

January 2025

2025-01

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Todd M. Schmit*

Abstract

In 2023, agricultural industries, including agricultural production, support services, and manufacturing, directly contributed \$58.2 billion in total industry output, 166.8 thousand jobs, and \$17.3 billion in gross domestic product to the New York State economy. When backward-linked supply chain business-to-business transactions (indirect effects) and household spending out of labor income (induced effects) are considered, these values grow to \$88.7 billion, 290.3 thousand, and \$36.6 billion, respectively. This implies relatively strong multiplier effects in agriculture for the state, whereby every \$1 of output in agriculture supports an additional \$0.52 in backward linked non-agricultural industries, every job in agriculture supports an additional 0.74 non-agricultural jobs, and every \$1 in gross domestic product supports an additional \$1.11 in non-agricultural contributions to gross domestic product.

* Professor, Charles H. Dyson School of Applied Economics and Management, Cornell University. This publication presents an update to a similar analysis published in 2021 (Schmit 2021) with more recently available data. Any opinions, findings, conclusions, or recommendations expressed in this publication are the author's and do not necessarily reflect the views of Cornell University. All errors remain our sole responsibility.

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Introduction

Policymakers, industry leaders, planners and economic development professionals in New York State (NYS) are often confronted with a set of fundamental questions about agriculture-based economic development and its potential to support and/or enhance the economic vitality of communities across the state. Some of these questions are:

1. How can efforts to grow food and farming industries play into mainstream economic development efforts?
2. Are there unexploited opportunities to boost performance in agriculture and food sectors?
3. What types of programs or policies would support increases in backward-linked business-to-business transactions (i.e., multiplier effects) for agricultural industries?
4. What benefits might come to local economies from more emphasis on local farm and food systems (i.e., import substitution) and/or more aggressive efforts to target offshore markets (i.e., exports)?
5. How can educators, community leaders, and public agencies intervene with farm and agribusiness firms in ways that lead to cumulative improvements in the economic and social climate for communities as well as farm and food production?

Answers to these types of questions are elusive. To remain successful, agricultural producers and associated agribusiness firms need to effectively and continuously adapt to changing economic conditions, consumer preferences, and technological advancements. To that end, firms are seeking innovative methods to attract new and growing markets for their commodities and products, vertically integrate their operations in both upstream and downstream markets, invest in new consumer-driven product development, and develop domestic and international joint ventures and strategic alliances. These activities suggest growing farm-to-food developments at the farm, as well as increased interaction and coordination with other industries, within and outside traditional agribusiness industries.

To define appropriate firm, industry, and public policy strategies to strengthen opportunities for economic development and improve the competitiveness of NYS's agribusiness industry, we must identify and understand the industry linkages associated with agricultural-based economic activity in the economy, and through that assess agriculture's contribution to the economy. Given that structural relationships and market opportunities and challenges within the economy change over time, revisiting these issues regularly is important.

This report serves as an update to previous efforts that documented the importance and relationships of the State's major agricultural industries (Schmit 2021) and provides an updated assessment of the overall contribution of agriculture to the NYS economy based on the framework utilized in Schmit (2021) using updated economic data from 2023 (the latest available at the time of this publication). We also expand the enumeration of industries to include forestry and commercial fishing sectors to better align with other recent publications coordinated with Farm Credit East (Schmit and Laughton 2024a, 2024b). Such assessments aid in the understanding agriculture's total contribution in terms of its direct and backward-linked industry exchanges, and its contribution relative to other industries.

Methodological Approach

One approach to assessing agriculture’s impacts in the NYS economy is through an economic contribution analysis. This type of analysis for an industry (like dairy farming) or collection of industries (like food processing) describes that portion of an economy that can be attributed to the existing industry (or industries) by using data internal to the underlying input-output (IO) model to identify all backward linkages in the study area; i.e., it identifies the total direct, indirect, and induced effects (see Box 1).

IO models provide an insightful way to depict and investigate the underlying processes that bind an economy together. Its strengths lie in a detailed representation of the primary and intermediate input requirements by production sector, the distribution of sales of individual industries throughout an economy, and the interrelationships among these industries and other economic sectors of an economy. The methodology’s analytical capacity lies in its ability to estimate the indirect and induced economic effects stemming from the direct expenditures that lead to additional purchases by final users in an economy.

In a contribution analysis, existing total output, not just final demand, provides the initial (direct) effects of the analysis and, when compared to the entire economy, the results provide insight into the relative extent of the industry in the economy and the strength of its backward linkages.¹ In our application, IO analysis is used to assess how the value of agriculturally related production, support services, and manufacturing industries (i.e., the industries we define to represent agriculture in the state) permeate throughout the state’s economy.

There are several metrics in which to measure the size of an economy; here, we consider industry sales (output), labor income, total value added, and employment (see Box 2). We look at the contribution of all on-farm agricultural production industries, all agricultural and forestry support service industries, all agricultural processing industries, and the combined impact of all three. We also examine more closely individual agricultural production and processing sectors, and their combined efforts. Finally, we highlight the backward-linked industries most affected by agriculture’s direct impacts; i.e., we highlight the distribution of industry indirect and induced effects in industries outside of the agricultural industries we include.

Box 1. What are direct, indirect and induced effects?	
Direct effects	The set of expenditures applied to the predictive model for impact analysis. It is a series (or single) of production changes or expenditures made by producers and consumers because of an activity or policy. These initial changes are determined by an analyst to be a result of this activity or policy.
Indirect effects	The impact of local industries buying goods and services from other local industries. The cycle of spending works its way backward through the supply chain until all money leaks from the local economy, either through imports or by payments to value added.
Induced effects	The response by an economy to an initial (direct) change that occurs through re-spending of income received by a component of value added. IMPLAN's default multiplier recognizes that labor income (employee compensation and proprietor income) is not a leakage to the regional economy. This money is recirculated through the household spending patterns causing further local economic activity.
Source: IMPLAN 2024	

¹ The value of goods and services produced and sold to final users (institutions, exports) during the calendar year. Final use means that the good or service will be consumed and not incorporated into another product (IMPLAN 2024).

The analysis is conducted using 2023 IMPLAN data and software. Of note, the current data in IMPLAN incorporates the recently updated U.S. Benchmark detailed IO tables from the Bureau of Economic Analysis (BEA). These data offer a comprehensive picture of the inner workings of the U.S. economy, showing production relationships among industries and commodities. While BEA IO data are updated each year and provide information on 71 industry categories. Detailed benchmark IO statistics are produced roughly every five years and are further subdivided into more than 400 industries. IMPLAN uses BEA's

Box 2. Metrics Considered in our Analysis	
Output	The value of annual industry production, expressed in producer prices. For manufacturers this would be sales plus/minus change in inventory. For service sectors production = sales. For retail and wholesale trade, output = gross margin and not gross sales.
Labor Income	All forms of employment income, including employee compensation (total payroll costs of the employee paid by the employer; i.e., wages and benefits) and proprietor income (payments received by self-employed individuals and unincorporated business owners).
Value Added	Gross regional product derived from the income paid to owners of the factors of production. It is calculated as the difference between an industry's total output and the cost of its intermediate inputs. It consists of employee compensation, proprietor income, other property type income, and net taxes on production and imports.
Employment	The average number of monthly of jobs, both full and part time. Not full-time equivalents.
Source: IMPLAN (2024)	

Benchmark IO tables and approximately 90 other data sets from various sources (federal, state, and local levels) to update their databases each year. Of note to our focus, the current estimates reflect data from the 2022 Census of Agriculture and an improved estimation procedure by IMPLAN for farm sector employment (IMPLAN 2024).

IMPLAN provides an analytical protocol in their cloud computing platform to conduct industry contribution analyses for one or multiple industries. The protocol ensures that no industry or institution (including households) will purchase from the selected industries beyond the industry's total output. It forces the model to not be able to create any additional local impact for any of the sectors included in the contribution analysis and effectively eliminates double counting of backward linkages. Under a contribution analysis, the direct effects (with respect to output) represent all sales by the industries of interest (in our case, the agricultural industries as defined above). Total gross output is used as the direct effect, including final demand and the indirect and induced agricultural effects associated with that final demand. The indirect effects we measure represent all sales by the backward-linked supply chain industries. In other words, all indirect purchases in upstream sectors or, in our case, all sales in the agricultural supply chain. The induced effects have their common interpretation: additional industry sales due to consumption (expenditures) out of labor income.

Using the IMPLAN databases, it is possible to examine transactions among 528 industrial sectors of an economy as defined by the North American Industry Classification System (NAICS), the standard used by Federal statistical agencies to classify business establishments for the purpose of collecting, analyzing, and publishing statistical data related to the U.S. business economy. To gain a better understanding of the structure of industries within New York's agricultural system, we construct a customized IO model for NYS based on this 2023 data.

For our purposes, the 528 industries in IMPLAN are aggregated into 39 economic sectors. In this process of aggregation, we define 19 industry sectors specifically aligned with the major components of the State’s agricultural system, including agricultural, forestry, and fishing production (7), agriculture and forestry support services (1), and agricultural and food manufacturing (12) sectors. The other 20 economic sectors are defined by aggregating the remaining industries at the 2-digit NAICS level (Table 1). The detailed aggregation scheme is shown in Appendix A.

Direct Impacts of Agriculture

Before discussing the results of the contribution analysis, it is useful to provide an overview of the NYS economy and to highlight agriculture’s direct and relative contributions. A snapshot of the economy for 2023 is presented in Table 1. In terms of the relative contributions to the state’s total gross domestic product (i.e., value added of \$2.1 trillion), the top five industry aggregates in NYS are finance & insurance (19.5%), professional services (12.1%), real estate & rental (11.6%), government (9.5%), and information/communications (8.2%). Given differences in labor intensities across industries, rankings on employment tell a slightly different story. Here, the highest relative contributions to the state’s total employment (i.e., 13.1 million average monthly jobs) are for health & social services (14.6%), government (10.6%), professional services (10.5%), finance & insurance (8.6%), and retail trade (7.1%). Given that over 40% of the state’s population lives in New York City, state-level industry concentrations are certainly influenced by the composition of industries in the New York City metropolitan area. Even still, the highest-ranking industry aggregates are consistent with the overall distribution of household expenditures.

Looking towards the agricultural industries, seven aggregated production sectors are considered: (i) fruit and vegetable, (ii) greenhouse and nursery, (iii) grain, oilseed, and other crops, (iv) dairy, (v) beef, poultry, and other animal production, (vi) forestry, and (vii) commercial fishing (Table 1). In total, agricultural production activity generated about \$7.9 billion in sales in 2023 and directly supported over 58 thousand jobs. Dairy farming remains the largest agricultural production sector in the state in terms of output and value added; however, fruit and vegetable production ranked first in total employment and labor income. The latter results reflect a relatively larger number of smaller farms without employees and unincorporated business owners to which proprietor employment (counts one per farm) and proprietor income (net farm returns) are a more substantial proportion of the category totals.² The relatively large employment number for grain, oilseed, and other crops is also heavily influenced by proprietor employment.

The agricultural and forestry support services sector is included within our broad definition of agriculture to encompass its key linkages to the production sectors. Support services include a variety of support activities such as custom harvesting and field/land preparation, fertilizer and chemical spraying, grading and packing services, livestock insemination and breeding services, product testing, etc. While the overall sales contribution is relatively small (\$495 million, Table 1), the labor-intensive nature of this sector implies relatively strong contributions to overall agricultural employment; i.e., over 10,000 jobs.

² Total employment considers hired employees and proprietor employment (self-employed individuals and unincorporated business owners). Labor income represents fully loaded payroll on wages and salaries and net returns to proprietors.

Table 1. Direct economic activity by industrial sector aggregates, New York State, 2023.

	Output	Employment	Labor income	Value Added
Industry Aggregate (Ag sectors in bold)	\$M	Jobs	\$M	\$M
Prodn: Fruits & vegetables	1,187	15,512	979	1,014
Prodn: Greenhouse & nursery	534	3,972	263	365
Prodn: Grain, oilseed, other crops	1,229	13,803	343	457
Prodn: Dairy	3,505	12,452	870	1,213
Prodn: Beef, poultry, & other animals	922	8,057	378	477
Prodn: Forestry & logging	458	3,426	195	443
Prodn: Commercial fishing	41	1,178	15	40
Prodn: Ag Total	7,876	58,400	3,044	4,008
Ag & forestry support services	495	10,283	463	473
Commercial hunting & trapping	39	338	23	35
Mining and drilling	3,498	9,460	3,267	1,040
Utilities: generation & distribution	57,444	41,907	11,596	26,686
Construction	121,479	589,793	46,925	71,012
Mfg: Animal food	2,412	2,036	183	347
Mfg: Grains & oilseeds	1,611	1,064	100	200
Mfg: Sugar & confectionary	2,091	4,269	283	418
Mfg: Fruit and vegetables	3,122	6,166	472	656
Mfg: Dairy	10,271	12,056	1,096	1,661
Mfg: Bakery & tortilla	6,650	33,181	1,675	2,412
Mfg: Meat & seafood	2,425	4,562	326	431
Mfg: Other foods	6,702	10,389	831	1,403
Mfg: Nonalcoholic beverages	1,862	2,593	499	630
Mfg: Alcoholic beverages	5,612	11,321	1,068	2,761
Mfg: Fert., chem., & ag machinery	2,141	2,208	185	651
Mfg: Forestry processing	4,931	8,305	847	1,291
Mfg: Total Ag	49,830	98,150	7,565	12,861
Total Ag Prodn, Services, & Mfg	58,201	166,832	11,071	17,342
NonAg manufacturing	177,602	341,930	36,344	65,564
Wholesale trade	149,823	353,492	41,916	88,043
Retail trade	124,830	930,633	50,610	95,806
Transportation & warehousing	81,628	609,196	32,968	48,728
Information & communications	263,851	357,219	75,266	174,524
Finance & insurance	550,351	1,133,296	1962,157	414,031
Real estate & rental	351,335	869,715	18,797	245,887
Professional services	356,447	1,377,622	201,395	256,557
Administrative services	88,846	652,337	46,284	58,602
Educational services	41,296	397,096	28,954	32,826
Health & social services	246,026	1,914,221	149,401	166,502
Arts, entertainment, & recreation	50,644	320,227	25,402	33,396
Accommodations & food services	112,512	913,183	42,180	72,973
Other services	70,352	743,519	40,715	48,695
Government	218,041	1,391,199	177,163	200,895
Total NYS Economy	3,125,244	13,113,214	1,232,435	2,119,144

Source: IMPLAN (2024), Author calculations.

Agriculture-based manufacturing includes food, beverages, farm product inputs, and forestry processing sectors. Our aggregated industry is represented by over 50 individual sectors in IMPLAN (see Appendix A). For ease of exposition, we aggregate the individual sectors into 12 composite manufacturing sectors: (i) animal foods, (ii) grains & oilseeds, (iii) sugar & confectionary, (iv) fruits and vegetables (including specialty products), (v) dairy, (vi) bakery & tortilla, (vii) meat & seafood, (viii) other foods, (ix) nonalcoholic beverages, (x) alcoholic beverages, (xi) ag fertilizer, chemicals, & farm machinery, and (xii) forestry processing (Table 1).

In total, ag based manufacturing industries in the state directly contributed nearly \$50 billion in sales 2023, 7.6 billion in labor income, and employed over 98 thousand workers. Dairy manufacturing accounted for 21% of all ag manufacturing sales and 12% of employment; the sector relies heavily on within-state milk production from the farming sector (i.e., strong backward linkages). Other processing sectors with relatively strong reliance on in-state farm production are fruits and vegetables (6% of sales), alcoholic beverages (11% of sales), and forestry processing (10% of sales). While bakery and tortilla manufacturing (13% of sales) and other food manufacturing (11% of sales) are sizable in aggregate, both rely relatively less on raw product inputs produced in the state. The diversity of agricultural manufacturing reflects both a diverse agricultural production sector and a large population base.

Economic Contribution Results

The economic contribution of agriculture to total industrial output in 2023 was \$88.7 billion (Table 2). The \$58.2 billion of direct contributions support an additional \$18.5 billion and \$11.9 billion in indirect and induced industry sales outside of agriculture, respectively, through agriculture's inter-industry linkages. Individual agricultural contributions (i.e., for farm production, service, and manufacturing separately) are also shown in Table 2.

Note, that while the direct contributions across agriculture's segments are additive (i.e., for the direct effects, agricultural production + agricultural support services + agricultural manufacturing = all agriculture), the same is not true for the indirect and induced impacts. For example, when looking at the agricultural manufacturing sector in isolation, a portion of the \$22.2 billion in indirect effects includes backward linkages to agricultural production sectors (i.e., manufacturers purchasing from farms). Thus, when looking at the composite all agriculture sector results, those agricultural production effects are already accounted for in the direct production effects. Simply summing the individual indirect and induced impacts across agriculture's three components would result in double counting.

The output multiplier for all agriculture in NYS (i.e., the sum of the direct, indirect, and induced effects divided by the direct effect) is 1.52, meaning that for every dollar of output generated in agriculture, \$0.52 is generated in backward linked (nonagricultural) industries (Table 2). If we decompose the multiplier effect into its indirect and induced components, the indirect effect is 0.32 (from business-to-business activity) and the induced effect is 0.20 (from labor income spending).

Table 2. Economic contribution of agriculture, by aggregate industry sector, New York, 2023.

Economic Metric & Industry	Direct	Indirect	Induced	Total	Multiplier
Output (\$ million):					
Agricultural Production	7,876	2,088	2,715	12,679	1.61
Agricultural Support Services	495	15	328	838	1.69
Agricultural Manufacturing	49,830	22,214	10,272	82,316	1.65
All Agriculture	58,201	18,538	11,934	88,672	1.52
Employment (Average mo. jobs)					
Agricultural Production	58,400	9,054	13,075	80,528	1.38
Agricultural Support Services	10,283	46	1,580	11,908	1.16
Agricultural Manufacturing	98,150	88,838	49,764	236,753	2.41
All Agriculture	166,833	65,699	57,743	290,275	1.74
Labor Income (\$ million):					
Agricultural Production	3,044	724	1,014	4,783	1.57
Agricultural Support Services	463	5	122	590	1.27
Agricultural Manufacturing	7,565	7,771	3,847	19,183	2.54
All Agriculture	11,071	6,632	4,469	22,172	2.00
Total Value Added (\$ million):					
Agricultural Production	4,008	1,193	1,872	7,074	1.76
Agricultural Support Services	473	9	226	708	1.50
Agricultural Manufacturing	12,861	12,446	7,122	32,429	2.52
All Agriculture	17,342	11,002	8,275	36,619	2.11

Source: IMPLAN (2024), Author calculations.

Since labor requirements per dollar of output vary by industry (and can change over time), the employment multiplier translates output linkages to job equivalents in the direct and backward-linked industries. Total employment contributions in 2023 by NYS' agricultural industries were 290,275 jobs, 166,833 jobs through its direct employment and an additional 123,442 jobs through its indirect and induced industry effects (Table 2). As to be expected, a majority of the jobs are generated by agricultural manufacturing activity. Indeed, the agricultural manufacturing employment multiplier (2.41) is well above either the agricultural production (1.38) or support services (1.16) sectors and, in part, reflects strong linkages (i.e., through indirect effects) to agricultural production sectors in the state. In total, each job generated in agriculture supports another 0.74 jobs in backward-linked non-agricultural industry sectors.

All agriculture supports \$22.2 billion of labor income, roughly half directly and half from indirect and induced effects. The overall labor income multiplier is 2.00, which indicates that for every dollar of labor income generated in agriculture, \$1.00 is generated elsewhere in the NYS economy. Finally, consider total value added, where agriculture contributes \$36.6 billion to the state's total GDP, through direct contributions of \$17.3 billion and indirect and induced contributions of \$11.0 billion and \$8.3 billion, respectively.

Disaggregated Industry Analyses

Economic contribution analyses were conducted for each of the five defined farm production sectors (Table 3) and of the 12 defined ag manufacturing sectors (Table 4). For ease of exposition, we limit our presentation to output, employment, and labor income metrics. Within each ag sector, any intermediate input expenditures to other ag sectors (as well as non ag sectors) are included in the indirect effects; e.g., dairy production purchasing from crop production. The results allow a more detailed comparison of the relative size of contributions across industries and their related indirect and induced contributions. The indirect contributions are larger than the induced contributions for each of the agricultural manufacturing sectors examined (Table 4) due, in part, to their relatively strong inter-industry linkages to the respective farm production sectors and/or other intermediate input suppliers in the state.

For manufacturing sectors with relatively strong linkages to farm production in the state, we provide their combined contributions to the economy in Table 5. For example, we combine dairy farming and dairy manufacturing to show dairy's combined contributions and backward industry linkages. Recall, since dairy manufacturers purchase from dairy farmers, simply adding the components for dairy in Table 3 (farming) and Table 4 (manufacturing) results in double counting.

Table 3. Economic contribution of agricultural production sectors, New York, 2023.

Economic Metric & Industry	Direct	Indirect	Induced	Total	Multiplier
Output (\$ million):					
Fruit & Vegetable	1,187	110	757	2,054	1.73
Greenhouse & Nursery	534	92	209	836	1.56
Grain, Oilseed, & Other Crops	1,229	462	369	2,060	1.68
Dairy	3,505	1,374	955	5,834	1.66
Beef, Poultry, & Other Animals	922	188	320	1,430	1.55
Forestry & Logging	458	7	137	601	1.31
Commercial Fishing	41	0.2	11	52	1.27
Employment (Average mo. jobs):					
Fruit & Vegetable	15,512	685	3,648	19,845	1.28
Greenhouse & Nursery	3,972	502	1,008	5,481	1.38
Grain, Oilseed, & Other Crops	13,803	2,558	1,778	18,139	1.31
Dairy	12,452	5,814	4,607	22,874	1.84
Beef, Poultry, & Other Animals	8,057	683	1,544	10,284	1.28
Forestry & Logging	3,426	80	658	4,165	1.22
Commercial Fishing	1,178	0.5	52	1,231	1.04
Labor Income (\$ million):					
Fruit & Vegetable	979	46	283	1,308	1.34
Greenhouse & Nursery	263	35	78	377	1.43
Grain, Oilseed, & Other Crops	343	175	138	657	1.91
Dairy	870	461	357	1,688	1.94
Beef, Poultry, & Other Animals	378	54	120	552	1.46
Forestry & Logging	195	4	51	250	1.28
Commercial Fishing	15	0.0	4	19	1.28

Source: IMPLAN (2024), Author calculations.

Table 4. Economic contribution of agricultural manufacturing sectors, New York, 2023.

Economic Metric & Industry	Direct	Indirect	Induced	Total	Multiplier
<u>Output (\$ million):</u>					
Animal Foods	2,412	1,037	336	3,786	1.57
Grains and Oilseeds	1,611	802	243	2,657	1.65
Sugar and Confectionary	2,091	988	418	3,498	1.67
Fruit, Vegetable, & Specialty	3,122	1,337	637	5,096	1.63
Dairy	10,271	6,956	2,230	19,457	1.89
Bakery and Tortilla	6,650	2,959	1,859	11,468	1.72
Meat and Seafood	2,425	835	437	3,697	1.52
Other Foods	6,702	3,343	1,382	11,427	1.71
Nonalc. Beverages (non-juice)	1,862	636	499	2,997	1.61
Alcoholic Beverages	5,612	1,759	1,152	8,523	1.52
Fert., Chem., Farm Equipment	2,141	726	291	3,158	1.48
Forestry Processing	4,931	2,075	1,068	8,075	1.64
<u>Employment (Average mo. jobs):</u>					
Animal Foods	2,036	4,187	1,618	7,841	3.85
Grain and Oilseed	1,064	3,939	1,172	6,175	5.81
Sugar and Confectionary	4,269	3,810	2,015	10,094	2.36
Fruit, Vegetable, & Specialty	6,166	5,317	3,070	14,553	2.36
Dairy	12,056	26,586	10,759	49,401	4.10
Bakery and Tortilla	33,181	10,894	8,953	53,028	1.60
Meat and Seafood	4,562	4,436	2,107	11,106	2.43
Other Foods	10,389	13,675	6,663	30,728	2.96
Nonalc. Beverages (non-juice)	2,593	2,214	2,406	7,214	2.78
Alcoholic Beverages	11,321	6,562	5,556	23,439	2.07
Fert., Chem., Farm Equipment	2,208	2,347	1,400	5,955	2.70
Forestry Processing	8,305	7,578	5,149	21,032	2.53
<u>Labor Income (\$ million):</u>					
Animal Foods	183	317	125	624	3.42
Grain and Oilseed	100	260	91	450	4.52
Sugar and Confectionary	283	342	156	780	2.76
Fruit, Vegetable, & Specialty	472	480	237	1,189	2.52
Dairy	1,096	2,167	832	4,095	3.73
Bakery and Tortilla	1,675	1,118	692	3,486	2.08
Meat and Seafood	326	317	163	806	2.47
Other Foods	831	1,220	515	2,565	3.09
Nonalc. Beverages (non-juice)	499	210	186	896	1.79
Alcoholic Beverages	1,068	589	430	2,087	1.95
Fert., Chem., Farm Equipment	185	249	108	543	2.93
Forestry Processing	847	720	398	1,965	2.32

Source: IMPLAN (2024), Author calculations.

Table 5. Economic contribution of combined production + manufacturing sectors, New York, 2023.

Economic Metric & Industry	Direct	Indirect	Induced	Total	Multiplier
Output (\$ million):					
Fruits and Vegetable	4,309	1,419	1,376	7,103	1.65
Grains and Oilseeds	2,839	1,076	571	4,486	1.58
Dairy	13,777	4,330	2,401	20,508	1.49
Meat and Seafood	3,388	724	682	4,794	1.41
Forestry	5,389	1,988	1,177	8,554	1.59
Employment (Average mo. jobs):					
Fruits and Vegetable	21,678	5,638	6,628	33,944	1.57
Grains and Oilseeds	14,866	4,671	2,751	22,288	1.50
Dairy	24,508	17,424	11,587	53,519	2.18
Meat and Seafood	13,797	2,714	3,287	19,798	1.43
Forestry	11,731	6,947	5,673	24,352	2.08
Labor Income (\$ million):					
Fruits and Vegetable	1,451	503	513	2,467	1.70
Grains and Oilseeds	443	378	213	1,034	2.33
Dairy	1,966	1,537	896	4,399	2.24
Meat and Seafood	719	255	255	1,229	1.71
Forestry	1,041	684	439	2,164	2.08

Source: IMPLAN (2024), Author calculations.

Distributional Implications

Table 2 provides the total contributions from indirect and induced effects as a result of agriculture’s direct contributions. While these results are useful in assessing total contributions to the NYS economy, it is additionally useful to examine what industry sectors contribute to those total indirect and induced effects. In other words, examining the relative sizes of the backward linkages for sectors outside our defined agricultural industry sectors.

Table 6 ranks the industry linkages based on the level of indirect output effects from all direct agricultural industries in NYS (i.e., production, support services, and manufacturing). The sizes of the individual indirect and induced effects are shown, along with their combined effect. Ranking industries by the indirect effects places attention to the business-to-business (intermediate input) transactions in the state, rather than spending out of labor income, which is assumed in the model to be invariant to where the direct effect occurs (i.e., household spending is the same whether the labor income came from agriculture or a nonagricultural industry).

While all sector effects are shown, note that the top 9 industries represent 94% of all indirect sector contributions. Major household consumption expenditure categories are clearly articulated in the top induced effects; i.e., housing (real estate & rental), health care (health & social services), finance & insurance, and retail trade (including food purchases). The primary indirect effects highlight important supply chain industries for agriculture in the state; i.e., wholesale trade (including wholesale product sellers and distributors), professional services, finance & insurance, and real estate and rental (e.g., rented

or leased land and equipment). In fact, these five industries represent 74% of the total indirect effects (i.e., \$13.7 billion of the \$18.5 billion). The total indirect and induced effects from all agricultural industries in the state is \$30.5 billion.

Table 7 provides a similar ranking of the strongest industrial sector backward linkages, but now in terms of employment effects. Again, the top 9 industries comprise most (92%) of the total indirect effects. While nearly all the top 9 industries from Table 6 remain, the relative rankings have changed given differences in their direct labor requirements (i.e., jobs per \$1 of output). Strong induced employment effects with health care services, retail trade, real estate & rental, accommodations food services, and other service sectors are consistent household spending activities in highly oriented service sectors.

Summary

Economic contribution analyses identify the portion of a region's economy that can be attributed to an existing industry or combination of industries through its direct, indirect and induced effects. Agriculture, incorporating agricultural production, support services, and manufacturing, represents a \$88.7 billion industry in NYS in terms of the value of output and supporting over 290,000 jobs when the value of inter-industry linkages is considered.

The general points of this exercise were to better understand agricultures' total contribution to the NYS economy and to demonstrate the strong ripple (multiplier) effects agriculture has given its strong backward-linked supply chain effects and related industry spending out of labor income generated in agriculture. In addition, a closer examination of the distribution of the indirect and induced effects promotes a better understanding with what sectors these ripple effects arise outside of agriculture.

While industries with strong ripple effects in the state may be desirable industries to target for expansion from a policy perspective, it is important to emphasize that the sizes of these multipliers says nothing about the likelihood or means by which they will or can be expanded. In addition, expansionary effects can be induced by policy or other means to increase the size of existing multipliers (i.e., a focus on expansion of backward linked industry capacity). In any event, the likelihood of expansion of sectors depends on where markets may be expanding and the extent to which these are the ones in which the multipliers are large. The extent to which public policy can help in expanding opportunities is also important.

Throughout this report we have examined the several multiplier effects associated with the various ag-based economic sectors in NYS. In closing, it is important to re-emphasize that it is most appropriate to use these multipliers to examine the impact of marginal (rather small) changes in any particular industry. Relatively large changes in an industry are most likely to be accompanied by structural changes in the nature of the economy's inter-industry transactions. Under these conditions, it may be problematic to base estimates of the economic impacts on current estimates of economic multipliers.

Table 6. Distribution of indirect and induced supply chain output effects, by industry, from agricultural sectors, New York, 2023.

Indirect		Indirect		Induced		Indirect + Induced	
Rank	Industry	\$M	%	\$M	%	\$M	%
	Total	18,538	100	11,934	100	30,471	100
1	Wholesale trade (margin)	5,349	29	584	5	5,933	19
2	Professional services	3,382	18	774	6	4,155	14
3	Transportation & warehousing	2,093	11	381	3	2,473	8
4	Finance & insurance	1,587	9	1,612	14	3,199	10
5	Real estate & rental	1,246	7	2,134	18	3,380	11
6	Information & communications	1,154	6	766	6	1,921	6
7	NonAg manufacturing	1,042	6	94	1	1,136	4
8	Administrative services	922	5	317	3	1,240	4
9	Utilities: generation & distribution	741	4	214	2	955	3
10	Government	248	1	146	1	394	1
11	Other services	201	1	514	4	715	2
12	Construction	183	1	84	1	267	1
13	Retail trade (margin)	144	1	962	8	1,105	4
14	Accommodations & food services	138	1	756	6	894	3
15	Arts, entertainment, & recreation	84	0	231	2	315	1
16	Mining and drilling	19	0	3	0	22	0
17	Educational services	5	0	275	2	279	1
18	Commercial hunting & trapping	0	0	0	0	0	0
19	Health & social services	0	0	2,088	18	2,089	7

Source: IMPLAN (2024), Author calculations.

Table 7. Distribution of indirect and induced supply chain employment effects, by industry, from agricultural sectors, New York, 2023.

Indirect		Indirect		Induced		Indirect + Induced	
Rank	Industry	\$M	%	\$M	%	\$M	%
	Total	65,699	100	57,743	100	123,442	100
1	Wholesale trade (margin)	16,613	25	1,389	2	18,001	15
2	Transportation & warehousing	13,652	21	2,721	5	16,373	13
3	Professional services	12,504	19	3,011	5	15,515	13
4	Administrative services	6,479	10	2,215	4	8,694	7
5	Real estate & rental	4,126	6	3,247	6	7,373	6
6	Finance & insurance	2,527	4	3,696	6	6,222	5
7	NonAg manufacturing	1,963	3	183	0	2,147	2
8	Information & communications	1,434	2	1,108	2	2,541	2
9	Other services	1,322	2	5,491	10	6,812	6
10	Accommodations & food services	1,222	2	6,580	11	7,802	6
11	Government	1,077	2	709	1	1,787	1
12	Retail trade (margin)	851	1	7,250	13	8,101	7
13	Construction	802	1	445	1	1,247	1
14	Utilities: generation & distribution	547	1	164	0	711	1
15	Arts, entertainment, & recreation	484	1	1,728	3	2,213	2
16	Mining and drilling	54	0	8	0	62	0
17	Educational services	41	0	2,664	5	2,705	2
18	Commercial hunting & trapping	1	0	2	0	3	0
19	Health & social services	1	0	15,133	26	15,133	12

Source: IMPLAN (2024)

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Appendix A

Table A1. Mapping of 2023 New York model to Implan industries. (bolded industries included as agricultural industries)

New York model	Implan industry
1 Ag production – fruits & vegetables	3 Vegetable and melon farming 4 Fruit farming 5 Tree nut farming
2 Ag production – greenhouse and nursery	6 Greenhouse, nursery, and floriculture production
3 Ag production – grain, oilseed, & other crops	1 Oilseed farming 2 Grain farming 7 Tobacco farming (no industry in NYS) 8 Cotton farming (no industry in NYS) 9 Sugarcane and sugar beet farming (no industry in NYS) 10 All other crop farming
4 Ag production – dairy	12 Dairy cattle and milk production
5 Ag production – beef, poultry, & other animal	11 Beef cattle ranching and farming 13 Poultry and egg production 14 Animal production, except cattle and poultry and eggs
6 Ag production – forestry and logging	15 Forestry, forest products, and timber tract production 16 Commercial logging
7 Ag production - Commercial fishing	17 Commercial fishing
8 Ag and forestry support services	19 Support activities for agriculture and forestry
9 Commercial hunting & trapping	18 Commercial hunting and trapping
10 Mining & drilling	20 Oil and gas extraction 21 Coal mining (no industry in NYS) 22 Copper, nickel, lead, and zinc mining 23 Iron ore mining (no industry in NYS) 24 Gold ore and silver ore mining (no industry in NYS) 25 Other metal ore mining (no industry in NYS) 26 Stone mining and quarrying 27 Sand and gravel mining 28 Other clay, ceramic, refractory minerals mining 29 Other nonmetallic mineral mining and quarrying 30 Drilling oil and gas wells 31 Support activities for oil and gas operations 32 Metal mining services 33 Other nonmetallic minerals services
11 Utilities – generation & distribution	34 Electric power generation - Hydroelectric 35 Electric power generation - Fossil fuel 36 Electric power generation - Nuclear 37 Electric power generation - Solar 38 Electric power generation - Wind 39 Electric power generation – Geothermal (no industry in NYS) 40 Electric power generation - Biomass 41 Electric power generation - All other 42 Electric power transmission and distribution 43 Natural gas distribution 44 Water, sewage and other systems
12 Construction	45 Construction of new health care structures 46 Construction of new manufacturing structures

New York model	Implan industry
	47 Construction of new power and communication structures 48 Construction of new educational and vocational structures 49 Construction of new highways and streets 50 Construction of new comm. structures, incl. farm structures 51 Construction of other new nonresidential structures 52 Construction of new single-family residential structures 53 Construction of new multifamily residential structures 54 Construction of other new residential structures 55 Maintenance and repair construction of nonres. structures 56 Maintenance and repair construction of residential structures 57 Maint. & rep. constr. of highways, streets, bridges, tunnels
13 Ag manufacturing – animal foods	58 Dog and cat food manufacturing 59 Other animal food manufacturing
14 Ag manufacturing – grain & oilseed milling and manufacturing	60 Flour milling 61 Rice milling (no industry in NYS) 62 Malt manufacturing 63 Wet corn milling (no industry in NYS) 64 Soybean and other oilseed processing 65 Fats and oils refining and blending 66 Breakfast cereal manufacturing
15 Ag manufacturing – sugar & confectionary	67 Beet sugar manufacturing (no industry in NYS) 68 Sugar cane mills and refining 69 Nonchocolate confectionery manufacturing 70 Chocolate & confectionery mfg. from cacao beans 71 Confectionery manufacturing from purchased chocolate
16 Ag manufacturing – fruit, vegetable, & specialty	72 Frozen fruits, juices and vegetables manufacturing 73 Frozen specialties manufacturing 74 Canned fruits and vegetables manufacturing 75 Canned specialties 76 Dehydrated food products manufacturing
17 Ag manufacturing – dairy	77 Cheese manufacturing 78 Dry, condensed, & evaporated dairy product mfg 79 Fluid milk manufacturing 80 Creamery butter manufacturing 81 Ice cream and frozen dessert manufacturing
18 Ag manufacturing – bakery and tortilla	82 Frozen cakes and other pastries manufacturing 88 Bread and bakery product, except frozen, manufacturing 89 Cookie and cracker manufacturing 90 Dry pasta, mixes, and dough manufacturing 91 Tortilla manufacturing
19 Ag manufacturing – meat and seafood	83 Poultry processing 84 Animal, except poultry, slaughtering 85 Meat processed from carcasses 86 Rendering and meat byproduct processing 87 Seafood product preparation and packaging
20 Ag manufacturing – other foods	92 Roasted nuts and peanut butter manufacturing 93 Other snack food manufacturing 94 Coffee and tea manufacturing 95 Flavoring syrup and concentrate manufacturing 96 Mayonnaise, dressing, and sauce manufacturing 97 Spice and extract manufacturing 98 All other food manufacturing
21 Ag manufacturing – nonalcoholic beverages	99 Bottled and canned soft drinks and water 100 Manufactured ice

New York model	Implan industry
22 Ag manufacturing – alcoholic beverages	101 Breweries 102 Wineries 103 Distilleries
23 Ag manufacturing – fertilizer, chemical, machinery	159 Nitrogenous fertilizer manufacturing 160 Phosphatic fertilizer manufacturing (no industry in NYS) 161 Fertilizer mixing 162 Pesticide and other agricultural chemical manufacturing 200 Lime manufacturing (no industry in NYS) 252 Farm machinery and equipment manufacturing
24 Ag manufacturing – forestry processing	124 Sawmills 126 Veneer and plywood manufacturing 132 Wood container and pallet manufacturing 136 Pulp mills 137 Paper mills
25 NonAg manufacturing	104 Tobacco product manufacturing 105 Fiber, yarn, and thread mills 106 Broadwoven fabric mills 107 Narrow fabric mills and schiffli machine embroidery 108 Nonwoven fabric mills 109 Knit fabric mills 110 Textile and fabric finishing mills 111 Fabric coating mills 112 Carpet and rug mills 113 Curtain and linen mills 114 Textile bag and canvas mills 115 Rope, cordage, twine, tire cord and tire fabric mills 116 Other textile product mills 117 Apparel knitting mills 118 Cut and sew apparel contractors 119 Cut and sew apparel manufacturing (except contractors) 120 Apparel accessories and other apparel manufacturing 121 Leather and hide tanning and finishing 122 Footwear manufacturing 123 Other leather and allied product manufacturing 125 Wood preservation 127 Engineered wood member and truss manufacturing 128 Reconstituted wood product manufacturing 129 Wood windows and door manufacturing 130 Cut stock, resawing lumber, and planing 131 Other millwork, including flooring 133 Manufactured home (mobile home) manufacturing 134 Prefabricated wood building manufacturing 135 All other miscellaneous wood product manufacturing 138 Paperboard mills 139 Paperboard container manufacturing 140 Paper bag and coated and treated paper manufacturing 141 Stationery product manufacturing 142 Sanitary paper product manufacturing 143 All other converted paper product manufacturing 144 Printing 145 Support activities for printing 146 Petroleum refineries 147 Asphalt paving mixture and block manufacturing 148 Asphalt shingle and coating materials manufacturing 149 Petroleum lubricating oil and grease manufacturing

New York model	Implan industry
	150 All other petroleum & coal products mfg.
	151 Petrochemical manufacturing (no industry in NYS)
	152 Industrial gas manufacturing
	153 Synthetic dye and pigment manufacturing
	154 Other basic inorganic chemical manufacturing
	155 Other basic organic chemical manufacturing
	156 Plastics material and resin manufacturing
	157 Synthetic rubber manufacturing
	158 Artificial and synthetic fibers and filaments manufacturing
	163 Medicinal and botanical manufacturing
	164 Pharmaceutical preparation manufacturing
	165 In-vitro diagnostic substance manufacturing
	166 Biological product (except diagnostic) manufacturing
	167 Paint and coating manufacturing
	168 Adhesive manufacturing
	169 Soap and other detergent manufacturing
	170 Polish and other sanitation good manufacturing
	171 Surface active agent manufacturing
	172 Toilet preparation manufacturing
	173 Printing ink manufacturing
	174 Explosives manufacturing
	175 Custom compounding of purchased resins
	176 Photographic film and chemical manufacturing
	177 Other miscellaneous chemical product manufacturing
	178 Plastics packaging materials & unlaminated film & sheet mfg
	179 Unlaminated plastics profile shape manufacturing
	180 Plastics pipe and pipe fitting manufacturing
	181 Laminated plastics plate, sheet (exc. packaging), & shape mfg
	182 Polystyrene foam product manufacturing
	183 Urethane & other foam product (exc. polystyrene) mfg
	184 Plastics bottle manufacturing
	185 Other plastics product manufacturing
	186 Tire manufacturing
	187 Rubber and plastics hoses and belting manufacturing
	188 Other rubber product manufacturing
	189 Pottery, ceramics, and plumbing fixture manufacturing
	190 Brick, tile, and other structural clay product manufacturing
	191 Flat glass manufacturing
	192 Other pressed and blown glass and glassware manufacturing
	193 Glass container manufacturing
	194 Glass product manufacturing made of purchased glass
	195 Cement manufacturing
	196 Ready-mix concrete manufacturing
	197 Concrete block and brick manufacturing
	198 Concrete pipe manufacturing
	199 Other concrete product manufacturing
	201 Gypsum product manufacturing
	202 Abrasive product manufacturing
	203 Cut stone and stone product manufacturing
	204 Ground or treated mineral and earth manufacturing
	205 Mineral wool manufacturing
	206 Miscellaneous nonmetallic mineral products manufacturing
	207 Iron and steel mills and ferroalloy manufacturing
	208 Iron, steel pipe and tube manufacturing from purchased steel
	209 Rolled steel shape manufacturing

New York model	Implan industry
	210 Steel wire drawing
	211 Alumina refining and primary aluminum production
	212 Secondary smelting and alloying of aluminum
	213 Aluminum sheet, plate, and foil manufacturing
	214 Other aluminum rolling, drawing and extruding
	215 Nonferrous metal (exc aluminum) smelting and refining
	216 Copper rolling, drawing, extruding and alloying
	217 Nonferrous metal, except copper and aluminum, shaping
	218 Secondary processing of other nonferrous metals
	219 Ferrous metal foundries
	220 Nonferrous metal foundries
	221 Custom roll forming
	222 Metal crown, closure, & other metal stamping (exc. auto.)
	223 Iron and steel forging
	224 Nonferrous forging
	225 Cutlery, utensil, pot, and pan manufacturing
	226 Handtool manufacturing
	227 Prefabricated metal buildings and components manufacturing
	228 Fabricated structural metal manufacturing
	229 Plate work manufacturing
	230 Metal window and door manufacturing
	231 Sheet metal work manufacturing
	232 Ornamental and architectural metal work manufacturing
	233 Power boiler and heat exchanger manufacturing
	234 Metal tank (heavy gauge) manufacturing
	235 Metal cans manufacturing
	236 Metal barrels, drums and pails manufacturing
	237 Hardware manufacturing
	238 Spring and wire product manufacturing
	239 Machine shops
	240 Turned product and screw, nut, and bolt manufacturing
	241 Metal heat treating
	242 Metal coating and nonprecious engraving
	243 Electroplating, anodizing, and coloring metal
	244 Valve and fittings, other than plumbing, manufacturing
	245 Plumbing fixture fitting and trim manufacturing
	246 Ball and roller bearing manufacturing
	247 Small arms ammunition manufacturing (no industry in NYS)
	248 Ammunition, except for small arms, mfg (no industry in NYS)
	249 Small arms, ordnance, and accessories manufacturing
	250 Fabricated pipe and pipe fitting manufacturing
	251 Other fabricated metal manufacturing
	253 Lawn and garden equipment manufacturing
	254 Construction machinery manufacturing
	255 Mining machinery and equipment manufacturing
	256 Oil and gas field machinery and equipment manufacturing
	257 Semiconductor machinery manufacturing
	258 Food product machinery manufacturing
	259 Sawmill, woodworking, and paper machinery
	260 All other industrial machinery manufacturing
	261 Commercial and service industry machinery mfg.
	262 Indust. & comm. fan, blower, and air purif. equipment mfg.
	263 Heating equipment (except warm air furnaces) manufacturing
	264 Air conditioning, refrigeration, & warm air heating equip. mfg
	265 Industrial mold manufacturing

New York model	Implan industry
	266 Special tool, die, jig, and fixture manufacturing
	267 Cutting tool and machine tool accessory manufacturing
	268 Machine tool manufacturing
	269 Rolling mill and other metalworking machinery manufacturing
	270 Turbine and turbine generator set units manufacturing
	271 Speed changer, industrial high-speed drive, & gear mfg
	272 Mechanical power transmission equipment manufacturing
	273 Other engine equipment manufacturing
	274 Measuring, dispensing, other pumping equipment mfg.
	275 Air and gas compressor manufacturing
	276 Elevator and moving stairway manufacturing
	277 Conveyor and conveying equipment manufacturing
	278 Overhead cranes, hoists, and monorail systems manufacturing
	279 Industrial truck, trailer, and stacker manufacturing
	280 Power-driven handtool manufacturing
	281 Welding and soldering equipment manufacturing
	282 Packaging machinery manufacturing
	283 Industrial process furnace and oven manufacturing
	284 Fluid power cylinder and actuator manufacturing
	285 Fluid power pump and motor manufacturing
	286 Scales, balances, & misc. general purpose machinery mfg
	287 Electronic computer manufacturing
	288 Computer storage device manufacturing
	289 Computer terminals & other computer peripheral equip. mfg
	290 Telephone apparatus manufacturing
	291 Broadcast & wireless communications equipment mfg
	292 Other communications equipment manufacturing
	293 Audio and video equipment manufacturing
	294 Printed circuit assembly (electronic assembly) manufacturing
	295 Bare printed circuit board manufacturing
	296 Semiconductor and related device manufacturing
	297 Capacitor, resistor, coil, transformer, & other inductor mfg
	298 Electronic connector manufacturing
	299 Other electronic component manufacturing
	300 Electromedical & electrotherapeutic apparatus manufacturing
	301 Search, detection, and navigation instruments manufacturing
	302 Automatic environmental control manufacturing
	303 Industrial process variable instruments manufacturing
	304 Totalizing fluid meter and counting device manufacturing
	305 Electricity and signal testing instruments manufacturing
	306 Analytical laboratory instrument manufacturing
	307 Irradiation apparatus manufacturing
	308 Watch, clock, & other measuring and controlling device mfg
	309 Mfg. & reproducing magnetic & optical media
	310 Electric lamp bulb and part manufacturing
	311 Lighting fixture manufacturing
	312 Small electrical appliance manufacturing
	313 Major household appliance manuf. (no industry in NYS)
	314 Power, distribution, and specialty transformer manufacturing
	315 Motor and generator manufacturing
	316 Switchgear and switchboard apparatus manufacturing
	317 Relay and industrial control manufacturing
	318 Battery manufacturing
	319 Fiber optic cable manufacturing
	320 Other communication and energy wire manufacturing

New York model	Implan industry
	321 Wiring device manufacturing
	322 Carbon and graphite product manufacturing
	323 All other miscellaneous electrical equipment & component mfg
	324 Auto. and light duty motor vehicle mfg (no industry in NYS)
	325 Heavy duty truck manufacturing
	326 Motor vehicle body manufacturing
	327 Truck trailer manufacturing (no industry in NYS)
	328 Motor home manufacturing (no industry in NYS)
	329 Travel trailer and camper manufacturing
	330 Motor vehicle gasoline engine and engine parts manufacturing
	331 Motor vehicle electrical & electronic equipment manufacturing
	332 Motor vehicle transmission & power train parts manufacturing
	333 Motor vehicle seating and interior trim manufacturing
	334 Motor vehicle metal stamping
	335 Other motor vehicle parts manufacturing
	336 Motor veh. steering, susp. (exc. spring), & brake sys. mfg
	337 Aircraft manufacturing
	338 Aircraft engine and engine parts manufacturing
	339 Other aircraft parts and auxiliary equipment manufacturing
	340 Guided missile & space vehicle manuf. (no industry in NYS)
	341 Prop. units & parts for space vehicles and guided missiles mfg
	342 Railroad rolling stock manufacturing
	343 Ship building and repairing
	344 Boat building
	345 Motorcycle, bicycle, and parts manufacturing
	346 Military vehicle, tank, & tank comp. mfg (no industry in NYS)
	347 All other transportation equipment manufacturing
	348 Wood kitchen cabinet and countertop manufacturing
	349 Upholstered household furniture manufacturing
	350 Nonupholstered wood household furniture manufacturing
	351 Other household nonupholstered furniture manufacturing
	352 Institutional furniture manufacturing
	353 Wood office furniture manufacturing
	354 Custom architectural woodwork and millwork
	355 Office furniture, except wood, manufacturing
	356 Showcase, partition, shelving, and locker manufacturing
	357 Mattress manufacturing
	358 Blind and shade manufacturing
	359 Surgical and medical instrument manufacturing
	360 Surgical appliance and supplies manufacturing
	361 Dental equipment and supplies manufacturing
	362 Ophthalmic goods manufacturing
	363 Dental laboratories
	364 Jewelry and silverware manufacturing
	365 Sporting and athletic goods manufacturing
	366 Doll, toy, and game manufacturing
	367 Office supplies (except paper) manufacturing
	368 Sign manufacturing
	369 Gasket, packing, and sealing device manufacturing
	370 Musical instrument manufacturing
	371 Fasteners, buttons, needles, and pins manufacturing
	372 Broom, brush, and mop manufacturing
	373 Burial casket manufacturing
	374 All other miscellaneous manufacturing
26 Wholesale trade	375 Wholesale - Motor vehicle and motor vehicle parts and supplies

New York model	Implan industry
27 Retail trade	376 Wholesale - Professional & commercial equipment and supplies 377 Wholesale - Household appliances & electrical & elec. goods 378 Wholesale - Machinery, equipment, and supplies 379 Wholesale - Other durable goods merchant wholesalers 380 Wholesale - Drugs and druggists' sundries 381 Wholesale - Grocery and related product wholesalers 382 Wholesale - Petroleum and petroleum products 383 Wholesale - Other nondurable goods merchant wholesalers 384 Wholesale - Wholesale elec. markets & agents and brokers 385 Retail - Motor vehicle and parts dealers 386 Retail - Furniture and home furnishings stores 387 Retail - Electronics and appliance stores 388 Retail - Building material and garden equipment supplies stores 389 Retail - Food and beverage stores 390 Retail - Health and personal care stores 391 Retail - Gasoline stores 392 Retail - Clothing and clothing accessories stores 393 Retail - Sporting goods, hobby, musical instrument, book stores 394 Retail - General merchandise stores 395 Retail - Miscellaneous store retailers
28 Transportation and warehousing	396 Air transportation 397 Rail transportation 398 Water transportation 399 Truck transportation 400 Transit and ground passenger transportation 401 Pipeline transportation 402 Scenic, sightseeing transportation, support activities for transp 403 Couriers and messengers 404 Warehousing and storage
29 Information	405 Newspaper publishers 406 Periodical publishers 407 Book publishers 408 Directory, mailing list, and other publishers 409 Greeting card publishing 410 Software publishers 411 Motion picture and video industries 412 Sound recording industries 413 Radio and television broadcasting 414 Cable and other subscription programming 415 Wired telecommunications carriers 416 Wireless telecommunications carriers (except satellite) 417 Satellite, telecomm resellers, and all other telecommunications 418 Data processing, hosting, and related services 419 News syndicates, libraries, archives, all other info services 420 Internet publishing and broadcasting and web search portals
30 Finance and Insurance	421 Nondepository credit intermediation and related activities 422 Securities & commodity contracts intermediation & brokerage 423 Monetary authorities and depository credit intermediation 424 Other financial investment activities 425 Direct life insurance carriers 426 Insurance carriers, except direct life 427 Insurance agencies, brokerages, and related activities 428 Funds, trusts, and other financial vehicles
31 Real estate and rental	429 Other real estate 430 Tenant-occupied housing

New York model	Implan industry
	431 Owner-occupied dwellings 432 Automotive equipment rental and leasing 433 General & consumer goods rental except video tapes & discs 434 Video tape and disc rental 435 Comm. & industrial machinery & equipment rental & leasing 436 Lessors of nonfinancial intangible assets
32 Professional Services	437 Legal services 438 Accounting, tax preparation, bookkeeping, and payroll services 439 Architectural, engineering, and related services 440 Specialized design services 441 Custom computer programming services 442 Computer systems design services 443 Other computer related services, incl facilities management 444 Management consulting services 445 Environmental and other technical consulting services 446 Scientific research and development services 447 Advertising, public relations, and related services 448 Photographic services 449 Veterinary services 450 All other miscellaneous prof, scientific, & tech. services 451 Management of companies and enterprises
33 Administrative services	452 Office administrative services 453 Facilities support services 454 Employment services 455 Business support services 456 Travel arrangement and reservation services 457 Investigation and security services 458 Services to buildings 459 Landscape and horticultural services 460 Other support services 461 Waste management and remediation services
34 Educational services	462 Elementary and secondary schools 463 Junior colleges, colleges, universities, and professional schools 464 Other educational services
35 Health and social services	465 Offices of physicians 466 Offices of dentists 467 Offices of other health practitioners 468 Outpatient care centers 469 Medical and diagnostic laboratories 470 Home health care services 471 Other ambulatory health care services 472 Hospitals 473 Nursing and community care facilities 474 Res. mental retardation & health, subst abuse, other facilities 475 Individual and family services 476 Child day care services 477 Community food, housing, other relief, incl rehab services
36 Arts, entertainment and recreation	478 Performing arts companies 479 Commercial Sports Except Racing 480 Racing and Track Operation 481 Independent artists, writers, and performers 482 Promoters of performing arts, sports, agents for public figures 483 Museums, historical sites, zoos, and parks 484 Amusement parks and arcades 485 Gambling industries (except casino hotels)

New York model	Implan industry
	486 Other amusement and recreation industries 487 Fitness and recreational sports centers 488 Bowling centers
37 Accommodations and food services	489 Hotels and motels, including casino hotels 490 Other accommodations 491 Full-service restaurants 492 Limited-service restaurants 493 All other food and drinking places
38 Other services	494 Automotive repair and maintenance, except car washes 495 Car washes 496 Electronic and precision equipment repair and maintenance 497 Comm. & industrial machinery & equip. repair and maint. 498 Personal and household goods repair and maintenance 499 Personal care services 500 Death care services 501 Dry-cleaning and laundry services 502 Other personal services 503 Religious organizations 504 Grantmaking, giving, and social advocacy organizations 505 Business and professional associations 506 Labor and civic organizations 507 Private households
39 Government	508 Postal service 509 Federal electric utilities (no industry in NYS) 510 Other federal government enterprises 511 State government passenger transit 512 State government electric utilities 513 Other state government enterprises 514 Local government passenger transit 515 Local government electric utilities 516 Other local government enterprises 517 Not an industry (Used and secondhand goods) 518 Not an industry (Scrap) 519 Not an industry (Rest of world adjustment) 520 Not an industry (Noncomparable foreign imports) 521 Employment and payroll of state govt, education 522 Employment and payroll of state govt, hospitals, health serv. 523 Employment and payroll of state govt, other services 524 Employment and payroll of local govt, education 525 Employment and payroll of local govt, hospitals, health serv. 526 Employment and payroll of local govt, other services 527 Employment and payroll of federal govt, military 528 Employment and payroll of federal govt, non-military

OTHER A.E.M. EXTENSION BULLETINS

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