



Economic Impact Estimate 2005 Kentucky Exports for All Industry Sectors to All Countries

5/30/2006

Kentucky Cabinet For Economic Development Office of Research and Information Technology

Prepared by Phil Flynn
Staff Economist

Summary of Kentucky's 2005 Exports Estimated Economic Impact

- Total Kentucky Exports = \$14.9 Billion;
- Estimated Direct, Indirect, and Induced (value added)
Gross State Product = \$9.6 Billion;
 - Estimated Direct Gross State Product = \$4.1 Billion;
 - Estimated Indirect Gross State Product = \$2.7 Billion; and
 - Estimated Induced Gross State Product = \$2.8 Billion.
- Estimated Direct, Indirect, and Induced Employment = 158,000;
 - Estimated Direct Employment = 55,000;
 - Estimated Indirect Employment = 44,000; and
 - Estimated Induced Employment = 59,000.
- Estimated Direct, Indirect, and Induced State and Local Taxes = \$857 Million;
 - Estimated Direct and Indirect State and Local Taxes = \$546 Million;
and
 - Estimated Induced Taxes State and Local Taxes = \$311 Million.

Kentucky's Top Five (5) Export Industries by Estimated Direct Value Added (GSP) and by Employment Gains: 2005

NAICS	NAICS Description	Exports	Direct Value Added	Direct Employment
336	Transportation Equipment	\$5,652,000,000	\$1,174,000,000	10,600
325	Chemicals	\$2,510,000,000	\$620,000,000	4,300
333	Machinery, Except Electrical	\$1,457,000,000	\$463,000,000	6,800
334	Computers and Electronic Products	\$1,179,000,000	\$334,000,000	3,900
332	Fabricated Metal Products	\$436,000,000	\$179,000,000	2,700

Table 1
2005 Kentucky's Export Economic Impact Estimate

Impacts	Direct	Indirect	Induced	Total
Total Value Added	\$4,091,000,000	\$2,739,000,000	\$2,802,000,000	\$9,632,000,000
Employment	55,000	44,000	59,000	158,000
Employee Compensation (Inclusive of Benefits)	\$2,875,000,000	\$1,539,000,000	\$1,640,000,000	\$6,054,000,000
Proprietor's Income (Inclusive of Benefits)	\$111,000,000	\$203,000,000	\$174,000,000	\$488,000,000
Other Property Type Income	\$1,007,000,000	\$747,000,000	\$734,000,000	\$2,488,000,000

MIG, Inc. 2003 databases and IMPLAN 1997-2003, 2.0.1025 matrices are utilized in the computation of economic impact estimates.

Note: Compensation values are inclusive of estimated benefits.

Note: Economic impact estimates are statewide.

Social/Economic Cost

This study estimates/reports the positive economic impacts which occur as a result of the export industries in the Commonwealth of Kentucky. This report does not account for the cost incurred by the Commonwealth as a result of this industry. These costs may include police and fire department services, public education, public infrastructure (roads, bridges, prisons, miscellaneous local governments cost, airports, sewage treatment, water treatment, trash collection, etc.), social services, health services, environmental impacts, and state and local tax incentives/abatements.

Glossary of Economic Impact Terms

Economic impacts are a mathematical method of specifying the economic relationships among all businesses/industries and between businesses/industries and consumers. Input-output (I/O) modeling is the most commonly utilized method to assess the economic outcomes of job creation or reduction. Economic impact modeling captures the direct impact of an employment expenditure (jobs with wages, salaries, and benefits) on the economy. Additionally, the secondary effect (indirect) on the economy is captured and the consumer based (induced) effects are calculated by the model.

Economic impact analysis typically utilizes an economic model input-output (I/O) which traces the flow of goods and services, income, and employment among related sectors of the economy. The I/O model generates a mathematical depiction of the flow of economic activity. *Id Est:*

Final demand changes on the industrial sector producing the good/service (output) purchases inputs from other industrial sectors, which in turn purchase inputs from other sectors. These

industrial sectors purchase additional labor inputs. Employees of these industries use their compensation to purchase goods and services from the economy. Linkages between industries in a region create an economic ripple effect as a result of changes in demand for products. Strong linkages can lead to a healthier economy, as capital flows through the economy rather than out of it.

Direct Effects: Direct effects are the changes in economic activity during the first round of spending. These represent the impacts (*e.g.* change in employment) for the expenditures and /or production values specified as direct final demand changes.

Indirect Effects: Indirect effects are the changes in sales, income, or employment within the region in backward-linked industries supplying goods and services. These represent the impacts (*e.g.* change in employment) caused by the iteration of industries purchasing from industries resulting from direct final demand changes. New jobs will be created outside of the primary industry/direct impact industry.

Example: Direct Impact Industry – Kentucky’s Export Industries: Direct operational employment will result in indirect employment related to support and supplier services: truck and rail transportation, insurance, wholesale trade, equipment maintenance and repair, legal services, accounting, computer and data processing services, communications, credit agencies, and banking services, postal services, *et cetera*.

Induced Effects: These represent impacts (*e.g.* change in employment) on all local industries caused by the expenditures of new household income generated by the direct and indirect effects resulting from direct final demand changes. Induced effects may also reflect government or investment gains. New jobs created in the areas of food services, plumbing, medical/dental care, barbershops, clothing sales, police & fire protection, lawn care, legal services, financial services, real estate, merchandize stores, automobile dealers, & service stations, *et cetera*, are due to the direct and indirect effects of the initial creation of jobs.

Total Value Added: Indicates the total economic value (impact) attributable to Kentucky’s workers and industries. Note: Data consistent with Kentucky’s Gross State Product (GSP).

Employee Compensation (Includes Benefits): Employee compensation describes the total payroll costs (including benefits). Includes wage and salary payments (by employers) as well as benefits including overtime compensation, health and life insurance, retirement payments, and other non-cash compensation. Significant employment of seasonal and/or part-time workers may lower personal income averages.

Other Property Type Income: Consists of payments for rents, royalties, and dividends payments to individuals in the form of rents received on property, royalties from contracts, and dividends paid by corporations. Corporate profits earned by corporations included.

Table 2
Estimated State and Local Taxes
2005 Kentucky Exports

State and Local Taxes (Estimates Exclude Education Taxes)	Direct and Indirect	Direct, Indirect, and Induced
Corporate Profits Tax (1)	\$ 20,500,000	\$ 29,100,000
Dividends (2)	\$ 42,000,000	\$ 59,500,000
Indirect Bus Tax: Motor Vehicle License (3)	\$ 3,300,000	\$ 5,700,000
Indirect Bus Tax: Other Taxes –Corp License, etc. (4)	\$ 21,300,000	\$ 36,500,000
Indirect Bus Tax: Property Tax (5)	\$ 88,900,000	\$ 152,200,000
Indirect Bus Tax: S/L Non Taxes (6)	\$ 19,600,000	\$ 33,500,000
Indirect Bus Tax: Sales Tax (7)	\$ 160,700,000	\$ 275,200,000
Indirect Bus Tax: Severance Tax (8)	\$ 8,000,000	\$ 13,700,000
Personal Tax: Income Tax (9)	\$ 134,800,000	\$ 186,600,000
Personal Tax: Motor Vehicle License (10)	\$ 5,500,000	\$ 7,700,000
Personal Tax: Non Taxes (Fines- Fees) (11)	\$ 26,600,000	\$ 36,800,000
Personal Tax: Other Tax (Fish/Hunt & Licensing Fees) (12)	\$ 2,500,000	\$ 3,400,000
Personal Tax: Property Taxes (13)	\$ 1,600,000	\$ 2,200,000
Social Ins Tax- Employee Contribution (14)	\$ 2,500,000	\$ 3,400,000
Social Ins Tax- Employer Contribution (15)	\$ 8,000,000	\$ 10,900,000
Total State and Local	\$ 545,700,000	\$ 856,500,000

Table 3
Estimated Federal Taxes
2005 Kentucky Exports

Federal Taxes	Direct and Indirect	Direct, Indirect, and Induced
Corporate Profits Tax (16)	\$ 102,500,000	\$ 145,400,000
Indirect Bus Tax: Custom Duty (17)	\$ 11,300,000	\$ 19,400,000
Indirect Bus Tax: Excise (18)	\$ 36,100,000	\$ 61,800,000
Indirect Bus Tax: Federal Non Taxes (19)	\$ 12,300,000	\$ 21,000,000
Personal Tax: Income Taxes (20)	\$ 116,400,000	\$ 161,200,000
Personal Tax: Non Taxes (Fines – Fees) (21)	-	-
Social Ins Tax- Employee Contribution (Inclusive of Proprietary Income) (22)	\$ 262,700,000	\$ 363,000,000
Social Ins Tax- Employer Contribution (23)	\$ 256,500,000	\$ 352,400,000
Total Federal Taxes	\$ 797,700,000	\$ 1,123,600,000

Notes:

- Estimates are statewide.
- Local education taxes are excluded.

Tax Data Sources

Estimated tax impact report values are based on the existing relationships of the data found in the IMPLAN database. The general sources for that data are described immediately below:

National Income and Product Accounts (NIPA): As with all items in the IMPLAN data sets, all data is ultimately controlled, at the US level, by the BEA's (Bureau of Economic Analysis) NIPA (National Income and Product Accounts) values. For 2003 IMPLAN data, the national values were controlled with the NIPA accounts utilizing the Survey of Current Business – Personal Tax and Non Tax Receipts, Indirect Business Tax and Non Tax Accruals, and Contributions for Social Insurance. Federal Government Receipts and Current Expenditures, and State and Local Government Receipts and Current Expenditures contain controls for all the IMPLAN data elements found in the Tax Impact report.

Consumer Expenditure Survey (CES): The Bureau of the Census annually conducts surveys and diary samplings of household expenditure patterns. It is from these surveys that the BEA benchmarks the personal consumption expenditure portion of NIPA. The survey data is reported for nine different categories of household income establishing the tax to income level relationships for the nine different household categories. It is based on these relationships that we can distribute many of the state and federal tax values to a county and state level by utilizing the number of local households in each of the nine household categories.

Annual Survey of State and Local Government Finances (SLGF): The Bureau of the Census also collects annual state and local government receipts and expenditures data. This data acts as preliminary controls for state level values (subject to controlling to the National NIPA values).

Regional Economic Information System (REIS): The BEA collects and reports income, wealth, tax, and employment data on a regional (state and county) basis. Much of the data used to distribute the United States NIPA values to states and counties come from REIS tables: Personal Income by Major Source and Earnings by Industry, and Personal Tax and Non Tax Payments.

State and Local Tax Definitions and Sources

1) State & local government corporate profits tax.

Source: US NIPA value (“Corporate profits tax accruals” table) is distributed to states based on “Tax – Corporate Net Income ” from the SLGF. The state distribution to counties is based on their proportion of state Other Property Income (from IMPLAN database).

2) State & local government dividends represents dividend payments to government by corporations from investments.

Source: US NIPA value (“Dividends received by government” table) is distributed to states based upon: “Employee Retirement – Securities – Mortgages”; “Employee Retirement – Securities – Corporate Stocks”; “Employee Retirement – Securities – Corporate Bonds”; and “Employee Retirement – Total Other Securities” from the SLGF. The state distribution to counties is based on their proportion of state Other Property Income (from IMPLAN database).

3) Motor vehicle license taxes paid to state and local governments.

Source: US NIPA value (“State and Local: Motor Vehicle Licenses” table) is distributed to states based on each state’s proportion of “Tax – Motor Vehicle Operator’s License” plus “Tax – Motor Vehicle License” from the SLGF. State values are distributed to counties based on total “Personal Income” from the BEA REIS (Personal Income) table.

4) Other taxes paid to state and local governments include business licenses, documentary, and stamp taxes.

Source: US NIPA value (“State and Local: Other taxes” table) is distributed to states based on each state’s proportion of: “Tax – Corporation License”; “Tax – Amusement License”; “Tax – Other License”; “Tax – Documentary & Stock Transfer”; “Tax – Public Utility License”; “Tax – Alcoholic Beverage License”; “Tax – Occupation & Business License, NEC”; and “Tax – NEC” from the SLGF. State values are distributed to counties based on total “Personal Income” from the BEA REIS (Personal Income) table.

5) Property taxes paid to state and local governments.

Source: US NIPA value (“Indirect business tax and non tax accruals: Property Taxes” table) is distributed to states based on each state’s proportion of “Tax – Property” from the SLGF. State values are distributed to counties based on total “Personal Income” from the BEA REIS (Personal Income) table.

6) Non taxes paid to state and local governments include rents and royalties, special assessments, fines, settlements, and donations.

Source: US NIPA value (“State and Local: Non taxes” table) is distributed to states based on each state’s proportion “Miscellaneous – Rents”; “Miscellaneous – Special Assessments”; “Miscellaneous – Royalties”; and “Miscellaneous – Donations From Private Sources” from the SLGF. State values are distributed to counties based on total “Personal Income” from the BEA REIS (Personal Income) table.

7) Sales taxes paid to state and local government.

Source: US NIPA value (“Indirect business tax and non tax accruals: Property taxes”) is distributed to states based on each state’s proportion of “Tax – Total General Sales” from the SLGF. State values are distributed to counties based on total “Personal Income” from the BEA REIS (Personal Income) table.

8) Severance taxes paid to state and local governments.

Source: US NIPA value (“State and Local: Severance taxes”) is distributed to states based on each state’s proportion of “Tax - Severance” plus “Tax – Motor Vehicle License” from the SLGF. State values are distributed to counties based on total “Personal Income” from the BEA REIS (Personal Income) table.

9) Household personal income tax payments to state and local governments.

Source: US NIPA value (“State and local: Income taxes” table) is distributed to states based on “Tax – Individual Income” from the SLGF. State values are distributed to counties based on total “Personal Income” from the BEA REIS (Personal Income) table.

10) Household personal motor vehicle fee payments to state and local governments.

Source: US NIPA value (“State and local: Motor Vehicle Licenses” table) is distributed to states based on “Miscellaneous – Fines & Forfeits ” from the SLGF. State values are distributed to counties based on total “Personal Income” from the BEA REIS (Personal Income) table.

11) Household personal non tax payments to state and local governments include payments for fines and donations.

12) Household personal--other tax payments to state and local governments--includes hunting, fishing, and other personal licenses.

Source: US NIPA value ("State and local: Other taxes" table) is distributed to states based on "Tax – Hunting and Fishing License " from the SLGF. State values are distributed to counties based on total "Personal Income" from the BEA REIS (Personal Income) table.

13) Household personal property tax payments to state and local governments.

Source: US NIPA value ("State and local: Property taxes" table) is distributed to states based on "Tax – Property " from the SLGF. State values are distributed to counties based on total "Personal Income" from the BEA REIS (Personal Income) table.

14) The employee paid portion for state social insurance – this represents retirement plans and temporary disability insurance.

Source: US NIPA value ("Personal contributions: State and local social insurance funds) is distributed to states and based on each state's share of employee paid state social insurance specified in the SLGF. The SLGF categories comprising employee paid state social insurance are "Employee Retirement – Local Employee Contribution"; "Employee Retirement – State Employee Contribution"; and "Workers Compensation – Other Contributions." County distribution is based on the county's portion of state and local government non-education employee compensation from IMPLAN.

15) The Employer Paid Portion for state social insurance -- represents retirement plans, worker's comp, and temporary disability insurance.

Source: US NIPA value ("Employer contributions: State and local social insurance funds) is distributed to states and based on each state's share of employer paid state social insurance specified in the SLGF. The SLGF categories comprising employer paid state social insurance are "Employee Retirement – From Local Government"; "Employee Retirement – From State Government;" "Unemployment Compensation – Contribution"; and "Workers Compensation – Own Contributions". County distribution is based on the county portion of state and local government non-education employee compensation from IMPLAN.

Federal Tax Definitions and Sources

16) Federal corporate profits tax.

Source: US NIPA value ("Corporate profits tax accruals" table) is distributed to states and counties based on their proportion of US Other Property Income (from IMPLAN database).

17) Custom duties are gross collections - net refunds.

Source: US NIPA value ("Federal: Customs duties" table) is distributed to states and counties based on IMPLAN estimates of total IBT for all industries in relationship to US total IBT.

18) Includes federally levied excise taxes on alcohol, tobacco, telephones, coal, fuels, air transportation, vehicles, *et cetera*.

Source: US NIPA value ("Federal: Excise taxes" table) is distributed to states and counties based on IMPLAN estimates of total IBT for all industries in relationship to US total IBT.

19) Total Indirect Business Tax (IBT) federal non-tax payments include petroleum royalties, fines, regulatory fees, forfeitures, and donated funds.

Source: US NIPA value ("Federal: Non taxes" table) is distributed to states and counties based on IMPLAN estimates of total IBT for all industries in relationship to US total IBT.

20) Income taxes are taxes paid to the Federal Government through withholding, declarations, and final settlement less refunds.

Source: State "Federal government: Individual income taxes (net of refunds)" from REIS tax tables are controlled to the US NIPA value ("Federal: Income Taxes"). State values are distributed to counties based on total "Personal Income" from the BEA REIS Personal Income table.

21) Personal non taxes consist of a variety of small payments –*exempli gratia*- passport and immigration fees, fines, and migratory bird-hunting stamps.

Source: State “Federal Government: Non Taxes” from REIS tax tables is controlled to the US NIPA value (“Federal: Non Taxes” table). State values are distributed to counties based on total “Personal Income” from the BEA REIS Personal Income table.

22) The employee paid portion for federal social insurance – this includes Social Security, unemployment insurance, medical and retirement plans.

Source: US NIPA value “Personal contributions: Federal social insurance funds” minus “Old-age, survivors, disability and hospital insurance: Self-employed ” is distributed to states and counties based on the “Personal Contribution for Social Insurance” from BEA REIS (Personal Income) table.

22a) Federal social insurance paid by self-employed – this includes Social Security, unemployment insurance, medical, and retirement plans.

Source: US NIPA value (“Personal contributions: Federal social insurance funds: Old-age, survivors, disability and hospital insurance: Self-employed ”) is distributed to states and counties based on the “Proprietors’ Income” from BEA REIS (Personal Income) table.

23) The employer paid portion for federal social insurance – this includes Social Security, medical and retirement plans.

Tax Sources: US NIPA value (“Employer contributions: Federal social insurance funds”) is distributed to states and counties based on the “Personal Contribution for Social Insurance” from BEA REIS (Personal Income) table. The employer paid portion is assumed to be a constant proportion of the personal paid proportion. This assumption will be affected by a greater or lesser value than average proprietor income.

Methodology/Sources (partial)

The economic impacts estimates and conclusions resulting from this study have been derived from Minnesota IMPLAN Group, Inc. databases. This aggregate database is primarily composed of government data sources including information from

- US Bureau of Economic Analysis Benchmark I/O Accounts of the US;
- US Bureau of Economic Analysis Output Estimates;
- US Bureau of Economic Analysis REIS Program;
- US Bureau of Labor Statistics ES 202 Program;
- US Bureau of Labor Statistics Consumer Expenditure Survey;
- US Bureau of County Business Patterns;
- US Census Bureau Decennial Census and Population Surveys;
- US Census Bureau Economic Census and Surveys;
- US Department of Agriculture; and
- US Geological Survey.

MIG, Inc. 2003 databases and IMPLAN 1997-2003, 2.0.1025 matrices are utilized in the computation of economic impact estimates.

Report Prepared by:

Phil Flynn
Staff Economist
(502) 564-4886 ext. 3401

Phil.Flynn@ky.gov

The information provided herein by the Division of Research--Cabinet For Economic Development is believed to be accurate but is not warranted and is for informational purposes only. Any estimates, projections, or information provided to make estimates or projections are provided without assurances or warranties and should not be relied upon as fact. Users of the information should perform their own due diligence in drawing conclusions from the information provided.