

**FIVE-YEAR BASELINE ECONOMIC INFORMATION OF THE MISSISSIPPI GREEN  
INDUSTRY IN THE YEARS 2008-2012  
WORKING PAPER**



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## **INTRODUCTION**

The U.S. green industry complex includes input suppliers; production firms such as nursery, greenhouse, and sod growers; wholesale distribution firms, including importers, brokers, re-wholesalers, transporters; horticultural service firms providing landscape and urban forestry services such as design, installation, and maintenance; and retail operations, including independent garden centers, florists, home improvement centers, and mass merchandisers or other chain stores (Hodges, et al., 2011). The most recent economic impact study showed that there were 12,981 establishments listed under the Mississippi green industry complex in 2007 (Hodges, et al., 2011). The total output impacts created by the Mississippi green industry complex in 2007 totaled \$1.221 billion. With a state gross domestic product of \$92.107 billion in 2007 (U.S. Bureau of Economic Analysis, 2012), the Mississippi green industry complex contributed about 1.325% of the state economy. The total employment impacts of the Mississippi green industry complex totaled 15,197 workers with the production and manufacturing sectors employing 5,058 workers, horticulture services sector hiring 6,613 workers, and the trade sectors employing 3,525 workers. The total labor income impacts generated by the Mississippi green industry complex in 2007 totaled \$313 million.

When compared to the previous economic impact study conducted in the year 2002, the Mississippi green industry generated an expanded level of economic activities and significantly shifted from trade and services to production and manufacturing. The total output impacts created by the Mississippi green industry in 2002 totaled \$0.977 billion (Hall, et al., 2005). With a state gross domestic product of \$69.527 billion in 2002 (U.S. Bureau of Economic Analysis, 2012), the Mississippi green industry complex contributed about 1.405% of the state economy. The total employment impacts of the Mississippi green industry increased from 14,236 jobs in 2002 to 15,197 jobs in 2007. There were significant shifts in the employment impacts from trade and services in 2002 toward production and manufacturing in 2007. The production and manufacturing employment impacts increased from 1,789 jobs in 2002 to 5,058 jobs in 2007.

The Mississippi green industry business establishments, researchers, extension specialists, and regulatory agencies need regularly updated economic information about the industry. The above-mentioned economic impact studies are expensive and time-consuming research activities and are conducted by the Green Industry Research Consortium (2012) when funding is available. In the meantime, secondary industry data can be retrieved from government and industry sources, compiled and presented in tabular and graphical formats showing the short-term and long-term trends in annual gross sales, employment and labor income. The available but limited baseline annual economic information are best put to good use when compiled and disseminated to the Mississippi green industry complex on a regular basis.

## **GREEN INDUSTRY ECONOMIC SECTORS**

The green industry production and manufacturing industry group includes (1) greenhouse, nursery, and floriculture production, and (2) lawn and garden tractor and home lawn and garden equipment manufacturing (Hodges, et al., 2011). The horticultural services industry group includes (1) landscaping services, and (2) landscape architectural services (Hodges, et al., 2011). The wholesale and retail trade industry group includes (1) building material and garden

equipment and supplies stores, (2) miscellaneous store retailers, (3) merchant wholesalers, durable goods, (4) general merchandise stores (452), (5) merchant wholesalers, nondurable goods, (6) non-store retailers, (7) food and beverage stores, (8) wholesale electronic markets, agents and brokers, (9) furniture and home furnishings stores, (10) gasoline stations, (11) electronics and appliance stores, (12) health and personal care stores, and (13) sporting goods, hobby, book, and music stores (Hodges, et al., 2011). The economic sectors included in the green industry complex by Hodges, et al. (2011) and the corresponding 3-6 digit North American Industrial Classification System (NAICS, 2012) sectors and codes used in this paper are shown in Table 1.

Table 1. Names of Economic Sectors and NAICS Codes Included in the Mississippi Green Industry Complex	
Hodges, et al. (2011) Study	Current Study
<b>Production and Manufacturing Sectors:</b>	
Nursery and greenhouse production (1114)	Nursery and greenhouse production (1114)
Lawn and garden equipment manufacturing (333112)	Lawn and garden equipment manufacturing (333112)
<b>Horticultural Services Sectors:</b>	
Landscaping services (56173)	Landscaping services (56173)
Landscape architectural services (54132)	Landscape architectural services (54132)
<b>Wholesale and Retail Trade Sectors:</b>	
Building material and garden equipment and supplies stores (444)	*Nursery, Garden Center, and Farm Supply Stores (44420) and Home Centers (444110)
Miscellaneous store retailers (453)	*Florists (4531)
Merchant wholesalers, durable goods (423)	*Farm and Garden Machinery and Equipment Merchant Wholesalers (423820)
Merchant wholesalers, nondurable goods (424)	*Flower, Nursery Stock, and Florists Supplies Merchant Wholesalers (424930)
Non-store retailers (454)	**Non-store retailers (454)
Food and beverage stores (445)	* Fruit and Vegetable Markets (445230)
Wholesale electronic markets, agents and brokers (425)	**Wholesale electronic markets, agents and brokers (425)
Furniture and home furnishings stores (442)	**Furniture and home furnishings stores (442)
Gasoline stations (447)	**Gasoline stations (447)
Electronics and appliance stores (443)	**Electronics and appliance stores (443)
Health and personal care stores (446)	**Health and personal care stores (446)
Sporting goods, hobby, book, and music stores (451)	**Sporting goods, hobby, book, and music stores (451)

\* - These economic sectors are the more detailed 4-6 digit industry levels which are directly engaged in the production, use and trade of plant materials.

\*\* - These sectors were not included in this study since they were not directly engaged in the production, use and trade of plant materials.

## Production and Manufacturing Industry

### *Nursery and Greenhouse Production*

This industry group specified by NAICS (2012) code 1114 encompasses establishments primarily engaged in growing crops of any kind under cover and/or growing nursery stock and flowers. "Under cover" is generally defined as greenhouses, cold frames, cloth houses, and lath houses. The crops grown are removed at various stages of maturity and have annual and perennial life cycles. The nursery stock includes short rotation woody crops that have growth cycles of 10 years or less.

The most recent Census of Agriculture (2007) reported that there were 479 greenhouse, nursery, floriculture and sod production operations in Mississippi. The total annual gross sales reported by these operations reached \$46.007 million.

Among Mississippi nursery and greenhouse operations who participated in a mechanization survey, the number of workers employed by Mississippi nursery and greenhouse operations ranged from 1-28 permanent workers and from 1-33 part-time workers per operation (Posadas, et al., 2010a; 2010b). The employment of an extra full-time worker, on the average, raised total workers' earnings by \$18,651 per year, while each added acre placed under production raised total workers' earnings, on average, by \$812 per year (Posadas, et al., 2008). The hiring of an additional full-time worker, on the average, would raise total revenues by \$69,252 per year, while each additional acre placed under production would raise total revenues, on average, by \$959 per year (Posadas, et al., 2008).

Secondary annual data on nursery and greenhouse production are very limited if not available on a regular basis. The EMSI (2012) database does not have a time-series data on employment for nursery and greenhouse production sector. The secondary data that can be purchased and compiled on an annual basis are the annual IMPLAN data (MIG, Inc., 2011) for the state.

Using the most recent IMPLAN state data (MIG, Inc., 2011), the Mississippi nursery, greenhouse, and floriculture production (IMPLAN sector 6) created total annual economic impact about \$92.86 million (Table 2). The sector provided a total 914 jobs, generated labor income totaling \$73.634 million, and raised \$3.041million state indirect business taxes.

Impact Type	Employment (Jobs)	Labor Income (\$)	Total Value Added (\$)	Output (\$)
Direct Effect	420.9	57,308,276.6	28,409,429.0	42,390,571.4
Indirect Effect	66.6	2,501,176.7	3,718,811.1	7,435,191.5
Induced Effect	426.7	13,824,718.6	25,691,588.4	43,035,082.1
Total Effect	914.2	73,634,171.8	57,819,828.5	92,860,845.0

### *Lawn and Garden Tractor and Home Lawn and Garden Equipment Manufacturing*

This U.S. industry cluster defined by NAICS (2012) code 333112 comprises establishments primarily engaged in manufacturing powered lawnmowers, lawn and garden tractors, and other home lawn and garden equipment, such as tillers, shredders, yard vacuums, and leaf blowers. Except in 2011, the number of jobs directly created by this sector steadily increased during the last five years reaching 754 jobs in 2012, as Figure 1 shows. The average state earnings for workers in this sector in 2012 were \$45,772 which was slightly lower than the average national earnings \$46,977. With a jobs multiplier about 2.75, the total direct, indirect and induced employment impact of this sector was 2,071 jobs, as computed by using EMSI (2012).

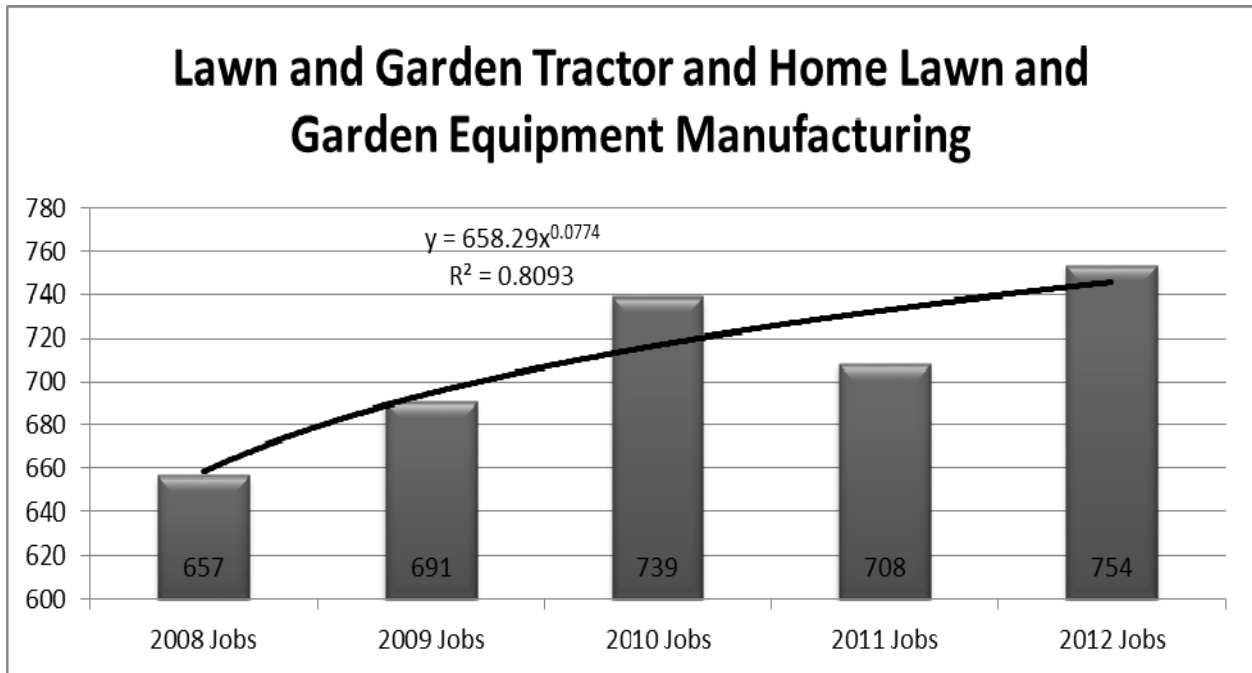


Figure 1. Number of direct jobs in this green industry sector. Source of raw data: EMSI (2012).

## Horticultural Services Industry

### *Landscaping Services*

This industry group defined by NAICS (2012) code 561730 comprises (1) establishments primarily engaged in providing landscape care and maintenance services and/or installing trees, shrubs, plants, lawns, or gardens and (2) establishments primarily engaged in providing these services along with the design of landscape plans and/or the construction (i.e., installation) of walkways, retaining walls, decks, fences, ponds, and similar structures. The number of workers directly employed in this sector steadfastly increased during the last five years except in 2011, as Figure 2 shows. The average state earnings for workers in this sector in 2012 were \$15,880 as compared to the national earnings averaging \$24,889. With a jobs multiplier around 1.24, the total direct, indirect and induced employment impact of this sector was 13,772 jobs, as calculated by using EMSI (2012).

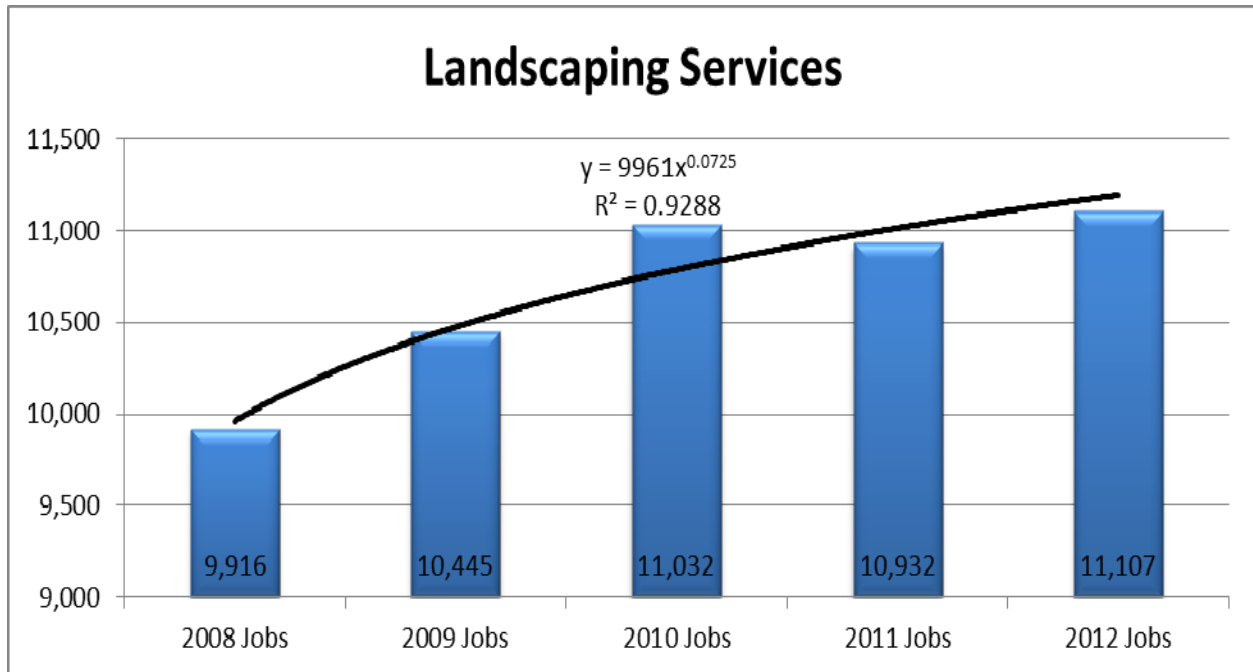


Figure 2. Number of direct jobs in this green industry sector. Source of raw data: EMSI (2012).

### *Landscape Architectural Services*

This industry NAICS (2012) code 541320 involves establishments primarily engaged in planning and designing the development of land areas for projects, such as parks and other recreational areas; airports; highways; hospitals; schools; land subdivisions; and commercial, industrial, and residential areas, by applying knowledge of land characteristics, location of buildings and structures, use of land areas, and design of landscape projects. The direct employment created by this sector fell to 727 jobs in 2010 but has started to recover reaching 799 jobs in 2012, as Figure 3 shows. The average state earnings for workers in this sector in 2012 were \$14,358 which was not very different from the national earnings averaging \$14,385. With an employment multiplier about 1.21, the total direct, indirect and induced employment impact of this sector was 966 jobs, as calculated by using EMSI (2012).

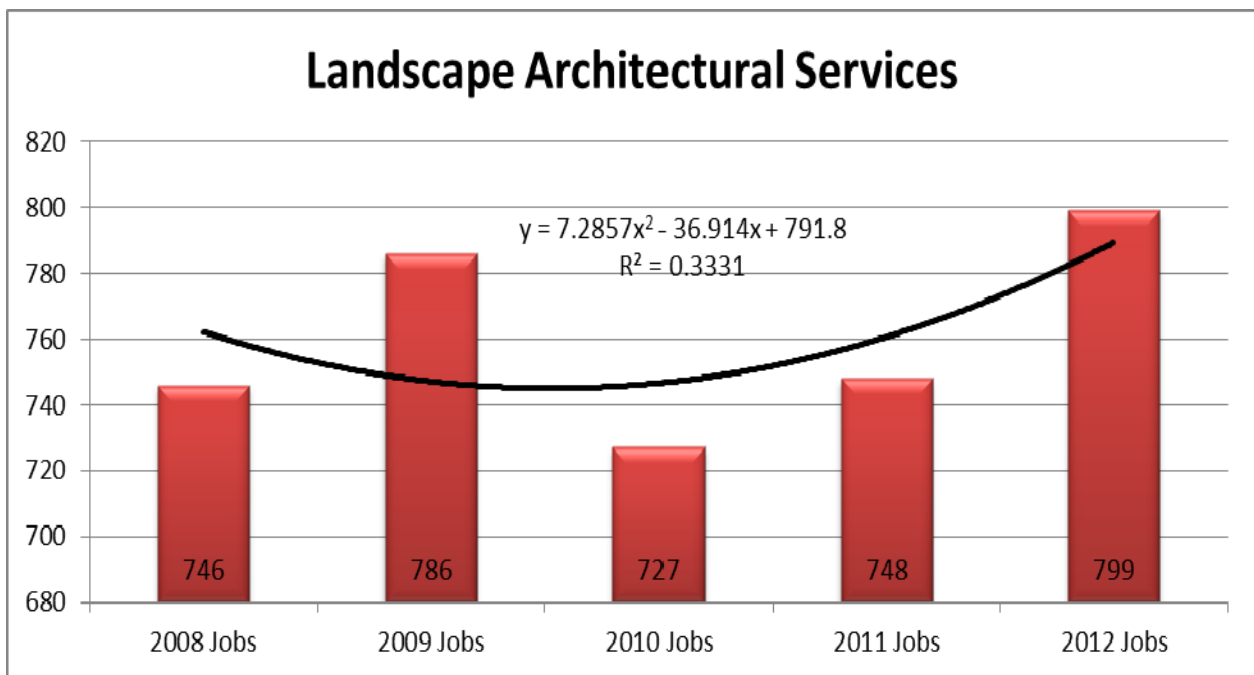


Figure 3. Number of direct jobs in this green industry sector. Source of raw data: EMSI (2012).

## Wholesale and Retail Trade Industry

### *Nursery, Garden Center, and Farm Supply Stores*

This industry group NAICS (2012) code 444220 includes establishments primarily engaged in retailing nursery and garden products, such as trees, shrubs, plants, seeds, bulbs, and sod that are predominantly grown elsewhere. These establishments may sell a limited amount of a product they grow themselves. Also included in this industry are establishments primarily engaged in retailing farm supplies, such as animal (non-pet) feed.

The employment directly created by this sector improved from its lowest level in 2010 with 1,964 jobs to 2,157 jobs in 2012, as Figure 4 indicates. The average state earnings for workers in this sector in 2012 were \$38,530 which was not very different from the national earnings averaging \$38,579. With an employment multiplier about 1.74, the total direct, indirect and induced employment impact of this sector was 3,749 jobs, as estimated by using EMSI (2012).

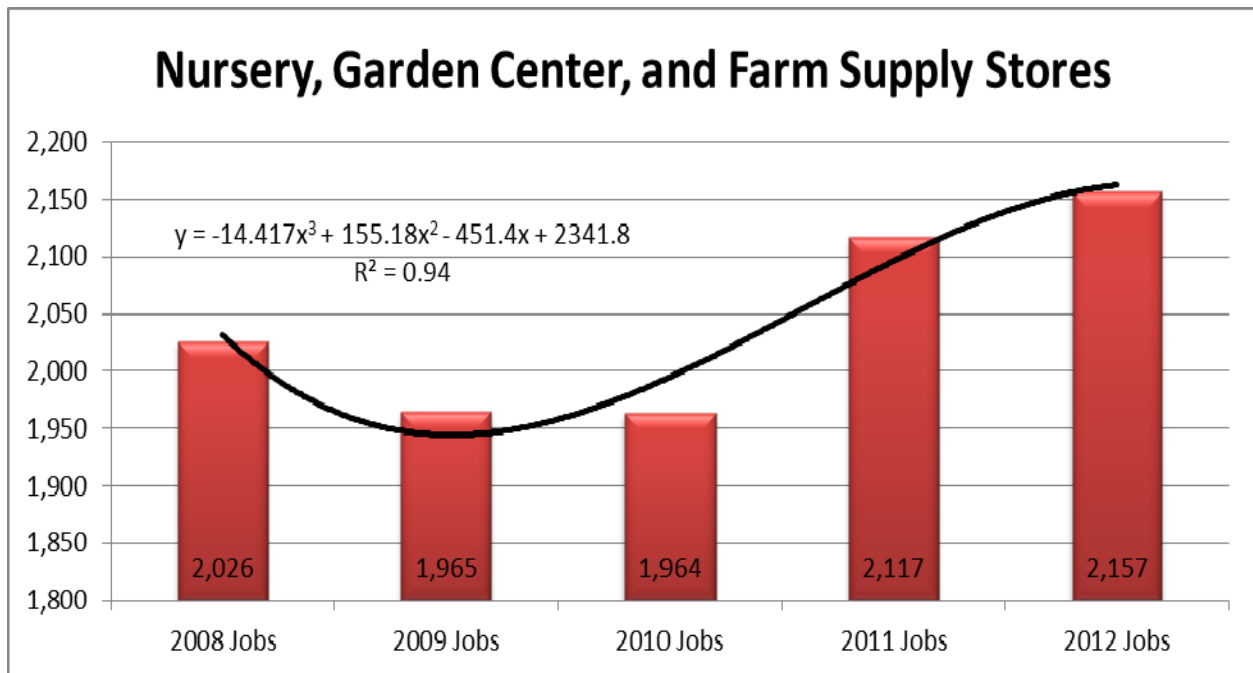


Figure 4. Number of direct jobs in this green industry sector. Source of raw data: EMSI (2012).



### Home Centers

This industry group specified by NAICS (2012) code 444110 consists establishments known as home centers primarily engaged in retailing a general line of new home repair and improvement materials and supplies, such as lumber, plumbing goods, electrical goods, tools, housewares, hardware, and lawn and garden supplies, with no one merchandise line predominating. The merchandise lines are normally arranged in separate departments.

The direct employment created by the home centers decreased sharply to 6,332 jobs in 2009 and stayed low for two more years in 2010 and 2011. However, an improvement in the number of jobs was seen in 2012 with 6,460 jobs, as Figure 5 reveals. The average state earnings for workers in this sector in 2012 were \$29,023 which was lower than the national earnings averaging \$32,814. With a jobs multiplier about 1.52, the total direct, indirect and induced employment impact of this sector was 9,835 jobs, as estimated by using EMSI (2012).

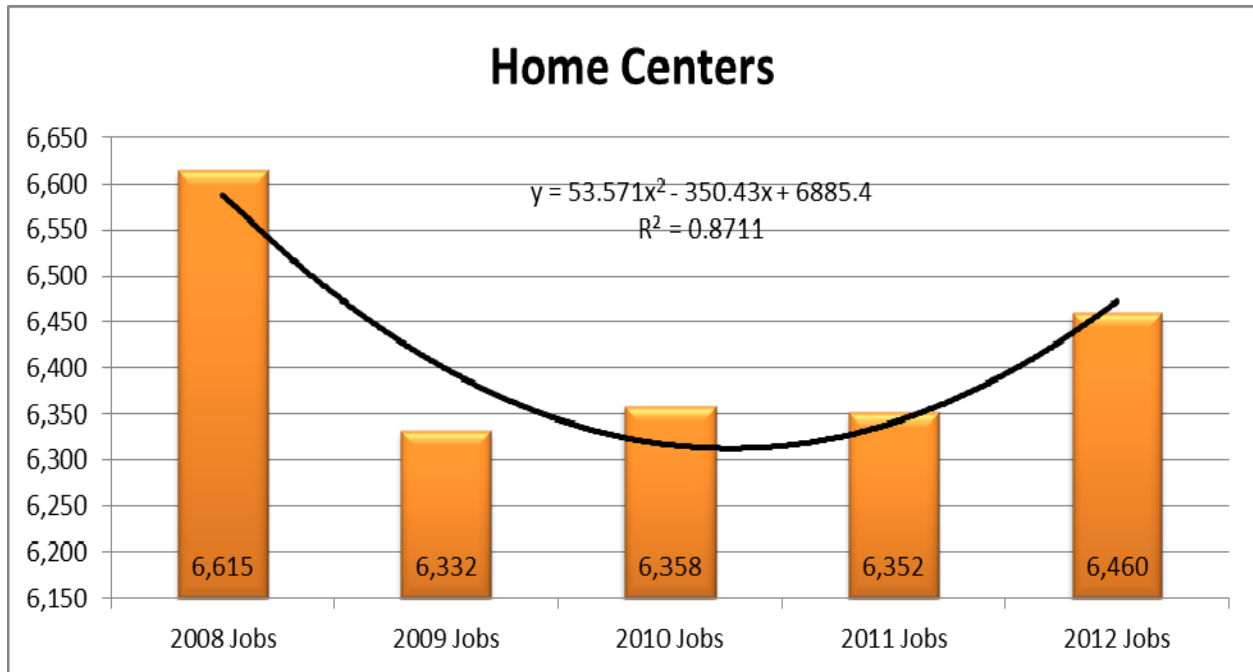


Figure 5. Number of direct jobs in this green industry sector. Source of raw data: EMSI (2012).

### *Florists*

This industry group specified by NAICS (2012) code 453110 consists of establishments known as florists primarily engaged in retailing cut flowers, floral arrangements, and potted plants purchased from others. These establishments usually prepare the arrangements they sell.

The overall trend of the number of workers directly employed by florists seemed to be going downwards during the last five years, as Figure 6 shows. The average state earnings for workers in this sector in 2012 were \$15,163 which was significantly lower than the national earnings averaging \$18,121. With a jobs multiplier around 1.29, the total direct, indirect and induced employment impact of this sector was 2,010 jobs, as calculated by using EMSI (2012).

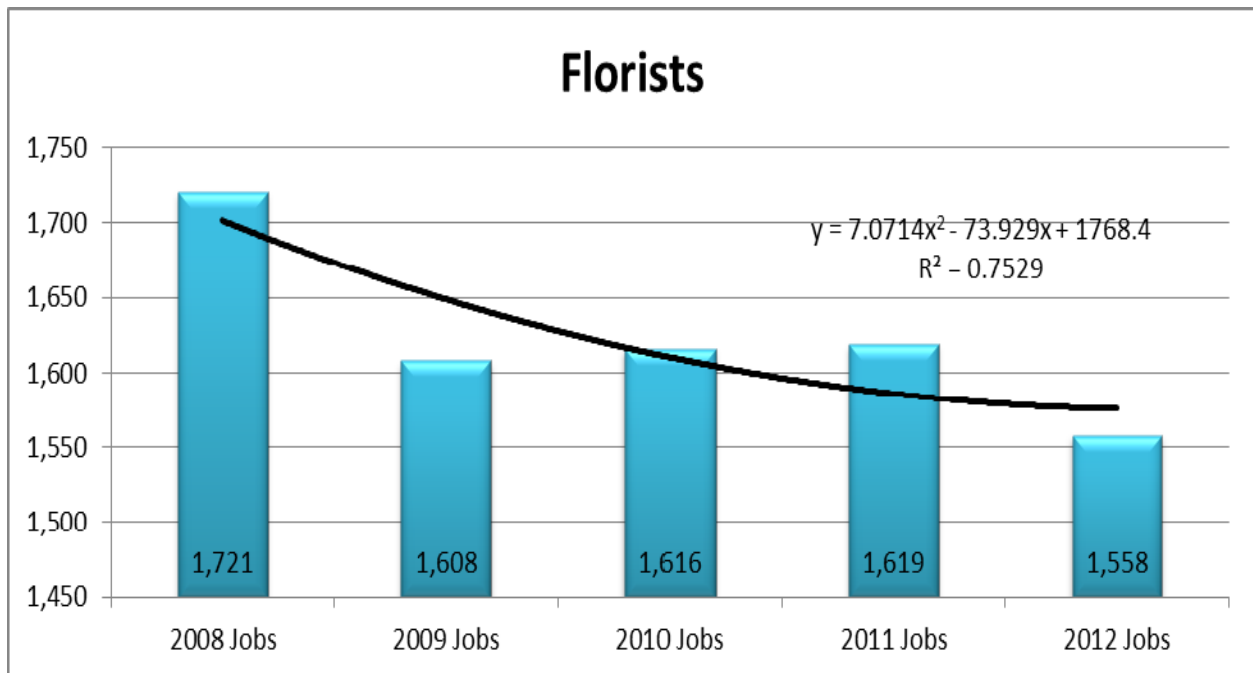


Figure 6. Number of direct jobs in this green industry sector. Source of raw data: EMSI (2012).

### *Farm and Garden Machinery and Equipment Merchant Wholesalers*

This industry bundle specified by NAICS (2012) code 423820 covers establishments primarily engaged in the merchant wholesale distribution of specialized machinery, equipment, and related parts generally used in agricultural, farm, and lawn and garden activities. The types of machinery and equipment sold by these wholesalers include harvesting machinery and equipment, planting machinery and equipment, and lawnmowers.

The number of workers hired by these wholesalers fell to 1,523 jobs in 2012 after having been fairly stable during the previous four years, as Figure 7 demonstrates. The average state earnings for workers in this sector in 2012 were \$55,667 which was significantly lower than the national earnings averaging \$58,272. With an employment multiplier about 2.14, the total direct, indirect and induced employment impact of this wholesaling sector was 3,259 jobs, as calculated by using EMSI (2012).

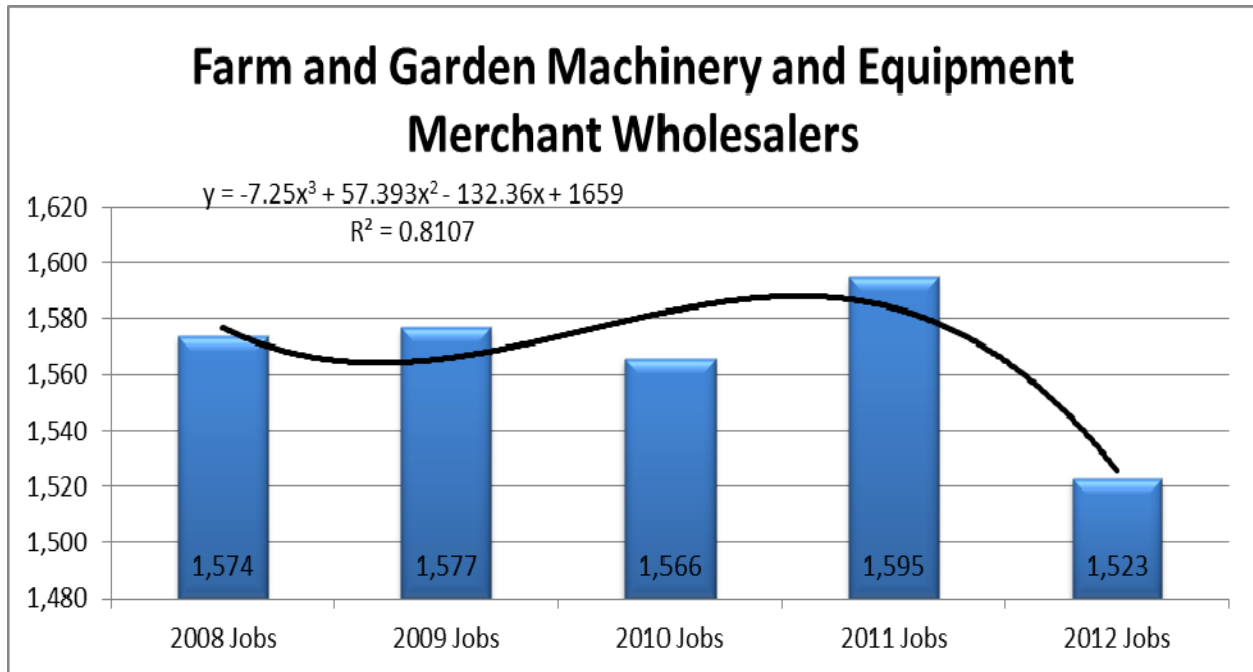


Figure 7. Number of direct jobs in this green industry sector. Source of raw data: EMSI (2012).

*Flower, Nursery Stock, and Florists Supplies Merchant Wholesalers*

This industry group NAICS Code 424930 comprises establishments primarily engaged in the merchant wholesale distribution of flowers, florists' supplies, and/or nursery stock (except plant seeds and plant bulbs). The number of workers directly employed in this sector significantly declined to 272 jobs in 2009 but was boosted to 317 jobs in 2011 and 2012, as Figure 4 shows. The average state earnings for workers in this sector in 2012 were \$33,296 as compared to the national earnings averaging \$35,137. With a jobs multiplier around 1.62, the total direct, indirect and induced employment impact of this sector was 514 jobs, as calculated by using EMSI (2012).

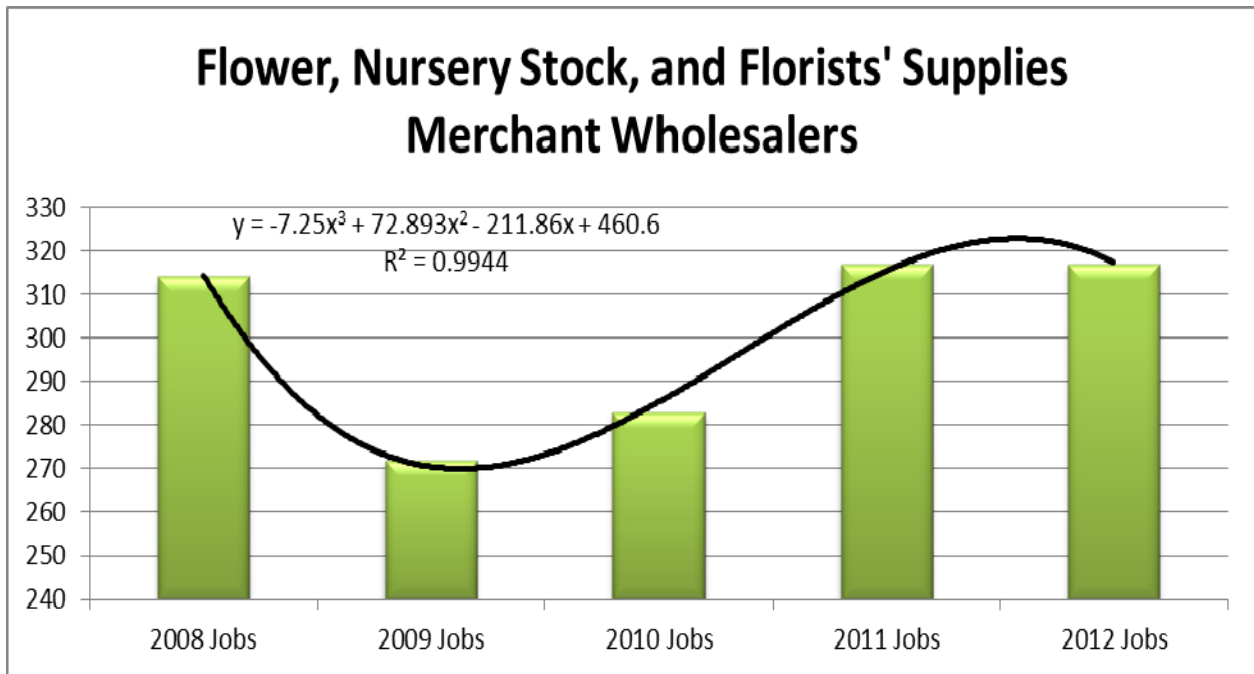


Figure 8. Number of direct jobs in this green industry sector. Source of raw data: EMSI (2012).

### *Fruit and Vegetable Markets*

The industry group NAICS (2012) code 445230 comprises establishments primarily engaged in retailing fresh fruits and vegetables. The number of workers directly employed by the fruit and vegetable markets went down from 232 jobs in 2008 to 201 jobs in 2012, as Figure 9 shows. The average state earnings for workers in this sector in 2012 were \$22,079 which was considerably lower than the national earnings averaging \$30,483. With a jobs multiplier around 1.38, the total direct, indirect and induced employment impact of fruit and vegetable markets was 278 jobs, as calculated by using EMSI (2012).

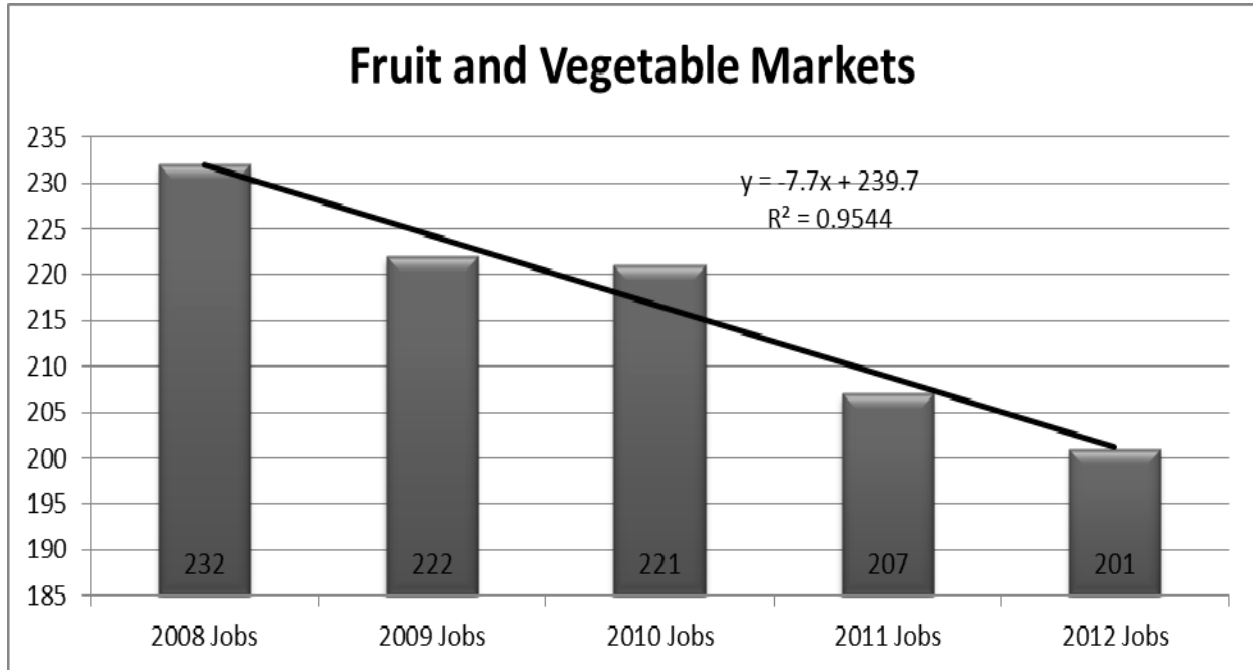


Figure 9. Number of direct jobs in this green industry sector. Source of raw data: EMSI (2012).

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