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Gross Domestic Product from Ohio

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GROSS DOMESTIC PRODUCT FROM OHIO

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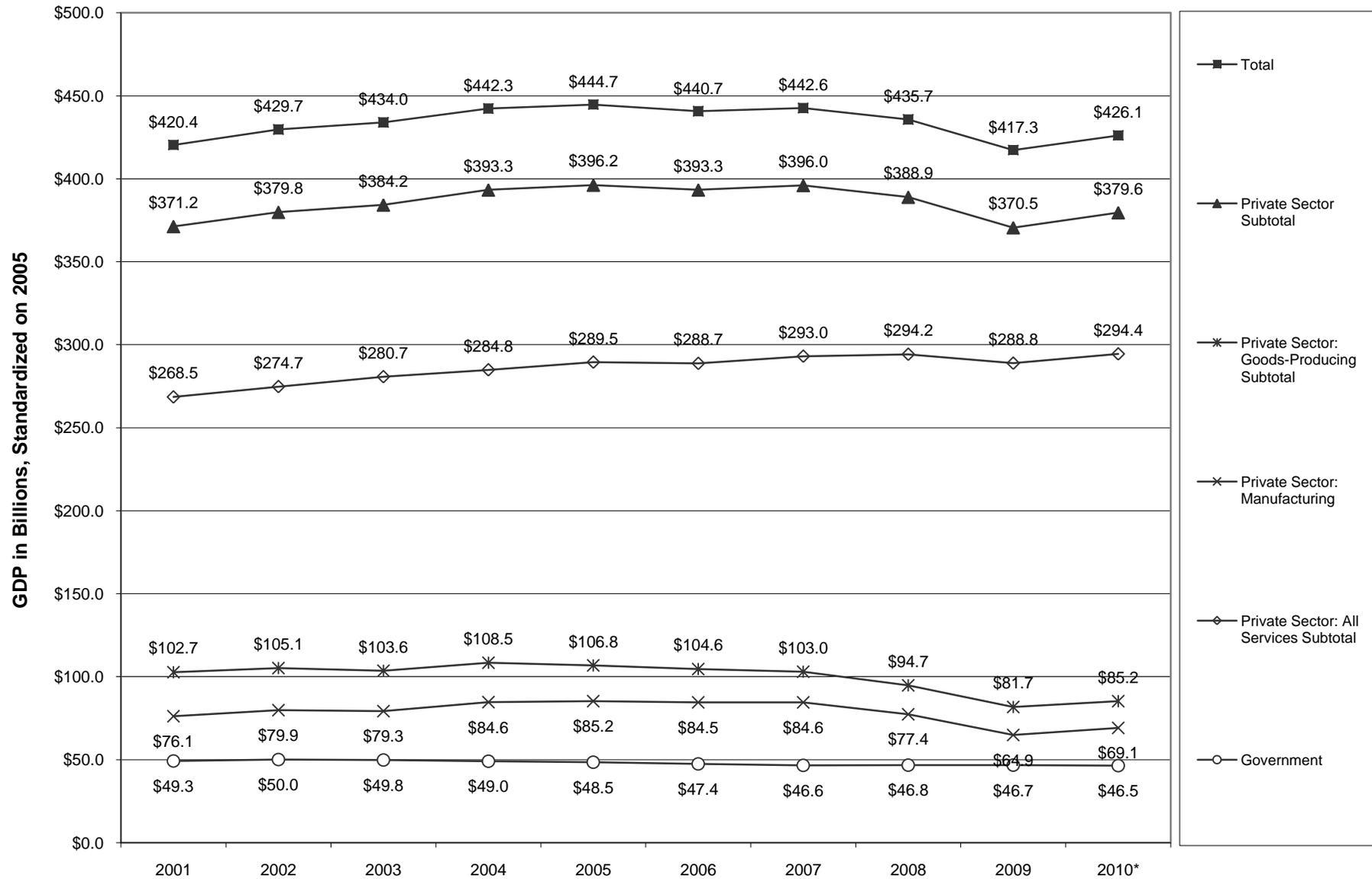
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RECENT CHANGES IN OHIO'S ECONOMY

Changes in Ohio's Economic Output, 2001-2010 After the Effects of Inflation Have Been Removed



Source: U.S. BEA

* - Preliminary; earlier figures may be revised.

REMOVING THE EFFECTS OF INFLATION

The chart above illustrates the real expansion and contraction in Ohio's economic output after the effects of inflation have been removed. In a sense, it permits comparisons between years of the *volumes* of goods produced and services provided. The total GDP figures (standardized on 2005) show growth in the output of goods and services in Ohio from \$420.4 to \$442.6 billion for the years 2001 through 2007, with the exception of 2006 when output dipped slightly. The decline to \$417.3 billion for 2009 defines the recession and means that *all* of the net growth for 2001-2007 was wiped out. The initial estimate of \$426.1 billion for 2010, an increase from 2009, is the first full year of recovery. This history reflects largely reflects what happened in the private sector; government services contracted with no significant interruption from \$50 billion in 2002 to \$46.5 billion in 2010 – slight in context of the overall picture.

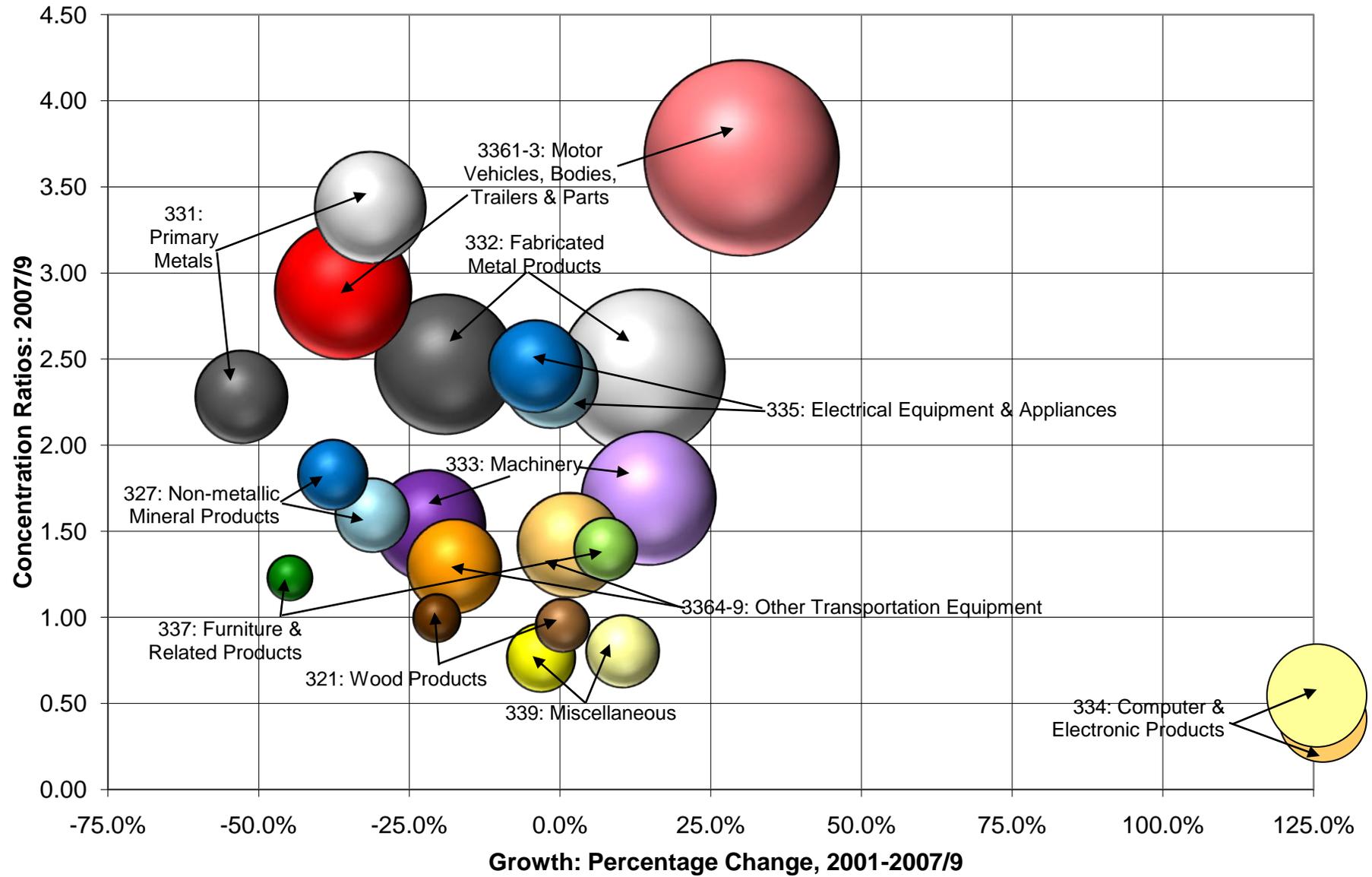
The graph above further specifies where changes occurred in the private sector. The collective output of goods producers rose from the recession low of \$102.7 billion in 2001 to \$108.5 billion in 2004, but fell 24.7 percent to \$81.7 billion in 2009. The initial estimate for 2010 is \$85.2 billion. The bulk of these changes were in manufacturing, which rose from \$76.1 billion in 2001 to a plateau around \$85 billion in the middle years of the decade before plunging 23.8 percent to \$64.9 billion in 2009. Output rose to \$69.1 billion in 2010. Data from appendix table A2 show that the net decline in durable goods production from 2007 was steeper than that of non-durable goods: -30.2 percent vs. -12.1 percent. (The volume of durable goods production currently is almost 60 percent greater than that of non-durable goods.) Among the three smallest sectors, output from agriculture-forestry-fishing-hunting has risen to its highest level in a decade, while the volume of goods produced by mining and construction has plummeted.

By contrast, the collective output of private sector service-providers increased each year until 2009, when it declined from \$294.2 billion in 2008 to \$288.8 billion; the initial estimate for 2010 is \$294.4 billion. Some sectors showed greater-than-average growth over the decade even though output may not have increased every year. These include wholesale trade, information, finance-insurance, professional-technical services, enterprise management, and healthcare-social assistance. Administrative-waste remediation services were close to the overall private service average. Other sectors experienced slower-than-average growth or a net decline. Private sector services as a whole turned around in 2010, with recoveries evident in utilities, retail trade, information, enterprise management, administrative-waste services, arts-entertainment-recreation, and accommodation-food services. Still, the growth in these and other sectors was offset by lower levels in transportation-warehousing, real estate-rental-leasing, educational and other non-governmental services (NAICS 81).

The following sections provide more information about sectors and major industries: their relative concentration in Ohio's economy, industry groups driving the concentration within them (or exceptions if the latter are sparse), how they may have changed here during the last few years, and a comparison with corresponding national trends.

See Table A2

Ohio GDP: Growth, Concentration, & Size: Manufacturing Durable Goods



Source: U.S. BEA

DURABLE GOODS PRODUCTION

The chart above illustrates a number of things about durable goods production in Ohio since 2001, the recession prior to 2008-2009. There are two bubbles for each major industry (or cluster of groups, in the case of transportation equipment); the paler, less saturated colors shows the changes from 2001 through 2007, while the darker, more saturated shades of the same colors show changes from 2001 through 2009. In both cases, larger bubble sizes indicate greater volumes of goods produced, the heights above the horizontal axis indicate the concentration in Ohio, and distances from the vertical axis indicates the changes in production volumes over the years. For example, the production of motor vehicles, bodies, trailers and parts – the motor vehicle industry for short – is a comparatively large part of Ohio's economy and is highly concentrated here, as indicated by the size and height of the red bubbles. While there was real growth of 30.2 percent in production from 2001-2007, there was a net decline from 2001 by 2009 of 36 percent; data in appendix table A5 show a nearly 51 percent decline in volume in two years. This change is so dramatic that the more color-saturated bubble (2001-9) is noticeably smaller and lower on the chart than the paler one (2001-7).

Similar – but less dramatic – changes in other major durable goods industries also are seen in the chart. These include fabricated metal products (gray), machinery (purple), other transportation equipment (orange), furniture and related products (green), wood products (brown) and miscellaneous manufacturing (yellow). (The last two industries are not concentrated here.) In other major industries, production volumes dropped from 2001-7 and continued falling to 2009; this is true for primary metals (also gray) and non-metallic mineral products (blue). However, the concentration of non-metallic mineral production here actually increased. There was comparatively little change in the output electrical equipment and appliances (also blue). The manufacture of computer and electronic products (gold) was Ohio's only major durable goods industry to show real growth in 2001-9. However, output fell 14.2 percent from 2007 to 2009, and the industry is not concentrated here.

Durable goods output in Ohio dropped with the recession of 2001. Its recovery peaked in 2005, declining gradually thereafter until plunging in 2009. This departs somewhat from the national experience. U.S. durable goods output fell in the 2001 recession, but recovered by 2003 and continued growing into 2008 before falling in 2009. As in Ohio, national production levels of many major industries were below those of 2001: wood and non-metallic mineral products, primary and fabricated metals, machinery, the motor vehicle industry, and furniture. Also like Ohio, the only industry to retain substantial growth over 2001 was computer and electronic products.

The net growth rate of durable goods production in Ohio from 2001 through 2007 was less than the corresponding national growth rate, and the net percentage drop in output from Ohio during the 2007-2009 period was steeper than the national experience. Consequently, durable goods production is now less concentrated in Ohio than it used to be. Initial estimates for 2010 show real growth here and across the nation, but output levels remain below those of 2007.

With few exceptions, GDP data provide no specific information about industry groups within major industries. However, employment data from County Business Patterns (U.S. Bureau of the Census, 2011a) for the state and the nation can be used to calculate concentration ratios for industry groups within major industries, thereby providing further insight into the sectors.³ For example, County Business Patterns data indicate that vehicle assembly (NAICS 3361) and parts production (3363) are particularly concentrated in Ohio, while the manufacture of bodies and trailers (3362) is roughly proportional. Additional data confirm this concentration in assembly and parts production: in 2010, 17.4 percent of the cars and 12.6 percent of the light trucks assembled in the U.S. came from six high-volume plants in Ohio. Combining the two means that 14.4 percent of U.S. light vehicle production originated in Ohio, making it the 2nd-ranked source for light vehicles (Automotive News, 2011). Data from ELM International (2010) indicate that Ohio has the second largest number of establishments in America directly supplying parts to vehicle assemblers.

County Business Patterns data also show that, except for other transportation equipment (3369), activity in the remaining transportation groups (3364-3366) is not concentrated here. The concentration in other transportation equipment probably reflected the activity at the M1 tank plant.

County Business Patterns data illuminate other major industries as well. Activity in all of the primary metal groups is concentrated in Ohio: iron and steel mills and ferroalloy production (3311), steel products made from purchased steel (3312), aluminum smelting and products (3313), and, generally, the production of other metals – notably copper (3314). Foundry employment (3315) is also concentrated here (U.S. Bureau of the Census, 2011a). Data from other sources show Ohio's prominent role in steel production: typically one-eighth to one-sixth of U.S. raw steel production originates in Ohio. (The low percentage in 2009 was an exception (American Iron & Steel Institute, 1974-2004; International Iron and Steel Institute, 2010; Ohio Steel Council, 2010)).

Activity in all nine fabricated metal (332) groups is more or less concentrated in Ohio (U.S. Bureau of the Census 2011a). Activities include shaping metal pieces by forging, heat-treating, coating stamping, bending, forming, machining, engraving and/or welding purchased materials. (Stampings for motor vehicles are classified as motor vehicle parts (33637).) Products include cutlery, unpowered hand tools, boilers, containers, hardware, nuts, bolts, screws, rivets, springs, wires, valves and plumbing fixtures, bearings, safes, ladders, washers, tanks, and the output of machine shops. (Washing machines and military weapons are classified elsewhere.) In this case, County Business Patterns data lead to the conclusion that it is the combination of a variety of such goods made in large volume that results in Ohio's 3rd rank in industry GDP.

Activity in machinery manufacturing is concentrated in five of the seven industry groups: industrial machinery (3332), heating, ventilation, air conditioning, and commercial refrigeration equipment (3334), metalworking machinery (3335), engines, turbines and power transmission equipment (3336), and general purpose machinery (3339) (U.S. Bureau of the Census,

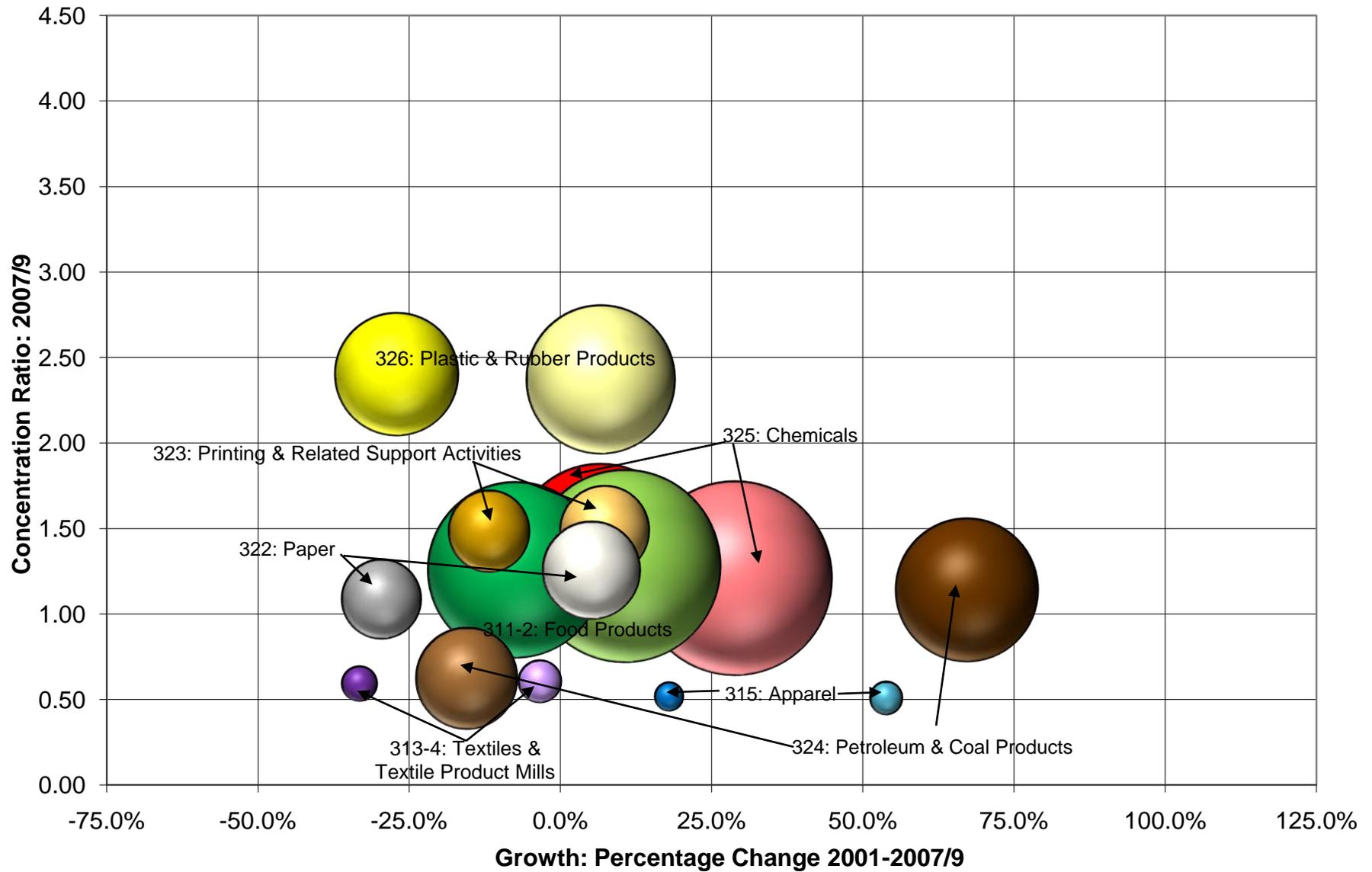
2011a). As with fabricated metals, it is the combination of a variety of goods made in large volume that results in Ohio's overall 5th rank in industry GDP.

Ohio is the leading source for electrical equipment and appliances in the U.S. Activity is more or less concentrated in all four groups: electric lighting equipment (3351), household appliances (3352), electrical equipment (3353) such as motors, generators (except turbines, which are classified elsewhere), transformers, switching equipment, relays, and industrial controls, and other electrical equipment and components (3359) such as batteries, wires, and cables (U.S. Bureau of the Census, 2011a).

Manufacturing non-metallic mineral products (327) is concentrated in Ohio. Data point to clay (3271), glass (3272), and other materials (3279) as the concentrated groups driving production here. On the other hand, the concentration of furniture and related products reflects the concentration of household and institutional furniture and kitchen products (3371) alone (U.S. Bureau of the Census, 2011a).

See Tables A2, A5, A9, A11-A14, A16

Ohio GDP: Growth, Concentration, & Size: Manufacturing Non-durable Goods



Source: U.S. BEA

NON-DURABLE GOODS PRODUCTION

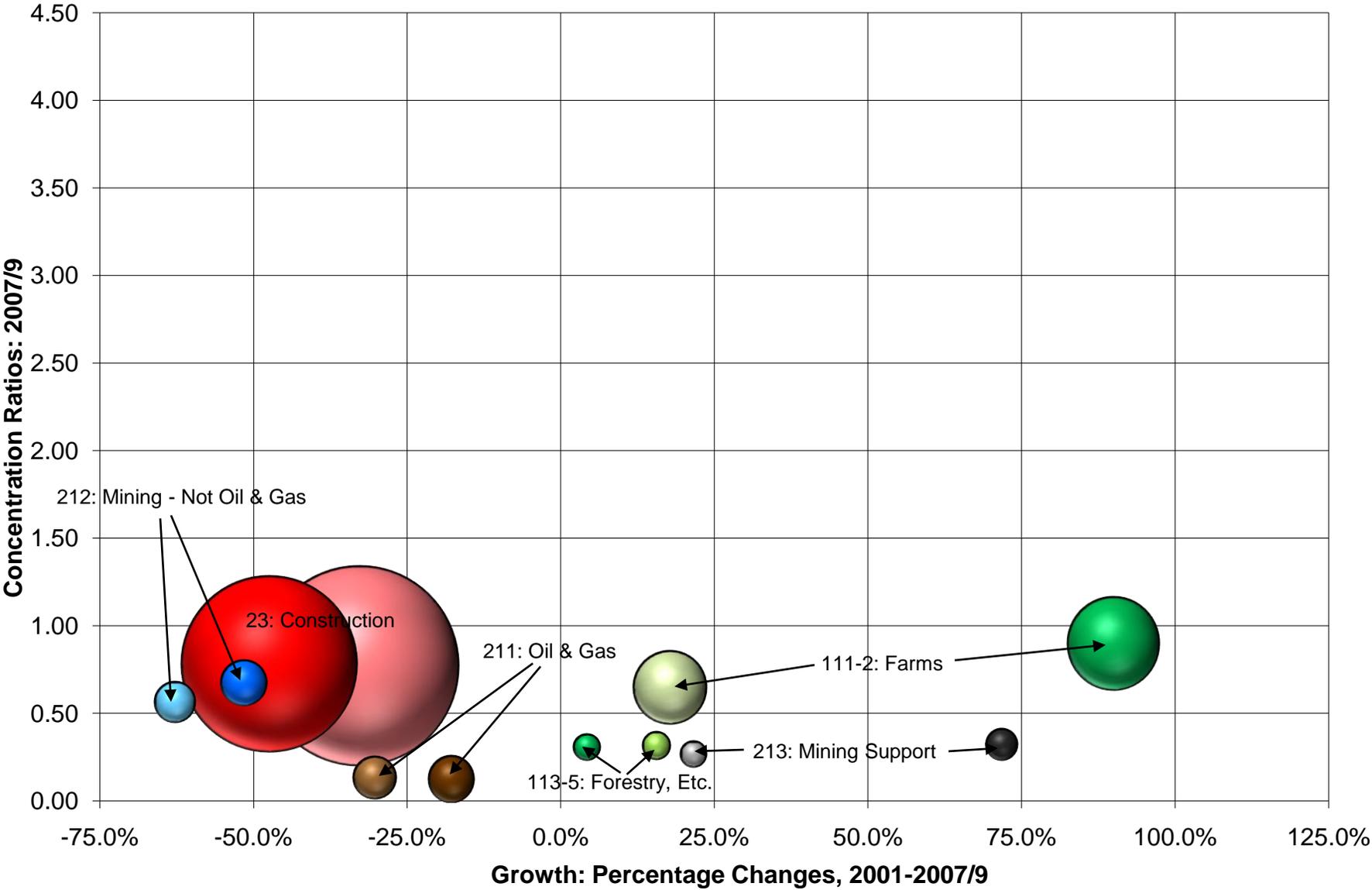
The chart above illustrates experiences similar to those of durable goods producers. Six of the eight non-durable goods clusters in Ohio saw real net growth, more or less, from 2001 through 2007. These include food and beverage products, apparel, paper, printing and related support activities, chemicals, and rubber and plastic products – all indicated by the lighter, paler shades of colors. The exceptions were petroleum and coal products (light brown), which rose and fell, and textile and textile mill products (light purple), which fluctuated with little net change. By contrast, output fell from 2007 to 2009 in seven of the eight clusters; output remained above 2001 levels in only two of the seven – chemicals and apparel (dark red, dark blue, respectively). The big exception to the recession was the spectacular growth in petroleum and coal products (dark brown), which rose to its highest level in the time period.

Non-durable goods production in Ohio quickly recovered from the 2001 recession, fluctuating around \$29 billion annually through 2007. Output fell in 2008 and, though improved in 2009, remained below the 2001 level. This overall pattern largely reflects what happened for the nation as a whole, except that national output fell even lower in 2009. Cluster-by-cluster comparisons between Ohio and the U.S. also show similar change patterns for 2001-7 and 2007-9, the sole exception being petroleum and coal products. Initial figures for 2010 show growth from 2009, although output levels remain below those of 2007.

Overall production of non-durable goods is concentrated in Ohio, although not to the extent of durable goods. As with durable goods, the concentration is greater in some industries – notably plastic and rubber products (yellow), printing and related support activities (gold), chemicals (red), and food products (green). Lesser concentrations are evident in paper (gray) and now petroleum and coal products (dark brown only). Again, County Business Patterns data provide further insight into groups driving production in the state. Manufacturing plastic (NAICS 3261) and rubber (3262) products – especially the latter – is concentrated here, making Ohio the leading state in that major industry. In other major industries, though, the concentration is evident only in some groups. For example, the data show paper production focusing on the conversion of paper products (3222) to things such as corrugated items, boxes, bags, stationary, envelopes, coatings, laminates and other treatments, from purchased paper – not the initial production of paper (3221).⁴ Particular food products concentrated here include food for animals (3111), specialty foods and the preservation of fruits and vegetables (3114), bakeries (3118) and other food products such as snacks, coffee and tea, syrups, seasonings, dressings, spices, popcorn, etc. (3119). Chemical groups more or less concentrated here include basic chemicals such as industrial gases, pigments, dyes, chlorine, etc. (3251), plastic resins, synthetic rubber, etc. (3252), paints, coatings and adhesives (3255), soaps and cleaners (3256), and other preparations as diverse as inks and explosives (3259) (U.S. Bureau of the Census, 2011a).

See Tables A2, A5, A9, A11-A14, A16

Ohio GDP: Growth, Concentration, & Size: Non-manufacturing Goods-Producing Industries



Source: U.S. BEA

NON-MANUFACTURING GOODS-PRODUCING INDUSTRIES

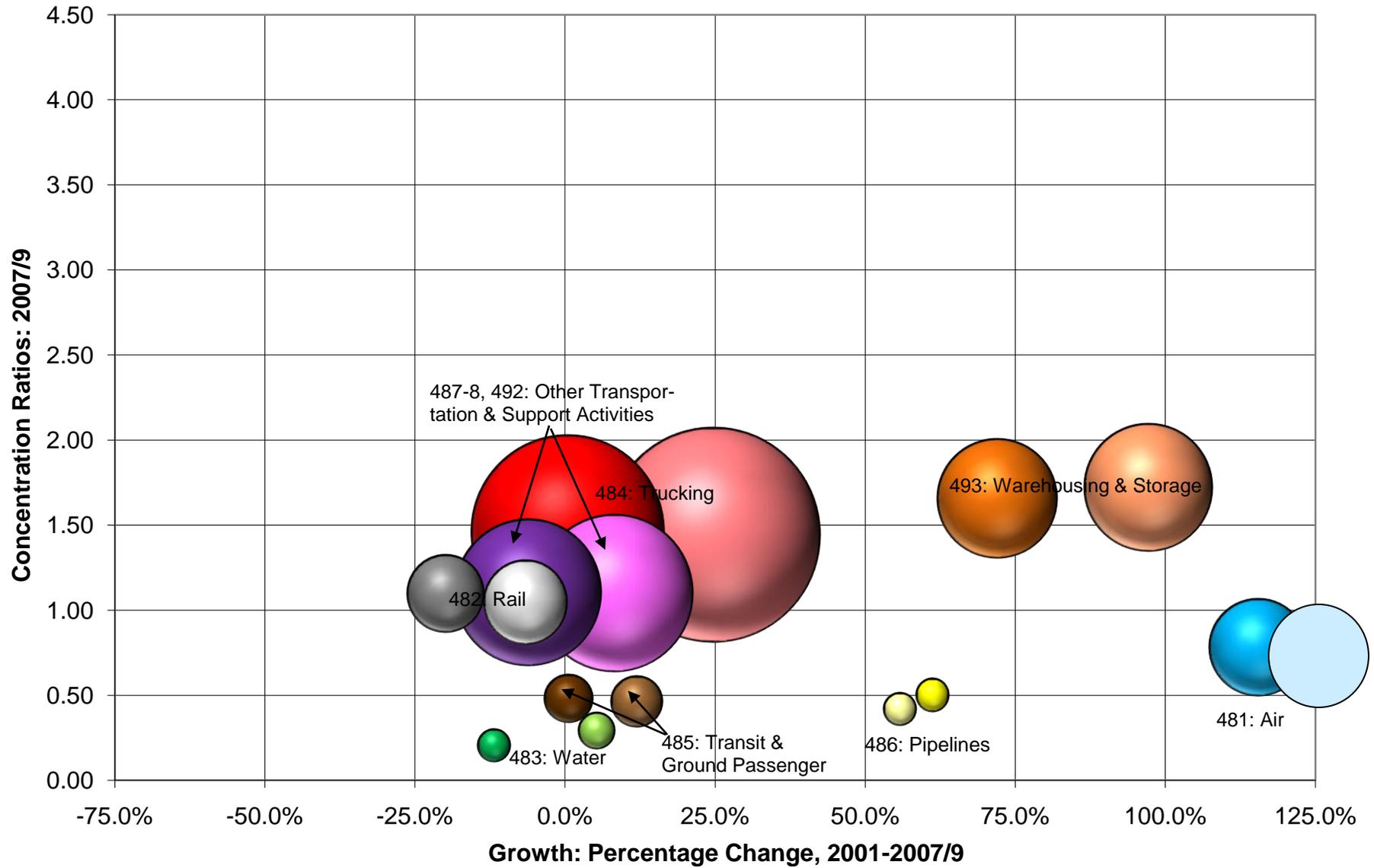
The chart above illustrates the contrasting stories of non-manufacturing goods production in Ohio. At one end, both farm production (green) and support activities for mining⁵ (gray) experienced net growth from 2001 through 2007 – and continued growing through 2009. At the other end, construction activity (red) has fallen without interruption. In between, forestry-fishing-hunting output (also green) grew out of the 2001 recession but shrank after 2007, and mining (light brown and light blue) output was lower in 2007 than in 2001 but rebounded somewhat by 2009 (dark brown and dark blue). Caution is warranted, though, when interpreting the chart. Data in appendix table A5 illustrate the year-to-year volatility of these industries (except construction), most of which may or may not move in sync with the economy as a whole. It also is evident when comparing appendix tables A5 and A9 that the year-to-year changes in these industries in Ohio typically are part of what has been happening in the nation as a whole.

The chart above also shows that none of the non-manufacturing goods-producing sectors or major industries is concentrated in Ohio. However, data from other sources indicate specific exceptions: in 2009, Ohio was the 8th-ranked source for corn and 7th-ranked source for soy beans with 4.2 and 6.6 percent, respectively, of national production (U.S. Bureau of the Census, 2010: tables 853 & 854).⁶

Initial figures for 2010 indicate continuing growth in the agricultural sector (farms and forestry-fishing-hunting combined) in Ohio and across the country. However, mining output in Ohio decreased while rising a bit for the nation. Construction activity fell again.

See Tables A2, A5, A9, A11-A14, A16

Ohio GDP: Growth, Concentration, & Size: Transportation & Warehousing (exc. Postal Service)



Source: U.S. BEA

SERVICES: TRANSPORTATION AND WAREHOUSING

Except for pipeline transportation (yellow), the chart above indicates that the recession of 2008-2009 affected all of the major transportation industries regardless of how much they grew coming out of the 2001 recession. (Data from appendix table A5 show that pipeline transportation contracted significantly between 2008 and 2009.) Trucking (red), the largest major industry, gave up all of the growth from 2001. Services provided with other-transportation-and-support activities⁷ (purple) fell to a level below that of 2001, while air transportation (blue) retreated from its off-scale high growth – although the net gain from 2001-2009 remains impressive. On the other hand, the net changes from 2001 to 2007 for the smaller industries – water (green), transit and ground passenger (brown), and to some extent rail (gray) – hide the volatility of year-to-year changes.

Year-to-year changes in transportation services in Ohio are, for the most part, reflective of what happened across the country. This is particularly true of the larger industries: truck and air transportation as well as other-transportation-and-support activities. To a lesser extent, it also is true of rail transportation, and it characterizes transit and ground passenger services more often than not. Changes in pipeline and water transportation services in Ohio and are roughly correlated with those of the nation. The real difference between Ohio and the nation is that pipeline transportation has grown here but fluctuated nationwide, while the converse is true for water transportation.

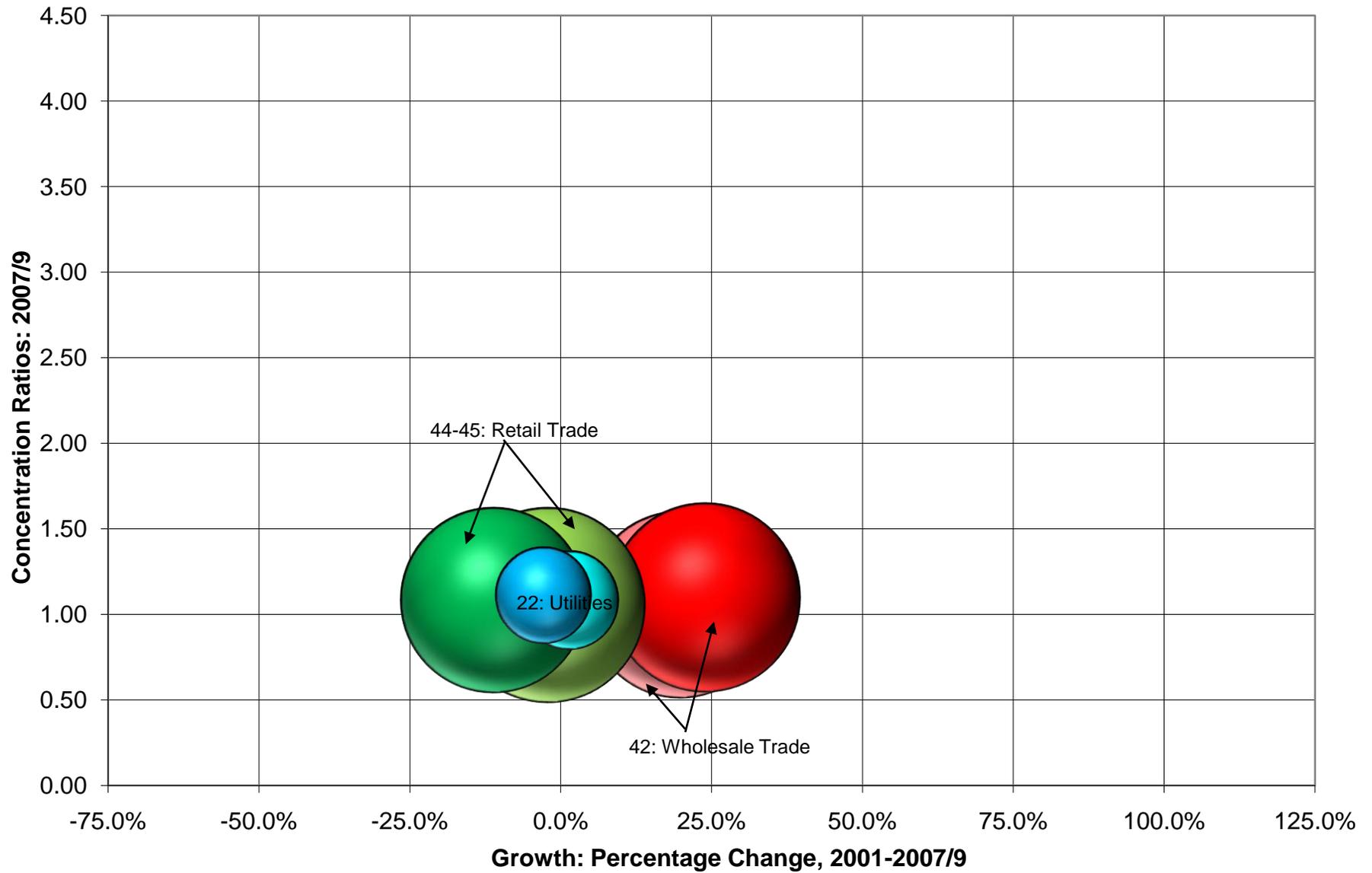
Transportation services in Ohio range from notably-concentrated to sparse. The chart above shows that trucking is concentrated here. County Business Patterns data specify general freight trucking (NAICS 4841) as the concentrated group. Rail service is roughly proportional with the nation. Other major transportation industries – air, water, transit-and-ground, and pipelines – are more or less sparse, as are the corresponding support service (classified in 487, 488 and 492). However, County Business Patterns data point to three groups that are exceptions: non-scheduled air transportation (air-charter and air-taxi services – 4812), rail transportation support (4882), and the pipeline transport of crude oil (4861) (U.S. Bureau of the Census, 2011a).

Warehousing and storage activity (orange) is concentrated in Ohio, and services nearly doubled from 2001 through 2007 before contracting by 2009. The growth of corresponding services in the nation as a whole was above average, but not as rapid as here.

Initial transportation and warehousing sector data for 2010 show stagnation in Ohio with little growth across the country.

See Tables A2, A3, A5, A7, A9, A11-A14, A16

Ohio GDP: Growth, Concentration, & Size: Utilities, Wholesale & Retail Trades



Source: U.S. BEA

SERVICES: UTILITIES, WHOLESALE AND RETAIL TRADE

The chart above shows wholesale trade activity in Ohio (red) growing from 2001-2007, and then continuing to grow from 2007 through 2009. Data in appendix table A5 show more or less constant growth from one year to the next. The same is true for the nation as a whole, except for 2008 – see appendix table A9. Moreover, the growth has been such that activity has become slightly concentrated in Ohio. County Business Patterns industry group data show interesting variations within the sector: wholesalers distributing products of manufacturing industries concentrated in Ohio also tend to have employment concentrated here – perhaps as a carry-over effect. Wholesale jobs concentrated here include those dealing in motor vehicles, parts and tires (NAICS 4231), metals and minerals (except petroleum) (4235), hardware, plumbing and heating equipment (4237), machinery and equipment (4238), and chemicals and plastics (4246). The sparse employment among electrical equipment wholesalers (4236) is an exception to this tendency (U.S. Bureau of the Census, 2011a).

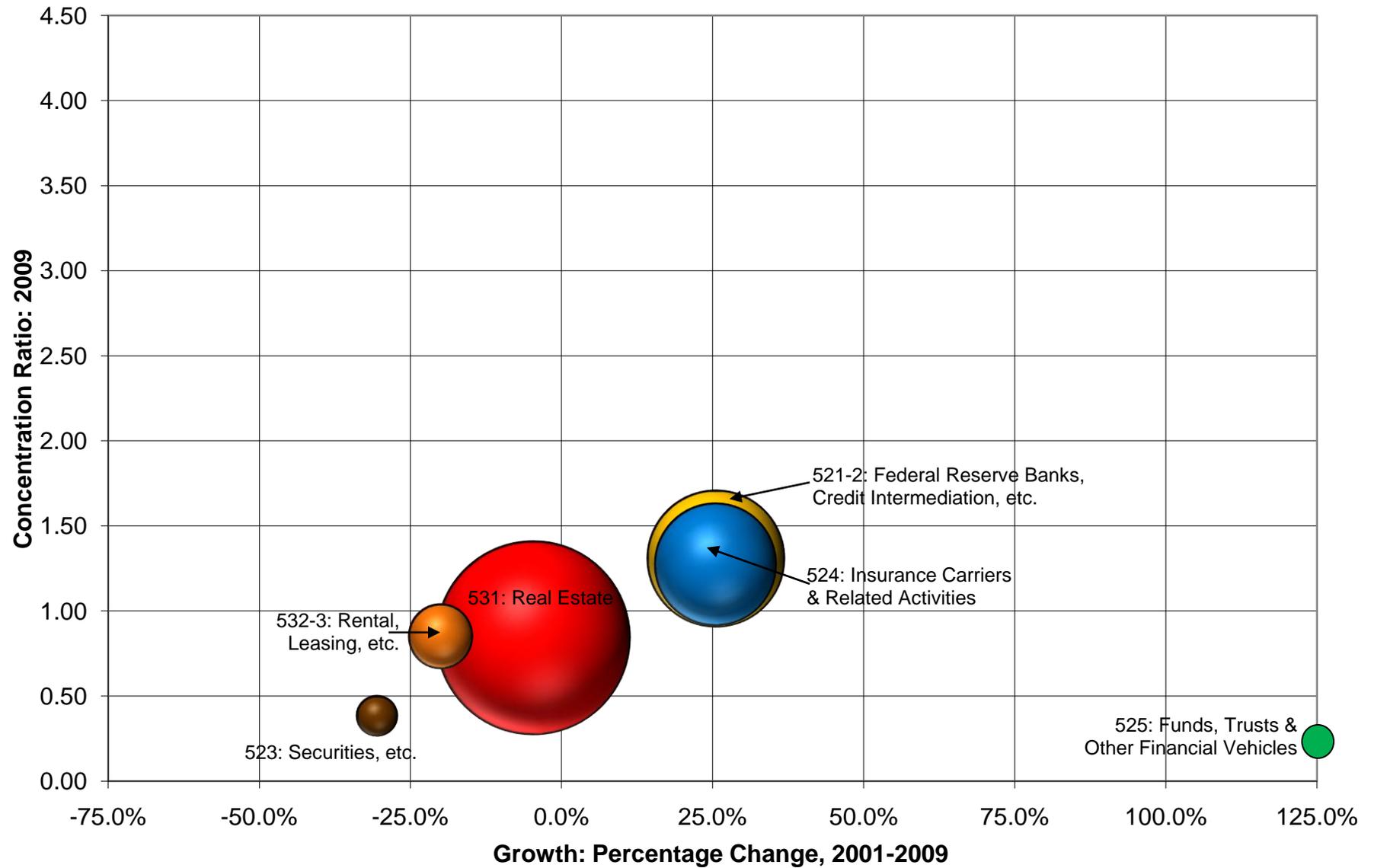
The growth of wholesale activity contrasts with the experience of retailers (green) in Ohio. While retail trade grew after the 2001 recession, it gradually declined from 2003 through 2007 before dropping thereafter. National retail growth continued through 2007; the drop thereafter is essentially proportional with that in Ohio. Overall retail activity in Ohio is close to proportional with the nation as a whole. Groups more or less concentrated here are other general merchandise stores (4529), florists (4531), used merchandise stores (4533), on-line and mail order shopping (4541), and vending machine operators (4542) (U.S. Bureau of the Census, 2011a).

Utility services (blue) appear to have declined with the recession, but year-to-year change data in appendix table A5 convey no trends consistent with general economic expansion and contraction. The same is true for the nation as a whole. The overall provision of utility services is faintly concentrated in Ohio. County Business Patterns data reveal the vast majority of sector jobs are in electric power generation, transmission, and distribution (2211), and those jobs are modestly concentrated here (U.S. Bureau of the Census, 2011a). Similarly, electricity production in Ohio during 2008 was 3.72 percent of national output (U.S. Bureau of the Census, 2010: table 943) while Ohio's portion of GDP that year was 3.30 percent. Natural gas distribution (2212) jobs in Ohio are proportional with those across the country, while water and sewage jobs (2213) are relatively sparse here (U.S. Bureau of the Census, 2011a).

Initial figures for 2010 indicate continued growth in wholesale trade and recoveries in retail trade and utility services – both in Ohio and for the nation as a whole.

See Tables A2, A5, A9, A11-A14, A16

Ohio GDP: Growth, Concentration, & Size: Finance, Insurance, Real Estate, Rental, & Leasing



Sources: U.S. BEA

SERVICES: FINANCE, INSURANCE, REAL ESTATE, RENTAL AND LEASING

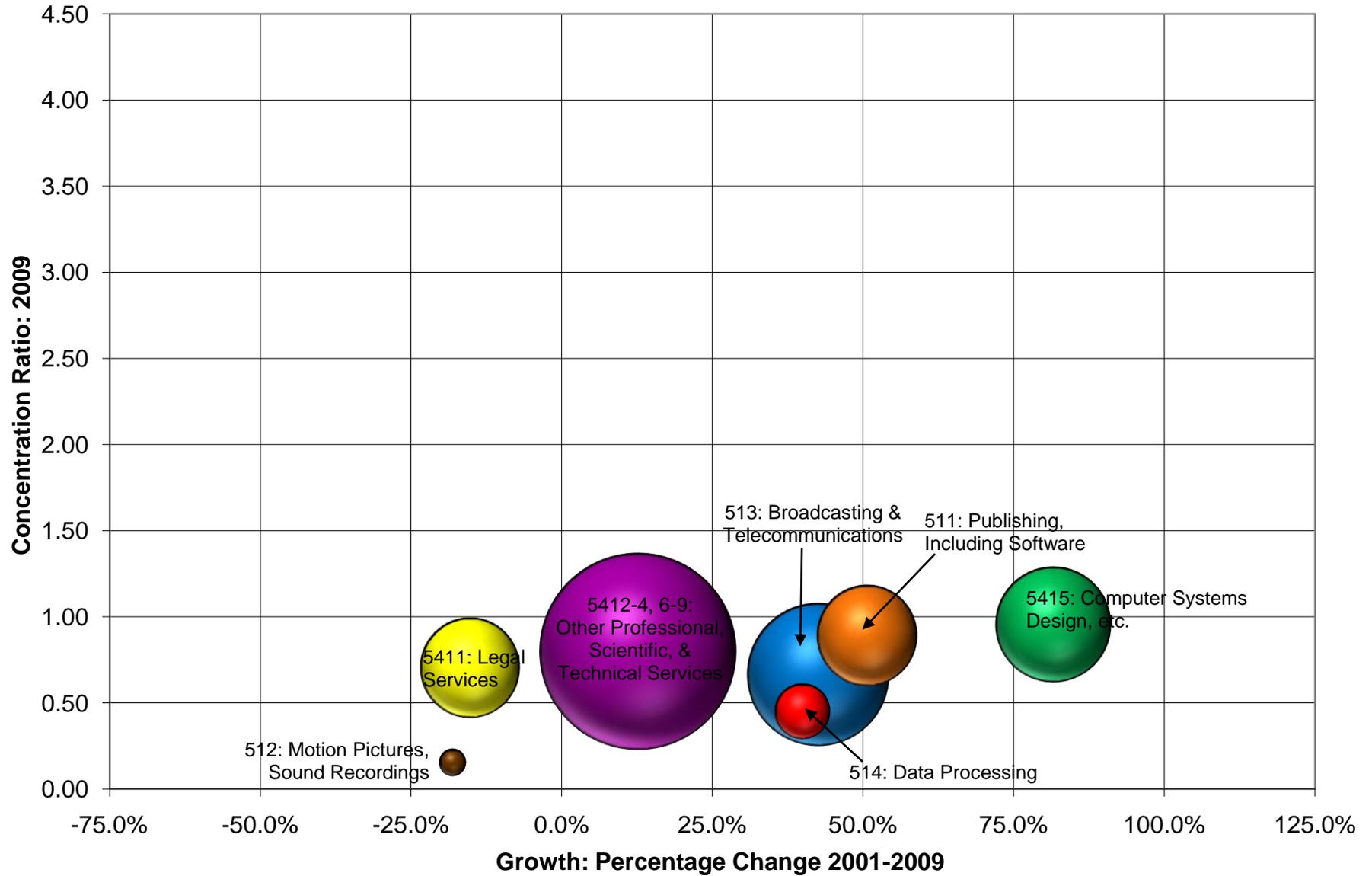
The chart above shows the net changes only for 2001-2009 because data in appendix table A5 indicate activity in Ohio was unaffected by the recession. The off-scale-high growth in funds, trusts and other financial vehicles (green) accelerated from 2003 and has continued unabated. Banking and insurance activities (yellow and blue, respectively) have trended higher at nearly identical rates, but not without interruptions. Real estate (red), although down slightly from 2001, has improved a bit since 2006. (Real estate is the single largest major industry in Ohio, but the large GDP number is much more indicative of the role of mortgages in the economy than the activity of real estate offices.⁸) Securities and rental/leasing services (brown and orange, respectively) have both have declined since 2001 with only occasional interruptions. Finance and insurance trends in Ohio have been parts of the corresponding national trends, while those in real estate, rental and leasing have diverged.

The chart also illustrates the concentration of banking and insurance activities in Ohio. County Business Patterns data point to the presence of the Federal Reserve (NAICS 5211) and insurance carriers (5241) – those businesses actually writing the policies and assuming the risks – as the ones concentrated here. Depository and non-depository financial activities (522) as well as those of insurance agencies (5242) are more or less proportional with the nation. With the exception of general rental centers (5323), real estate/rental/leasing services are not concentrated here (U.S. Bureau of the Census, 2011a).

Initial figures for 2010 indicate little change from 2009 outside of the national growth in financial and insurance.

See Tables A2, A5, A9, A11-A14, A16

Ohio GDP: Growth, Concentration, & Size: Information, Professional & Technical Services



Source: U.S. BEA

SERVICES: INFORMATION AND PROFESSIONAL-AND-TECHNICAL

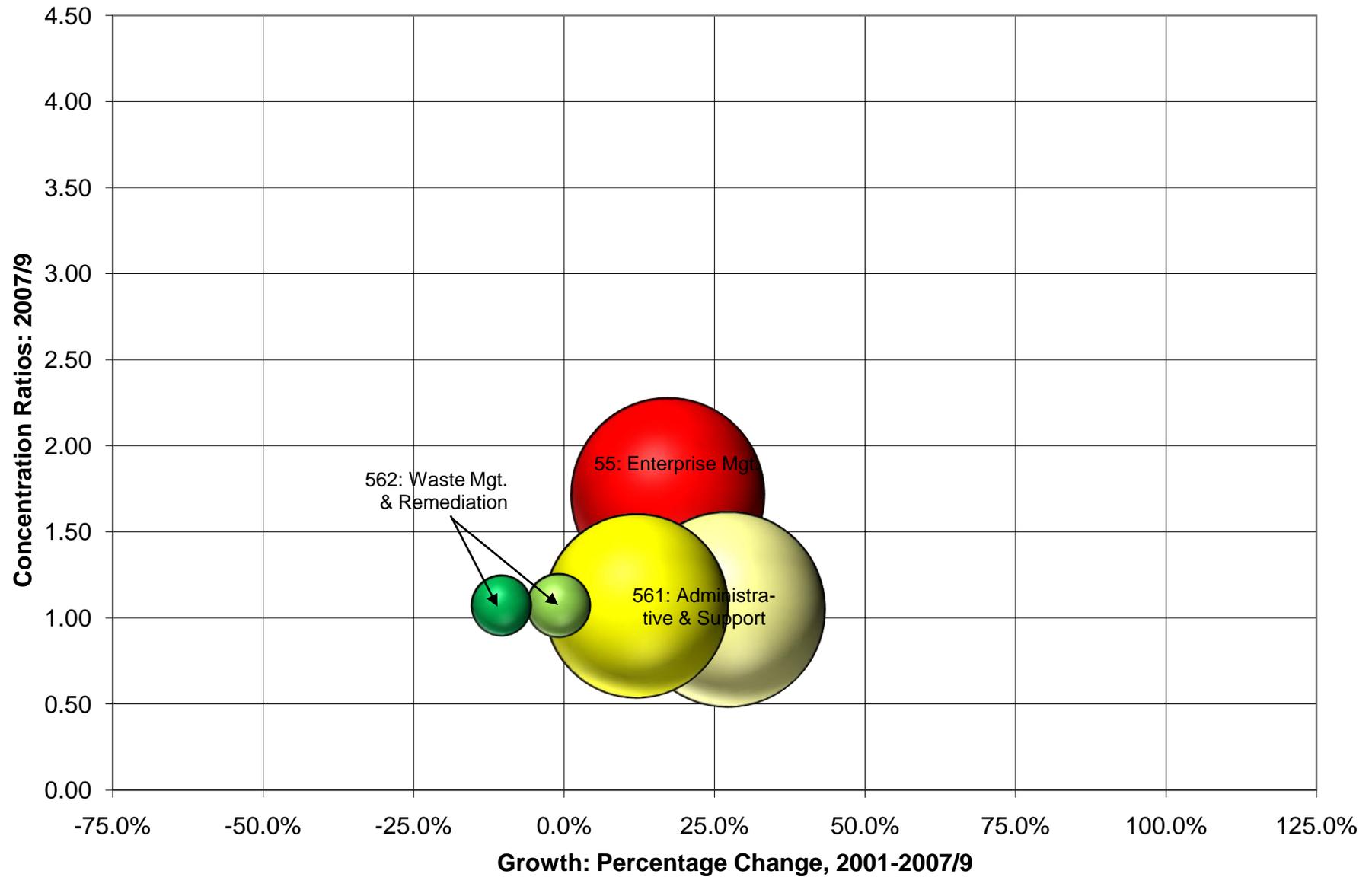
The chart above shows the net changes only for 2001-2009 because data in appendix table A5 indicate little effect by the recession. In fact, most experienced faster-than-average net growth. Services provided by computer systems design (green) and broadcasting/telecommunications (blue) grew continuously. While the net growth of publishing (including software – orange), information/data processing (red) and other professional, scientific and technical services (purple) was interrupted, none of the interruptions coincided with the recession in 2008. On the other hand, legal services (yellow) and motion picture/sound recording (brown) have declined with only the occasional uptick. Changes in professional and technical service (NAICS 54) activity in Ohio were part and parcel of what was happening in the country as a whole. The same may be said of information services (51), except for motion pictures and sound recording (512).

Most activities in the information and professional-and-technical service sectors are more or less sparse in Ohio. Four exceptions that are proportional include newspapers-periodicals-books-databases (5111), other information services (news syndicates, libraries, archives, and internet publishing-broadcasting-web search portals, etc. – 5191), specialized design services (industrial, graphic, interior, fashion, etc. – 5414), and other professional-and-technical services (marketing, photography, translations, veterinary, etc. – 5419) (Office of Management and Budget, 2007; U.S. Bureau of the Census, 2011a).⁹

Initial figures for 2010 show more robust growth in the information sector and more modest growth in professional-and-technical services – similar to the nation in both instances.

See Tables A2, A5, A9, A11-A14, A16

Ohio GDP: Growth, Concentration, & Size: Enterprise Mgt., Administrative & Support, Waste Mgt. & Remediation



Source: U.S. BEA

SERVICES: ENTERPRISE MANAGEMENT, ADMINISTRATIVE-SUPPORT, AND WASTE MANAGEMENT-REMEDICATION

The chart above illustrates the different experiences of two similar sectors. Enterprise management (red, NAICS 55) consists of holding companies and corporate offices for company, regional and subsidiary management. It has been a fairly steady growth industry concentrated in Ohio, one little affected by recessions. This concentration undoubtedly includes the relatively large number – 67 – of the Fortune U.S.-1,000 companies headquartered in Ohio, as well as the subsidiary and regional offices of those and other companies (Fortune, 2011). The initial figure for 2010 indicates growth from 2009, continuing a trend in outstripping the national industry.

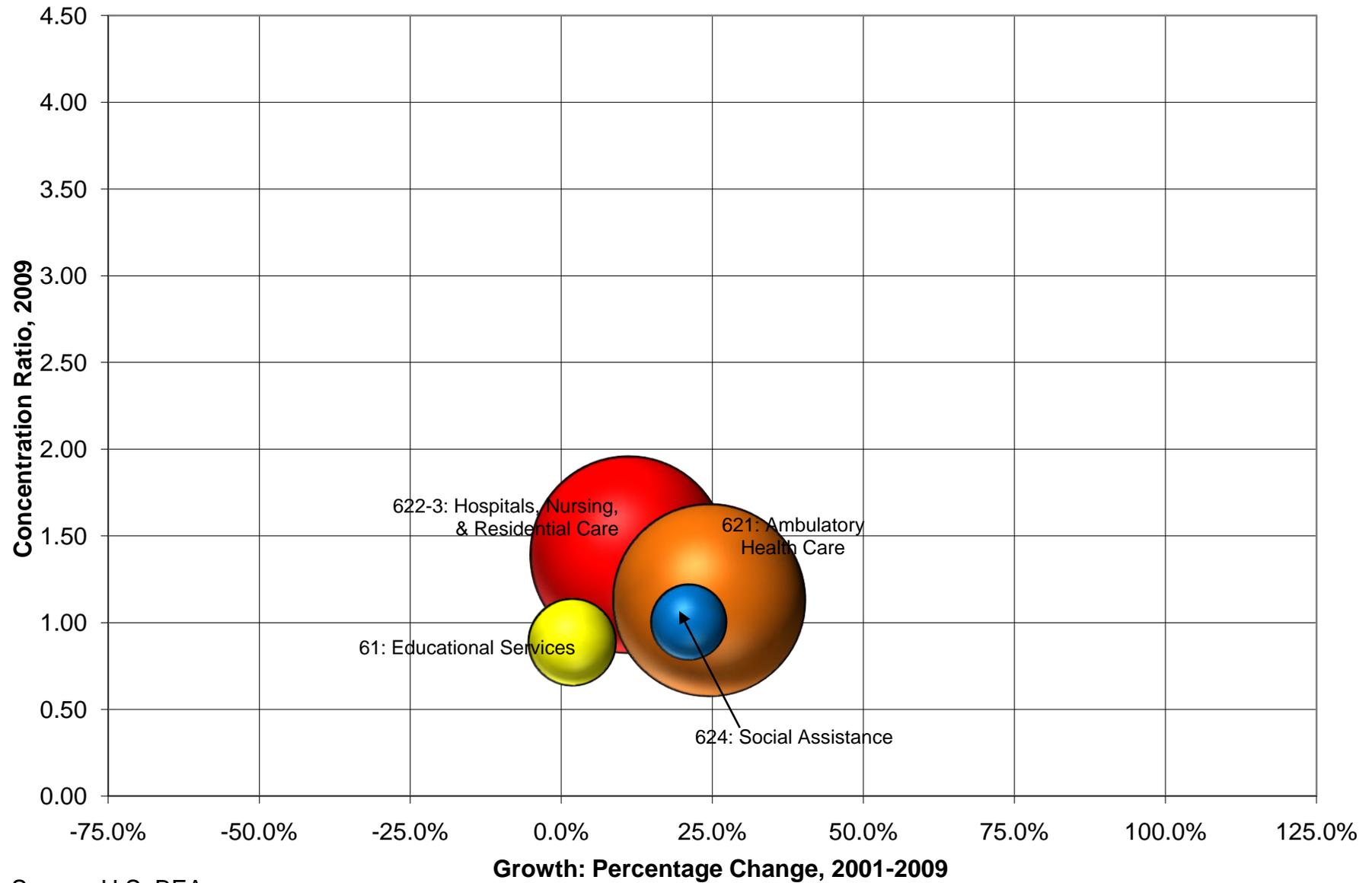
Administrative-support (yellow, 561) establishments specialize in providing out-sourced services to businesses. Activities include document preparation, mailing, bookkeeping, collections and repossessions, and the functions of call center, logistical, personnel, janitorial and clerical staff – among others. The chart above shows that administrative-support services expanded at a faster-than-average rate, but in 2009 gave up about one-half of the net growth from 2001-7. This pattern of growth and contraction is similar to what happened in the industry for most of the country. Overall, the role of this major industry in Ohio's economy is proportional with that of the nation. County Business Patterns data point to one group concentrated here: other support services (packaging-labeling, conventions-trade shows, lumber grading, inventory-taking, etc. – 5619) (U.S. Bureau of the Census, 2011a).

Waste management-remediation services (green-562) include collecting, treating, incinerating or otherwise disposing waste materials (except sewage, which is classified as a utility service). They also include recovering recyclables and operating landfills. As in the country as a whole, services peaked in mid-decade and have since contracted to a level lower below that of 2001. County Business Patterns data show a concentration in waste treatment and disposal (5622) (U.S. Bureau of the Census, 2011a). This concentration may be, in part, a consequence of manufacturing's concentration in Ohio. This is consistent with the fact that 5.8 percent of toxic chemical releases in the country during 2008 originated in Ohio (U.S. Bureau of the Census, 2010: table 379).

The initial administrative-support and waste management-remediation figure for 2010 indicates growth in the sector from 2009, both here and across the nation.

See Tables A2, A5, A9, A11-A14, A16

Ohio GDP: Growth, Concentration & Size: Health Care, Social Assistance, & Education



Source: U.S. BEA

SERVICES: HEALTH CARE, SOCIAL ASSISTANCE, AND EDUCATION

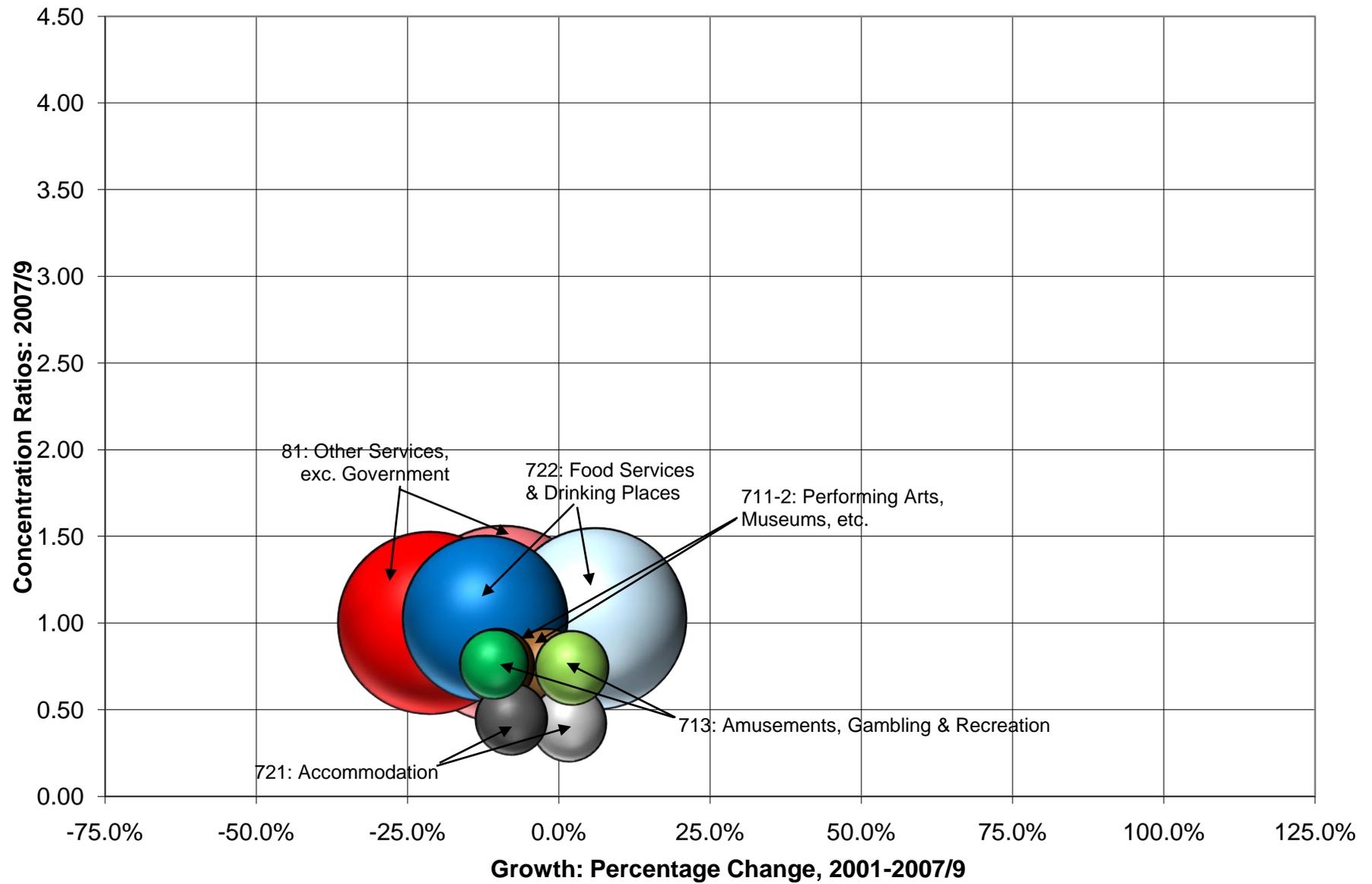
The chart above shows the net changes only for 2001-2009 because data in appendix table A5 indicate little or no effect by the recession. In fact, growth in all of the major industries except educational services has been fairly steady at a faster-than-average rate. Ambulatory health care (orange, NAICS 621) has grown faster than services provided by hospitals, nursing and residential care facilities (red, 622 and 623 combined), while growth in social assistance (blue, 624) has been intermediate. Educational services (yellow, 61) have fluctuated a bit, but shown no discernable trend. The same may be said for the country as a whole, except that educational services have grown modestly.

The overall health care and social assistance sector is somewhat concentrated in Ohio. Hospitals, nursing and residential care facilities are more concentrated than ambulatory health care; social assistance is proportional. County Business Patterns data point to general hospitals (6221) and nursing and community care facilities for the elderly (6231 and 6233) as the service groups concentrated here. Home and other ambulatory health care services (6216 and 6219) also are slightly concentrated here. A concentration in vocational rehabilitation (6243) is the exception in social assistance. Educational services are not concentrated in Ohio, and County Business Patterns data show no exceptions (U.S. Bureau of the Census, 2011a).

Initial figures for 2010 show an increase from 2009 in health care and social assistance activity in Ohio with virtually no change in educational services.

See Tables A2, A5, A9, A11-A14, A16

Ohio GDP: Growth, Concentration & Size: Various Other Private Sector Services



Source: U.S. BEA

VARIOUS OTHER PRIVATE SECTOR SERVICES

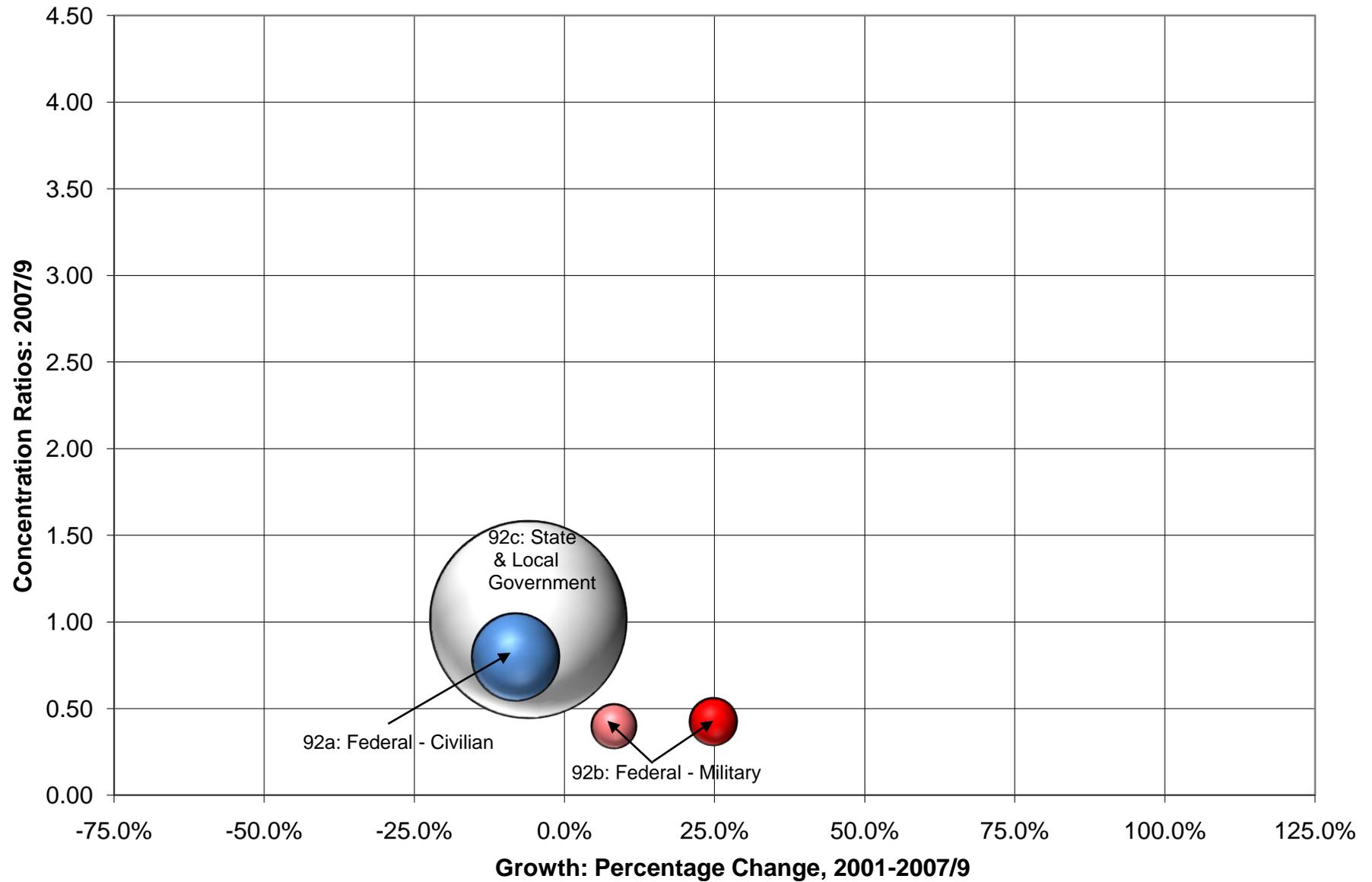
The chart above shows that all of the remaining private sector services in Ohio have felt the effects of the 2008-9 recession. Some industries – food and drinking places (blue, NAICS 722) and amusements-gambling-recreation (green, 713) – provided a greater volume of services in 2007 than in 2001, but lost whatever growth they had in the following two years. Other industries – accommodations (gray, 721) and performing arts, museums, etc. (brown, 711-2) – had fluctuated with no discernable trend before contracting in the recession. Other non-governmental services (red, 81) just continued to slide. For the country as a whole, these same services had grown from 2001 through 2007 before contracting at comparable rates thereafter.

None of these services is concentrated in Ohio. Establishments providing accommodations, amusements, gambling, recreation, or arts-related activities are relatively sparse, while those serving food and drink providing other non-governmental services are, overall, proportional with those throughout the country. County Business Patterns data point to a few exceptions where services may be somewhat concentrated: museums, historical sites and the like (7121), rooming and boarding houses (7213), limited service eating places (7222), commercial equipment repair and maintenance (8113 – motor vehicle and electrical equipment repair are classified elsewhere), personal care such as hair, nails, or dieting (8121), funeral homes and cemeteries (8122), and civic and social organizations (8134) (U.S. Bureau of the Census, 2011a).

Initial figures for 2010 indicate growth or expansion of services from the levels of 2009 in all three sectors here and for the nation as a whole: arts-entertainment-recreation (71), accommodation and food services (72), and other non-governmental services (81).

See Tables A2, A5, A9, A11-A14, A16

Ohio GDP: Growth, Concentration & Size: Government by Type



Source: U.S. BEA

FEDERAL, STATE, AND LOCAL GOVERNMENT

Taken together, the services provided by federal, state and local government agencies verge on the sparse side in Ohio. However, the graph above illustrates the differences between the three parts of the sector. The vast majority of services provided by government agencies here are accomplished by state and local agencies (white). A concentration ratio close to 1.00 means that services provided by the state and local governments here collectively are in the middle of the range of those provided in other states. After adjusting for inflation, data in appendix table A5 show state and local government services have been slightly reduced since 2002. The effect of the 2008-9 recession is not readily apparent.

By contrast, the civilian (blue) part of the federal government – including the Postal Service (Downey and Aman, 2006) – plays a relatively small role in the state’s economy. The inflation-adjusted data in appendix table A5 show a gradual but steady reduction in services at a rate comparable with state and local government – and unaffected by the recession.

The military’s role (red) is even smaller, despite the presence of facilities such as the Defense Supply Center (Columbus), Wright-Patterson Air Force Base (Dayton), and two Defense Finance and Accounting Service centers (Cleveland and Columbus). Data from other sources are consistent with GDP figures; in 2008, 1.98 percent of the value of Defense Department contracts went to firms in Ohio, 2.21 percent of the Defense Department’s payroll went to Ohio (certain benefits are excluded), and in 2009 civilian and military personnel numbered 33,262 – 1.85 percent of total Defense employment (U.S. Bureau of the Census, 2010: tables 504 and 506). Although it fluctuated earlier in the decade, the role trend has been toward expansion, especially in the last two years.

The initial figures for 2010 indicate continued reduction of government services in Ohio but continued expansion for the nation as a whole.

See Tables A2, A5, A9, A11-A14, A16

Gross Domestic Products for Metropolitan Areas in Ohio, 2001-2009
(in millions chained dollars - except percentages - and standardized on 2005)

Areas	2001	2002	2003	2004	2005	2006	2007	Change: '01-'07	
								Amount	Percent
U.S.	\$11,364,200	\$11,560,300	\$11,807,800	\$12,212,600	\$12,554,500	\$12,895,900	\$13,143,700	\$1,779,500	15.7%
Ohio	\$420,384	\$429,748	\$433,973	\$442,320	\$444,715	\$440,704	\$442,603	\$22,219	5.3%
Akron, OH	\$23,056	\$23,888	\$24,313	\$24,997	\$25,432	\$25,327	\$25,587	\$2,531	11.0%
Canton-Massillon, OH	\$12,306	\$12,433	\$12,411	\$12,447	\$12,587	\$12,099	\$12,062	-\$244	-2.0%
Cincinnati-Middletown, OH-KY-IN	\$85,871	\$87,483	\$88,702	\$90,011	\$91,232	\$90,365	\$91,723	\$5,852	6.8%
Cleveland-Elyria-Mentor, OH	\$94,034	\$94,966	\$96,612	\$98,765	\$98,472	\$97,102	\$97,738	\$3,704	3.9%
Columbus, OH	\$78,052	\$80,261	\$80,656	\$82,256	\$83,374	\$83,438	\$84,964	\$6,912	8.9%
Dayton, OH	\$31,074	\$31,660	\$31,730	\$32,174	\$32,401	\$32,328	\$32,017	\$943	3.0%
Huntington-Ashland, WV-KY-OH	\$7,880	\$8,161	\$8,210	\$8,468	\$8,460	\$8,471	\$8,517	\$637	8.1%
Lima, OH	\$4,014	\$4,094	\$4,077	\$4,169	\$4,246	\$4,192	\$4,105	\$91	2.3%
Mansfield, OH	\$3,575	\$3,752	\$3,780	\$3,917	\$3,946	\$3,906	\$3,752	\$177	5.0%
Parkersburg-Marietta-Vienna, WV-OH	\$4,876	\$4,952	\$4,852	\$4,917	\$4,813	\$4,975	\$5,004	\$128	2.6%
Sandusky, OH	\$2,872	\$2,919	\$3,002	\$3,069	\$3,057	\$3,009	\$2,824	-\$48	-1.7%
Springfield, OH	\$3,612	\$3,522	\$3,372	\$3,422	\$3,403	\$3,464	\$3,399	-\$213	-5.9%
Steubenville-Weirton, OH-WV	\$3,354	\$3,622	\$3,482	\$3,423	\$3,433	\$3,117	\$3,178	-\$176	-5.2%
Toledo, OH	\$24,363	\$25,071	\$25,453	\$25,589	\$25,539	\$25,249	\$25,054	\$691	2.8%
Wheeling, WV-OH	\$4,066	\$4,159	\$4,268	\$4,346	\$4,335	\$4,315	\$4,309	\$243	6.0%
Youngstown-Warren-Boardman, OH-PA	\$16,380	\$16,841	\$16,776	\$16,863	\$16,961	\$16,641	\$16,285	-\$95	-0.6%

Areas	2007	2008	2009	Change: '07-'09		Net Change: '01-'09	
				Amount	Percent	Amount	Percent
U.S.	\$13,143,700	\$13,100,000	\$12,773,900	-\$369,800	-2.8%	\$1,409,700	12.4%
Ohio	\$442,603	\$435,704	\$417,303	-\$25,300	-5.7%	-\$3,081	-0.7%
Akron, OH	\$25,587	\$25,428	\$24,249	-\$1,338	-5.2%	\$1,193	5.2%
Canton-Massillon, OH	\$12,062	\$12,025	\$11,373	-\$689	-5.7%	-\$933	-7.6%
Cincinnati-Middletown, OH-KY-IN	\$91,723	\$91,226	\$88,677	-\$3,046	-3.3%	\$2,806	3.3%
Cleveland-Elyria-Mentor, OH	\$97,738	\$96,731	\$92,868	-\$4,870	-5.0%	-\$1,166	-1.2%
Columbus, OH	\$84,964	\$83,807	\$82,818	-\$2,146	-2.5%	\$4,766	6.1%
Dayton, OH	\$32,017	\$31,354	\$29,836	-\$2,181	-6.8%	-\$1,238	-4.0%
Huntington-Ashland, WV-KY-OH	\$8,517	\$8,878	\$9,416	\$899	10.6%	\$1,536	19.5%
Lima, OH	\$4,105	\$3,783	\$3,670	-\$435	-10.6%	-\$344	-8.6%
Mansfield, OH	\$3,752	\$3,721	\$3,398	-\$354	-9.4%	-\$177	-5.0%
Parkersburg-Marietta-Vienna, WV-OH	\$5,004	\$5,015	\$4,939	-\$65	-1.3%	\$63	1.3%
Sandusky, OH	\$2,824	\$2,709	\$2,554	-\$270	-9.6%	-\$318	-11.1%
Springfield, OH	\$3,399	\$3,372	\$3,259	-\$140	-4.1%	-\$353	-9.8%
Steubenville-Weirton, OH-WV	\$3,178	\$3,378	\$3,232	\$54	1.7%	-\$122	-3.6%
Toledo, OH	\$25,054	\$24,346	\$22,939	-\$2,115	-8.4%	-\$1,424	-5.8%
Wheeling, WV-OH	\$4,309	\$4,442	\$4,453	\$144	3.3%	\$387	9.5%
Youngstown-Warren-Boardman, OH-PA	\$16,285	\$15,583	\$14,660	-\$1,625	-10.0%	-\$1,720	-10.5%

Source: U.S. BEA (2011).

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GROWTH AND THE RECESSION IN METROPOLITAN AREAS

The table above displays changes in economic output from metropolitan areas wholly or partially in Ohio. The figures have been standardized on 2005, thereby removing the effects of inflation. Figures for Ohio and the nation are included for comparison.

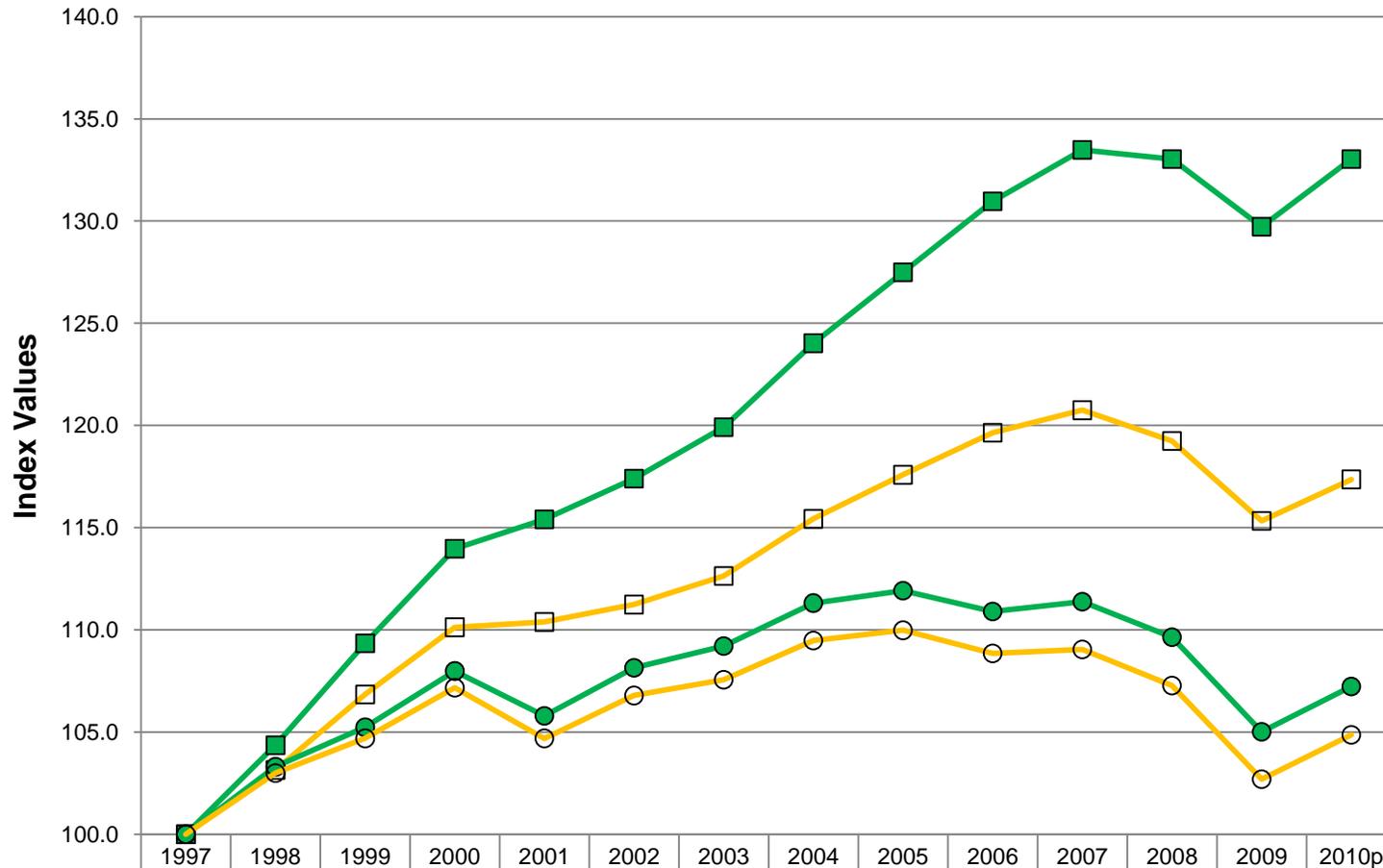
Real net growth from 2001 to 2007 is evident in 11 of the 16 metropolitan areas: Akron, Cincinnati, Cleveland, Columbus, Dayton, Huntington, Lima, Mansfield, Parkersburg, Toledo and Wheeling. However, these numbers may be less impressive than they seem for two reasons. First, Huntington, Parkersburg and Wheeling are more out-of-state than in-state. Second, some of the metropolitan areas peaked earlier; their output was less by 2007, but still greater than 2001.

The greatest growth in absolute terms occurred in two of the three largest metropolitan areas: Columbus with \$6.9 billion and Cincinnati (including the portions in Kentucky and Indiana) with \$5.85 billion. Despite the portions in Kentucky and Indiana, it is probably safe to say that the combined growth of these two accounts for about one-half the economic growth in Ohio from 2001 through 2007. Adding the net growth of Akron and Cleveland-Elyria-Mentor – almost \$8.4 billion – brings the portion to about 85 percent.

The role of Cincinnati, Cleveland and Columbus in Ohio's economy also accounts for a significant degree for the state's overall growth rate. Their range of rates – from 3.9 to 8.9 percent – encompasses the state's overall rate of 5.3 percent. However, the fastest growth rate appeared in Akron – 11.0 percent. It should be noted, though, that none of the metropolitan areas in Ohio even approached the growth rate of the national economy: 15.7 percent.

The impact of the recession also is evident. The table above shows that the American economy contracted 2.8 percent from 2007 through 2009, and output originating in Ohio fell 5.7 percent. The fact that output fell in 13 of the 16 metropolitan areas indicates that the impact of the recession was widespread. (The situation was even worse than those statistics indicate. Of the three areas that had net growth in 2007-9, two – Huntington and Wheeling – were substantially outside of the state, and the third – Steubenville – grew a mere 1.7 percent.) Many of the areas hit the hardest are areas in which manufacturing is a more significant part of the economy. These include Canton, Lima, Mansfield, Sandusky, Toledo and Youngstown.

Inflation-Adjusted Changes in Total and per Capita GDP, 1997-2010 Ohio and the U.S. 1997=100



■ Absolute U.S. GDP	100.0	104.4	109.3	114.0	115.4	117.4	119.9	124.0	127.5	131.0	133.5	133.0	129.7	133.0
□ Per Capita U.S. GDP	100.0	103.1	106.8	110.1	110.4	111.2	112.6	115.4	117.6	119.6	120.7	119.2	115.3	117.4
● Absolute Ohio GDP	100.0	103.3	105.2	108.0	105.8	108.1	109.2	111.3	111.9	110.9	111.4	109.6	105.0	107.2
○ Per Capita Ohio GDP	100.0	103.0	104.7	107.2	104.7	106.8	107.6	109.5	110.0	108.8	109.0	107.3	102.7	104.9

Sources: U.S. BEA, Census Bureau

Note: P - preliminary

PAST CHANGES AND FORECASTS FOR THE FUTURE: FOUR PARTS

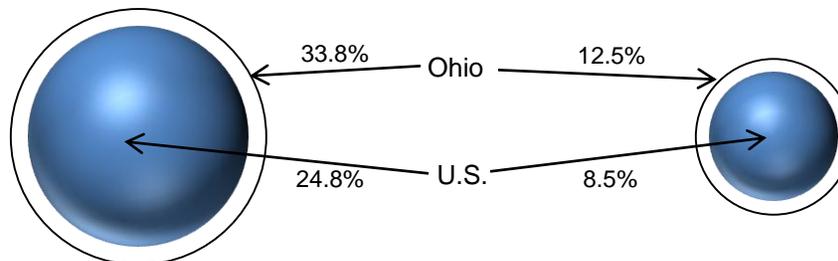
The chart above shows that, after adjusting for inflation, Ohio's economy grew 11.4 percent from 1997 through 2007. The corresponding growth of the U.S. economy was 33.5 percent. The chart also shows that the recession of 2008-9 hit Ohio relatively harder than the nation as a whole. Output of goods and services here fell by 5.7 percent as the index value dropped from 111.4 to 105.0, while national output fell 2.8 percent from 133.5 to 129.7.¹⁰ Initial figures for 2010 suggest that the national recovery is slightly ahead of Ohio with an expansion rate of 2.5 vs. 2.1 percent. Still output from Ohio remains below the levels of 2005 and 2007, while national output appears to be nearly back to the level of 2007.¹¹

Yet these numbers do not tell the whole story. A number of factors may be associated with the greater growth of the U.S. economy compared with Ohio's. One is population growth. The Census Bureau estimates that the U.S. population grew 10.5 percent from 1997 through 2007, far larger than Ohio's increase of 2.1 percent (U.S. Bureau of the Census, 2011b). The chart on page 50 illustrates the change of perspective after population growth has been factored-in. Per capita GDP from Ohio rose a net 9.0 percent from 1997 through 2007, modestly less than the 11.4 percent for the state's total output. By comparison, per capita GDP for the nation rose 20.7 percent during the same time. This is still notably greater than Ohio, but substantially less than the 33.5 percent increase in total output. The incorporation of population growth also means the impact of the recession has been deeper than indicated by absolute figures alone. Per capita GDP from Ohio fell 5.8 percent – faintly more than the 5.7 percent for its output. Similarly, per capita GDP for the nation declined almost 4.5 percent, substantially more than the 2.8 percent characterizing total output. Furthermore, the growing population means that, even with economic expansion in 2010, per capita GDP remains well below that level of 2007 here and for the nation as a whole.

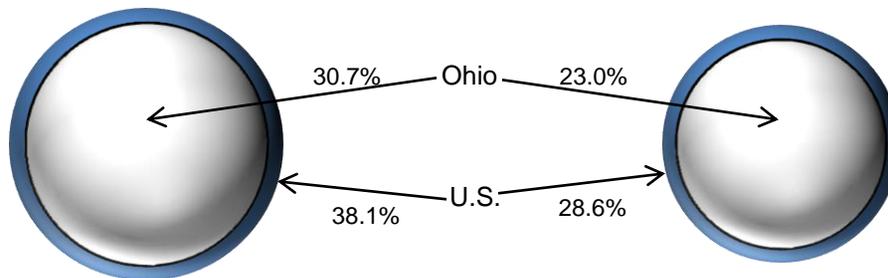
See Table A17

Comparing Relative Portions of Ohio's Economy with the U.S. by Concentration (1997) and Growth (1997-2007)

Industries More or Less Concentrated in Ohio



Industries More or Less Sparse in Ohio



Slower Growth or Contracting Industries:
Ohio - 64.5%
U.S. - 62.9%

More or Less Rapidly Growing Industries:
Ohio - 35.5%
U.S. - 37.1%

Source: U.S. BEA

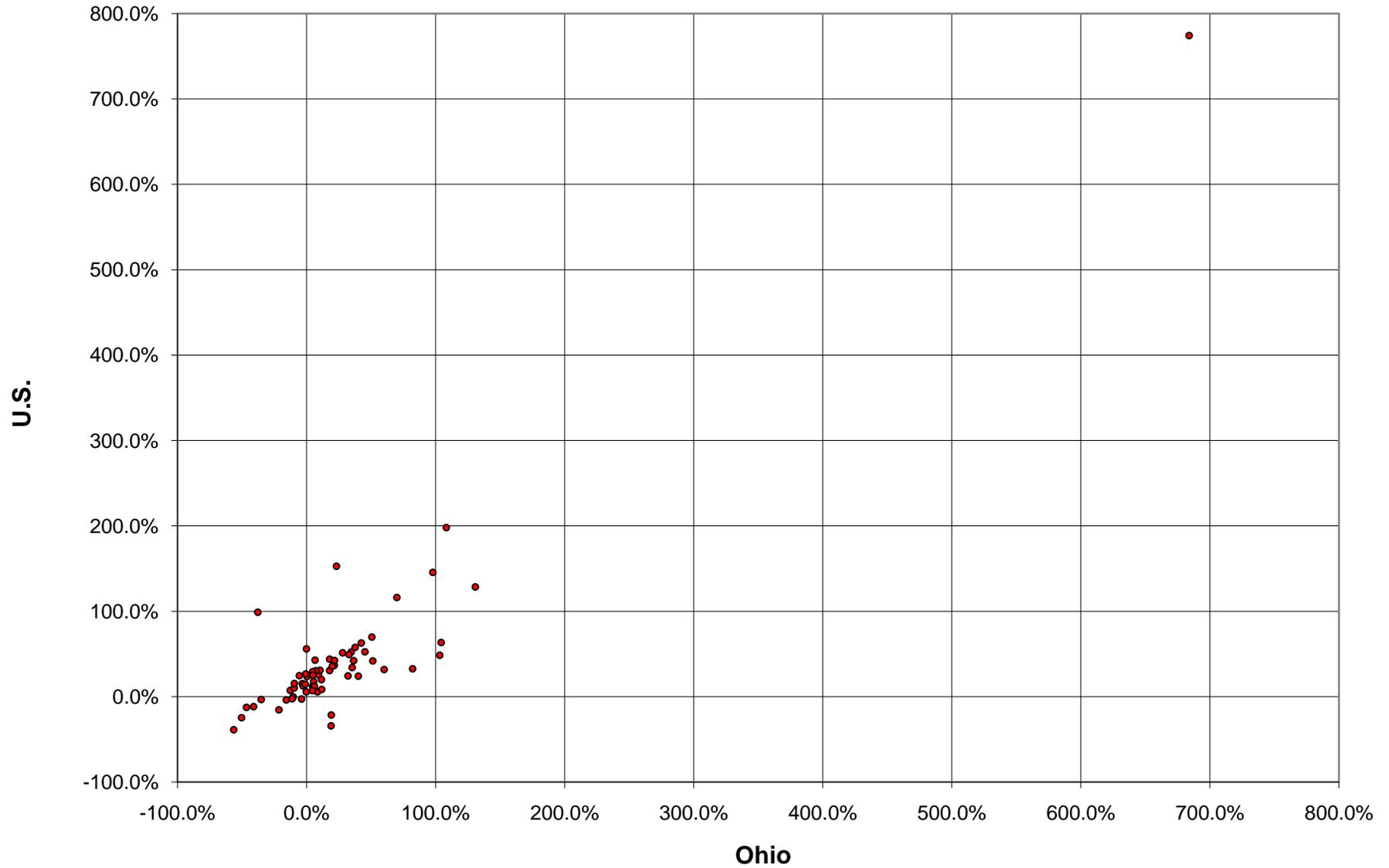
A second factor associated with the different economic growth rates of Ohio and the U.S. may be differences in the composition of their economies. Appendix table A18 shows that various industries grew at rates faster or slower than the national average of 33.5 percent for the 1997-2007 decade; some industries even contracted during that time. It also shows the industries more or less concentrated in Ohio as well as those that are relatively sparse. The industries can be grouped by those characteristics, and the portion of the economy may be calculated for each of the four groups – those with a faster-than-average national growth rate and concentrated-in-Ohio, slower-growing yet concentrated, faster-growing but sparse in Ohio, and slower-growing and sparse.

The chart above illustrates the relative portions of the four groups for America's and Ohio's economies in 1997 as represented by the blue and white areas, respectively. Overall, 35.5 percent of Ohio's economic output in 1997 was in industries characterized by faster-than-average national growth rates for the then-coming 10 years. (See the white areas on the right side; $12.5 + 23.0 = 35.5$.) This compares with 37.1 percent for the U.S. economy. (See the blue areas on the right side; $8.5 + 28.6 = 37.1$.) Conversely, 64.5 percent of Ohio's economic output in 1997 was in industries that would be characterized by slower-than-average national growth rates, compared with 62.9 percent of the U.S. economy. (These are the sums of the white and blue areas on the left side.)

Specific comparisons are even more telling. In 1997, 12.5 percent of Ohio's output was from rapid-growth industries concentrated here compared with only 8.5 percent of U.S. output, a difference of four percent favoring more rapid growth in Ohio. However, this was more than offset by the relative scarcity of *other* rapid-growth industries in Ohio: 23.0 vs. 28.6 percent, a deficit of 5.6 for the state. Furthermore, 33.8 percent Ohio's output that year came from slow-growth or contracting industries concentrated here vs. only 24.8 percent of total U.S. output, a 9.0 percent difference more than offsetting the state's advantage in *other* such industries *not* concentrated here (30.7 vs. 38.1, or 7.4 percent). All of these contrasts point to the conclusion that Ohio had a mix of industries in 1997 that predisposed it toward slower economic growth through 2007 independent of different population growth rates.

See Table A18

The Association of Percentage Changes in GDP (1997-2007) for Ohio and the U.S.



Source: U.S. BEA

On the other hand, the disjuncture between Ohio’s experience and that of the nation should not be over-emphasized. The chart above illustrates the close association between changes in industry output in Ohio with corresponding changes at the national level for 1997-2007.¹² This means that changes in one generally were fairly reliable indicators of changes in the other. Faster-growing industries in one were – much more often than not – faster-growing industries in the other; the same may be said for slower-growing or contracting industries. Consequently, the close ties of Ohio’s economy with the nation’s mean that forecasts for industries and the economy as a whole may give indications of what to expect here.¹³

Woods (2009), a U.S. Dept. of Labor economist, forecasts total U.S. economic output growing at an average annual rate of 2.8 percent through 2018. (See the table on the following page.) As has been true in the past, some sectors may be expected to grow at faster rates than others. The faster ones are expected to be wholesale and retail trade, information, finance and insurance, professional-scientific-technical services, managing companies and enterprises, administrative-support/waste management-remediation, and health care and social assistance. The concentration or scarcity of these sectors in Ohio has implications for the state’s future. Enterprise management, health care and social assistance, and finance and insurance are concentrated in Ohio, but enterprise management – the most concentrated – is a small sector. Furthermore, wholesale and retail trade are only faintly concentrated here, while information, professional-scientific-technical services and administrative-support/waste management-remediation are relatively sparse. Finally, manufacturing, a slower growth sector, is concentrated here. The faster growth rate anticipated for durable goods is due in large part to computers and electronic products – a relatively sparse industry here.

Similarly, Moody’s (2011) expects long-term output growth in Ohio to lag the nation even as it shifts from manufacturing and toward services. Slower population growth plays a role in this forecast. In addition, energy-intensive manufacturing industries concentrated here – food, non-metallic minerals, paper, primary metals, and petroleum, coal, plastic, and rubber products – face the challenges of high costs and international competition. The Cincinnati and Columbus metropolitan areas may lead Ohio’s growth with their more educated labor forces and favorable mixes of industries.

However, Moody’s (2011) predicts that Ohio’s economy will grow by almost 2.9 percent in 2011, outpacing the nation as a whole at this writing. Growth could accelerate to nearly 4.2 percent in 2012, with progressively slower rates of increase thereafter: 3.9 in 2013, 2.8 in 2014, and 1.9 in 2015. The growing healthcare, professional-scientific-technical services and (cyclical) manufacturing sectors lead the recovery at the moment, with the expansion of the last due to improving demand and a favorable export environment. (Honda’s supply problems after the tsunami have had little impact on the economy.) The housing downturn, with its implications for the real estate and construction sectors, has been less severe in Ohio than the nation, and low interest rates, better credit conditions, an improving labor market and favorable price-to-income ratios may set the stage for recovery in the next two years.

See Table A19

Table: Average Annual Growth Rates* Forecast for 2008-2018

Sector	Woods		ODJFS-LMI Jobs in Ohio	Differences in Job Growth Rates (U.S. Minus Ohio)
	U.S. GDP	Jobs in U.S.		
Total^	2.8%	1.0%	0.4%	0.5%
Goods-producing industries	2.1%	0.0%	-0.9%	0.9%
Agriculture, etc. -----	0.9%	-0.4%	-0.4%	0.0%
Mining	-0.2%	-1.6%	-0.4%	-1.1%
Construction -----	2.8%	1.7%	1.1%	0.6%
Manufacturing	2.1%	-0.9%	-1.6%	0.7%
Durable Goods-----	3.1%	-0.7%	-1.7%	0.9%
Non-durable goods	1.7%	-1.3%	-1.5%	0.2%
Service-providing industries	3.3%	1.2%	0.7%	0.4%
Utilities-----	0.9%	-1.1%	-1.1%	0.0%
Wholesale trade	5.1%	0.4%	0.2%	0.2%
Retail trade -----	4.1%	0.4%	-0.1%	0.5%
Transportation & warehousing	2.9%	0.9%	0.9%	0.0%
Information -----	5.2%	0.4%	-0.7%	1.1%
Finance & insurance	4.0%	0.5%	0.4%	0.2%
Real estate-rental-leasing-----	2.5%	1.0%	0.6%	0.5%
Professional, scientific & technical services	3.1%	2.9%	2.0%	0.9%
Management of companies & enterprises -----	4.2%	0.5%	0.7%	-0.1%
Administrative-support, etc.	3.4%	1.6%	1.2%	0.5%
Education-----	1.6%	2.4%	1.3%	1.1%
Health care & social assistance	3.6%	2.3%	1.9%	0.3%
Arts-entertainment-recreation-----	1.9%	1.4%	0.3%	1.1%
Accommodation & food services	1.6%	0.7%	0.4%	0.3%
Other private sector services -----	1.5%	1.2%	0.9%	0.3%
Federal government	1.3%	0.3%	-0.3%	0.7%
State & local government	1.4%	0.8%	0.1%	0.7%

Notes: * - Percentages have been rounded to the nearest tenth;

^ - The self-employed, private household and unpaid family workers are included here.

Sources: Drawn from Woods (2009) and the Ohio Dept. of Job and Family Services-Labor Market Information (2011).

Real economic growth is associated with employment growth; the table on the preceding page shows longer-term overall economic growth averaging 2.8 percent per year with the corresponding employment growth averaging 1.0 percent. However, there are exceptions. Woods (2009) predicts greater volumes of manufactured and agricultural-forestry-fishing-hunting goods will be produced in America in the future, and utilities will provide more energy to their clients, but the number of jobs in these sectors is expected to decrease. (In either case, though, real economic growth above and beyond employment growth is indicative of increased productivity.)

Similar to Woods (2009), the Ohio Dept. of Job and Family Services' Labor Market Information (ODJFS-LMI) division published its forecast for overall and sector employment changes in Ohio for the 2008-2018 period. It expects an overall rate of job growth less than Woods does for the nation: 0.4 vs. 1.0 percent. (This is consistent with Moody's (2011) prediction that Ohio's economic growth will lag the nation over the long term.) Like Woods, ODJFS-LMI predicts net job losses in all of the goods-producing sectors except construction, as well as losses in utilities. Unlike Woods, it expects jobs losses in the retail and information sectors, as well as reduced federal employment in Ohio. ODJFS-LMI actually predicts a faster growth rate for employment in enterprise management, but slower growth rates in every other sector in which it expects job gains.