres	778	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	293	-	-	-	-	1,071
8	OCR	Other crops	21,500	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	5,430	-	-	-	-	26,930
9	ctl	Cattle	54,300	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2,420	-	-	-	-	56,720
10	OAP	Other animal products	12,600	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2,090	-	-	-	-	14,690
11	RMK	Raw milk	5,460	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2,840	-	-	-	-	8,300
12	WOL	Wool	2,280	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	27	-	-	-	-	2,307
13	FRS	Forestry	91	17	-	-	43	-	-	-	-	-	-	3	-	3	-	4	117	1,270	18	72	74	360	2,072
14	FSH	Fishing	5,600	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	350	-	-	-	-	5,950
15	COA	Coal	543	127	41	233	89	-	5	-	3	36	-	9	2	6	-	68	280	-	3,230	662	352	878	6,563
16	OIL	Oil	1,220	669	219	808	619	-	75	-	7	42	-	1	2	5	2	172	567	-	1,920	301	561	546	7,735
17	GAS	Gas	1,220	669	219	808	619	-	75	-	7	42	-	1	2	5	2	172	567	-	1,920	301	561	546	7,735
18	OMN	Minerals nec	798	244	54	330	165	-	5	-	2	43	-	9	2	16	-	176	567	5	3,250	966	840	1,530	9,002
19	CMT	Bovine meat products	348	109	11	28	37	1	-	-	2	21	-	10	17	80	-	105	315	104	15	436	4,110	857	6,605
20	OMT	Meat products nec	348	109	11	28	37	1	-	-	2	21	-	10	17	80	-	105	315	104	15	436	4,110	857	6,605
21	VOL	Vegetable oils and fats	-	-	4	31	38	-	-	-	-	2	-	-	-	8	-	16	59	4	8	71	327	84	653
22	MIL	Dairy products	469	119	33	54	107	-	-	-	4	6	-	4	33	31	-	190	418	14	20	393	1,770	1,040	4,705
23	PCR	Processed rice	-	-	4	31	38	-	-	-	-	2	-	-	-	8	-	16	59	4	8	71	327	84	653
24	SGR	Sugar	108	33	5	15	22	-	-	-	3	1	-	1	15	15	-	87	86	6	15	124	530	145	1,210
25	OFD	Food products nec	2,470	687	169	223	409	-	-	27	23	-	-	17	544	366	1	1,420	1,970	220	129	1,830	9,690	4,000	24,195
26	B_T	Beverages and tobacco products	964	233	85	78	112	-	3	-	76	6	-	8	81	55	4	896	620	135	42	791	2,150	1,440	7,779
27	TEX	Textiles	1,710	354	121	183	57	-	-	-	432	8	-	12	-	59	-	833	1,710	-	101	776	8,300	938	15,594
28	WAP	Wearing apparel	93	20	15	12	3	-	-	-	16	-	-	-	-	5	-	25	75	-	-	73	451	62	849
29	LEA	Leather products	105	31	7	5	2	-	-	-	13	-	-	-	-	4	-	42	89	-	-	26	608	39	970
30	LUM	Wood products	1,500	429	64	314	81	-	-	-	25	11	-	23	-	82	-	733	1,140	262	1,240	839	7,340	2,560	16,643
31	PPP	Paper products, publishing	16,800	5,040	13,100	1,090	1,150	3	338	81	16,800	43	-	43	774	306	1,070	10,600	13,100	9	403	2,580	22,600	4,950	110,880
32	P_C	Petroleum, coal products	675	412	136	769	309	-	24	-	7	19	-	10	-	2	-	165	357	-	312	547	2,360	325	6,429
33	CRP	Chemical, rubber, plastic products	10,600	2,990	1,650	3,980	5,760	-	150	6	235	255	16	66	1	239	18	3,040	5,810	6	528	4,500	26,900	4,120	70,870
34	NMM	Mineral products nec	1,800	378	71	476	41	-	-	-	91	11	-	10	-	62	-	845	1,480	-	1,120	1,280	6,170	4,730	18,564
35	I_S	Ferrous metals	541	170	48	356	24	-	-	-	1	14	-	13	-	23	-	154	381	-	212	1,030	3,700	625	7,291
36	NFM	Metals nec	855	239	70	432	73	-	-	-	3	21	-	13	-	32	-	275	538	-	246	851	4,520	590	8,758
37	FMP	Metal products	7,680	2,390	414	3,170	150	-	-	-	76	73	-	10	-	244	-	2,420	5,460	-	1,340	2,330	32,400	2,990	61,146
38	MVH	Motor vehicles and parts	3,250	1,860	479	3,330	64	-	4	-	125	61	-	16	2	106	-	626	2,010	-	1,530	3,180	25,600	2,250	44,494
39	OTN	Transport equipment nec	4,340	3,830	2,600	9,880	167	-	34	33	269	80	-	132	-	73	-	395	2,180	-	1,260	2,650	10,200	707	38,830
40	ELE	Electronic equipment	9,400	3,520	8,450	13,200	707	-	186	5	345	26	-	37	2	56	-	2,240	2,700	-	32	1,060	8,240	338	50,545
41	OME	Machinery and equipment nec	17,600	6,140	5,600	17,300	1,100	-	154	18	818	298	13	72	4	306	-	5,410	9,330	3	746	3,720	40,000	2,760	111,391
42	OMF	Manufactures nec	3,720	1,030	460	795	106	-	15	-	649	9	-	18	1	107	3	1,840	3,230	-	977	806	15,200	1,670	30,635
43	ELY	Electricity	2,630	1,820	958	2,910	550	-	121	8	108	83	-	177	-	79	2	312	2,820	-	830	6,500	3,160	280	23,348
44	GDT	Gas manufacture, distribution	572	604	183	440	69	-	33	-	29	10	-	28	-	5	-	234	1,270	-	597	1,190	678	181	6,122
45	WTR	Water	198	58	14	69	18	-	3	-	3	-	-	-	-	10	-	38	398	8	206	218	564	56	1,861
46	CNS	Construction	35,700	13,300	426	4,920	196	-	133	-	371	115	-	123	1	1,060	29	8,590	23,700	23	208,000	22,300	3,820	9,510	332,317
47	TRD	Trade	89,900	26,400	16,100	5,140	2,450	48	334	298	6,740	25,600	2,380	3,870	182,000	16,400	18,800	319,000	126,000	1,540	3,640	70,100	31,100	74,500	1,022,340
48	OTP	Transport nec	9,970	4,220	1,030	935	118	-	72	24	114	136	-	460	101	480	797	3,640	23,300	61	1,200	9,640	2,380	91,800	150,478
49	WTP	Water transport	343	123	30	-	-	-	-	-	-	-	-	-	88	1	10	93	270	-	-	28	23	2,010	3,017
50	ATP	Air transport	884	862	298	150	26	-	25	8	42	28	2	14	-	22	6,480	229	5,880	-	10	2,520	41	13,000	30,521
51	CMN	Communication	12,000	7,250	18,000	4,130	1,160	2	424	524	8,700	58	-	63	-	89	8	12,500	16,500	-	97	15,200	182	197	97,084
52	OFI	Financial services nec	35,600	56,900	12,400	147	1,220	2	1,320	33	606	5	-	316	22	219	2	28,500	61,500	2	18	259	45	59	199,175
53	ISR	Insurance	17,000	29,000	10,000	75	689	133	2,780	46	467	1,930	61	113	15	132	17	22,100	32,200	-	38	214	58	37	117,105
54	OBS	Business services nec	138,000	108,000	105,000	69,500	26,600	1,360	61,600	2,790	22,400	21,700	4,590	18,500	3,270	44,100	3,010	65,400	149,000	600	12,200	22,500	23,800	26,400	930,320
55	ROS	Recreational and other services	5,470	2,290	231	62	200	8	31	1,200	9,360	283	210	1,750	6,600	4,510	13,200	3,700	5,100	102	450	2,260	175	987	58,179
56	OSG	Public Administration, Defense, Ed	140,000	91,100	31,400	22,500	32,300	71,000	19,900	382,000	16,100	396,000	85,500	93,300	25,700	34,100	36,500	7,120	222,000	5,560	24,000	29,400	11,500	28,900	1,805,880
		Total WB	731,293	373,776	230,211	168,937	77,724	72,556	87,843	387,075	85,079	447,122	92,771	119,261	219,294	103,589	79,953	504,525	725,466	31,925	271,923	215,030	317,517	289,938	5,632,809

Table 20: GTAP-Wage Bill Matrix (2010, \$US in million)

gtap	gtapcode	gtapdescription	WageBill in US\$ million																												Total WB						
			11	13	15	17	19	21	23	25	27	29	31	33	35	37	39	41	43	45	47	49	51	53													
management	bus_finance	comp_math	arch_enginr	sciences	social_serv	legal	education	entertain	health_prac	health_sup	protective	food_service	build_maint	pers_care	sales	admin_supp	farm_occup	constructn	maint_repr	production	transport																
1 PDR	Paddy rice	6,910	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	534	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	7,444		
2 WHT	Wheat	6,910	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	534	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	7,444		
3 GRO	Other grain	6,910	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	534	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	7,444		
4 V_F	Veg fruit	11,600	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	5,720	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	17,320		
5 OSD	Oil seeds	6,910	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	534	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	7,444		
6 C_B	Sugar cane beet	18,900	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	576	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	19,476		
7 PFB	Plant fibres	883	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	293	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1,176		
8 OCR	Other crops	24,400	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	5,430	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	29,830		
9 cti	Cattle	51,700	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2,420	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	54,120		
10 OAP	Other animal products	12,000	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2,090	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	14,090		
11 RMK	Raw milk	5,200	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2,840	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	8,040		
12 WOL	Wool	2,170	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	27	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2,197		
13 FRS	Forestry	81	14	-	-	29	-	-	-	-	-	-	-	-	-	-	-	113	1,070	21	75	22	330	-	-	-	-	-	-	-	-	-	-	-	1,759		
14 FSH	Fishing	5,330	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	350	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	5,680	
15 COA	Coal	582	150	32	315	95	-	3	-	82	1	35	-	5	-	7	-	82	291	-	3,710	726	341	968	-	-	-	-	-	-	-	-	-	-	7,342		
16 OIL	Oil	1,410	610	177	1,670	669	-	92	-	8	37	-	1	4	5	-	154	542	2	2,320	406	511	682	-	-	-	-	-	-	-	-	-	-	-	-	9,300	
17 GAS	Gas	1,410	610	177	1,670	669	-	92	-	8	37	-	1	4	5	-	154	542	2	2,320	406	511	682	-	-	-	-	-	-	-	-	-	-	-	-	9,300	
18 OMN	Minerals nec	861	216	49	428	193	-	3	-	1	44	-	10	-	12	-	156	514	2	3,240	1,040	826	1,410	-	-	-	-	-	-	-	-	-	-	-	-	9,006	
19 CMT	Bovine meat products	390	116	12	31	40	-	1	-	2	23	-	13	7	82	1	88	329	127	19	488	4,140	962	-	-	-	-	-	-	-	-	-	-	-	-	6,870	
20 OMT	Meat products nec	390	116	12	31	40	-	1	-	2	23	-	13	7	82	1	88	329	127	19	488	4,140	962	-	-	-	-	-	-	-	-	-	-	-	-	6,870	
21 VOL	Vegetable oils and fats	99	30	5	27	30	-	-	-	-	1	-	-	-	7	-	23	59	3	8	81	365	89	-	-	-	-	-	-	-	-	-	-	-	-	829	
22 MIL	Dairy products	455	132	27	54	91	-	-	-	-	4	-	-	4	22	33	-	172	425	14	12	433	2,020	1,070	-	-	-	-	-	-	-	-	-	-	-	4,974	
23 PCR	Processed rice	99	30	5	27	30	-	-	-	-	1	-	-	-	7	-	23	59	3	8	81	365	89	-	-	-	-	-	-	-	-	-	-	-	-	829	
24 SGR	Sugar	128	31	6	19	19	-	-	-	4	2	-	1	9	10	-	78	95	-	12	124	502	156	-	-	-	-	-	-	-	-	-	-	-	-	1,195	
25 OFD	Food products nec	2,790	724	90	239	362	-	-	-	31	34	-	17	548	366	2	1,440	2,090	202	120	1,920	10,400	4,150	-	-	-	-	-	-	-	-	-	-	-	-	25,254	
26 B_T	Beverages and tobacco products	955	248	59	83	60	-	10	-	68	6	-	7	83	45	4	941	646	114	-	731	2,000	1,460	-	-	-	-	-	-	-	-	-	-	-	-	7,520	
27 TEX	Textiles	1,630	376	109	136	18	-	-	-	365	4	-	5	-	48	-	732	1,380	-	82	587	6,380	655	-	-	-	-	-	-	-	-	-	-	-	-	12,506	
28 WAP	Wearing apparel	46	11	-	5	-	-	-	-	7	-	-	-	-	3	-	11	46	-	-	44	259	38	-	-	-	-	-	-	-	-	-	-	-	-	471	
29 LEA	Leather products	125	46	15	15	-	-	-	-	18	-	-	1	-	2	-	37	101	-	-	29	487	40	-	-	-	-	-	-	-	-	-	-	-	-	916	
30 LUM	Wood products	1,210	307	31	235	56	-	-	-	17	12	-	20	-	50	-	555	860	180	579	665	5,180	1,830	-	-	-	-	-	-	-	-	-	-	-	-	11,787	
31 PPP	Paper products, publishing	17,100	6,420	13,900	933	97	2	323	63	18,500	34	-	88	885	261	1,190	9,570	11,000	26	486	2,320	19,000	3,910	-	-	-	-	-	-	-	-	-	-	-	-	106,106	
32 P_C	Petroleum, coal products	1,010	615	232	906	263	-	74	-	6	49	-	11	-	1	-	131	358	-	338	520	2,540	368	-	-	-	-	-	-	-	-	-	-	-	-	7,422	
33 CRP	Chemical, rubber, plastic product	11,200	3,660	1,690	4,490	5,830	-	135	4	269	324	28	59	1	197	4	2,680	5,280	12	448	4,200	24,200	3,910	-	-	-	-	-	-	-	-	-	-	-	-	68,622	
34 NMM	Mineral products nec	1,680	373	84	451	36	-	-	-	59	14	-	3	-	34	-	738	1,250	-	948	1,040	5,050	3,430	-	-	-	-	-	-	-	-	-	-	-	-	15,190	
35 I_S	Ferrous metals	571	145	63	396	18	-	-	-	1	26	-	11	0	15	-	118	318	-	179	908	3,050	517	-	-	-	-	-	-	-	-	-	-	-	-	6,337	
36 NFM	Metals nec	794	213	75	419	35	-	-	-	3	32	-	11	0	23	-	177	443	-	132	682	3,550	463	-	-	-	-	-	-	-	-	-	-	-	-	7,052	
37 FMP	Metal products	7,710	2,260	637	3,060	101	-	14	-	81	73	-	73	-	190	-	2,240	4,990	-	1,600	2,080	28,400	2,270	-	-	-	-	-	-	-	-	-	-	-	-	55,779	
38 MVH	Motor vehicles and parts	2,830	856	283	3,460	10	-	-	-	76	27	-	7	-	64	-	585	1,490	-	538	1,810	16,600	1,360	-	-	-	-	-	-	-	-	-	-	-	-	29,996	
39 OTN	Transport equipment nec	4,660	4,040	3,560	9,840	62	-	56	11	268	85	-	170	-	77	-	369	2,150	-	1,320	2,530	10,100	718	-	-	-	-	-	-	-	-	-	-	-	-	40,015	
40 ELE	Electronic equipment	9,330	3,500	8,490	10,900	111	-	161	-	280	12	-	24	-	49	-	1,820	2,260	-	26	748	6,790	263	-	-	-	-	-	-	-	-	-	-	-	-	44,763	
41 OME	Machinery and equipment nec	17,900	6,460	6,150	17,500	530	-	167	5	656	328	7	64	6	254	-	5,250	8,770	-	605	3,610	35,700	2,340	-	-	-	-	-	-	-	-	-	-	-	-	106,302	
42 OMF	Manufactures nec	3,360	936	385	736	21	-	17	-	556	9	-	13	-	83	-	1,460	2,610	-	557	652	11,400	1,190	-	-	-	-	-	-	-	-	-	-	-	-	23,985	
43 ELY	Electricity	2,930	2,060	846	3,310	546	-	134	5	106	94	-	213	-	99	-	308	2,910	-	910	7,240	3,780	309	-	-	-	-	-	-	-	-	-	-	-	-	25,800	
44 GDT	Gas manufacture, distribution	784	754	305	538	30	-	40	-	19	20	-	12	-	3	-	264	1,340	-	672	1,340	657	204	-	-	-	-	-	-	-	-	-	-	-	-	6,981	
45 WTR	Water	302	75	16	67	20	-	-	-	3	3	-	3	-	9	-	35	426	7	201	269	672	61	-	-	-	-	-	-	-	-	-	-	-	-	2,168	
46 CNS	Construction	33,500	11,500	597	4,760	31	2	111	-	265	161	-	113	22	821	25	6,780	19,500	12	160,000	20,100	3,330	7,370	-	-	-	-	-	-	-	-	-	-	-	-	268,999	
47 TRD	Trade	91,700	26,000	16,500	4,720	833	38	353	234	6,260	29,100	2,550	3,620	195,000	15,800	20,900	313,000	125,000	1,570	3,110	65,800	30,000	71,600	-	-	-	-	-	-	-	-	-	-	-	-	1,023,688	
48 OTP	Transport nec	11,000	3,810	1,160	1,060	62	2	84	37	105	132	3	367	72	526	565	3,230	22,700	44	1,400	10,000	2,830	88,100	-	-	-	-	-	-	-	-	-	-	-	-	-	147,288
49 WTP	Water transport	397	178	53	56	-	-	-	-	8	3	-	2	64	-	85	326	-	2	76	28	1,930	-	-	-	-	-	-	-	-	-	-	-	-	-	3,208	
50 ATP	Air transport	1,200	104	18	188	-	-	41	-	36	11	2	14	6	24	223	247	5,560	-																		