

REPORT

# FORT DRUM

## REGIONAL ECONOMIC IMPACT STUDY

**Analysis of Economic Impacts of Fort Drum, NY  
on the Regional Economy of Jefferson,  
St. Lawrence and Lewis Counties**



**Prepared for:**

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# CONTENTS

<b>EXECUTIVE SUMMARY .....</b>	<b>i</b>
<b>ACKNOWLEDGEMENTS.....</b>	<b>iii</b>
<b>1. INTRODUCTION.....</b>	<b>1</b>
1.1 FT. DRUM OVERVIEW.....	1
1.2 OBJECTIVE OF THE ECONOMIC IMPACT STUDY .....	1
1.3 STUDY AREA AND ITS ECONOMY.....	2
1.4 ORGANIZATION OF THE REPORT.....	5
<b>2. ANALYSIS PROCESS .....</b>	<b>6</b>
2.1 OVERVIEW OF THE ANALYSIS PROCESS.....	6
2.2 DATA COLLECTION AND INTERVIEWS .....	9
2.3 MODEL OF REGIONAL ECONOMIC IMPACTS .....	11
2.4 MODEL OF FISCAL IMPACTS.....	14
<b>3. ACTIVITY AT FORT DRUM.....</b>	<b>20</b>
3.1 DIRECT EMPLOYMENT .....	20
3.2 SPENDING LEVEL .....	21
3.3 PATTERN OF SPENDING IN TRI-COUNTY REGION .....	23
3.4 DIRECT COMMUNITY IMPACTS.....	25
<b>4. REGIONAL ECONOMIC IMPACTS .....</b>	<b>26</b>
4.1 FLOW OF DOLLARS IN THE ECONOMY .....	26
4.2 OVERALL ECONOMIC IMPACTS .....	30
4.3 MIX OF JOBS .....	32
4.4 COMPARISON WITH ACTUAL HISTORICAL DATA.....	34
4.5 INTERVIEWS .....	36
<b>5. FISCAL IMPACTS.....</b>	<b>39</b>
5.1 CATEGORIES OF FISCAL IMPACTS.....	39
5.2 LOCAL GOVERNMENT IMPACTS .....	40
5.3 STATE GOVERNMENT IMPACTS .....	43
5.3 OVERALL FISCAL IMPACTS .....	47
<b>6. CONCLUSIONS.....</b>	<b>49</b>

**EXECUTIVE SUMMARY:  
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**Prepared for:  
Fort Drum Regional Liaison Organization, Watertown, NY**

**Prepared by:  
Nutter Associates and Economic Development Research Group**

**May 1999**

**Background.** In 1987, as Ft. Drum was being built up as the new home of the US Army's 10<sup>th</sup> Mountain Division, a study was completed of the expected future impacts of the expanded army facility on the economy of the surrounding "Tri-County Region" – comprised of Jefferson, Lewis and St. Lawrence Counties in New York State. In 1998, the Fort Drum Regional Liaison Organization (FDRLO) –assisted by planning and economic development agencies in the region – commissioned this new study to examine how Fort Drum's activity has actually affected the region's economy. The purpose of the study is to more accurately estimate the base's current economic impacts, and provide a tool for predicting its future economic impacts.

**Scope of Work.** To estimate these effects, FDRLO asked the consultant team to: (1) review data on the economic activity of Ft. Drum, (2) interview affected parties to assemble a base of data on economic activity impacts of Fort Drum, (3) assess regional economic impacts, using an economic model calibrated for the region by Regional Economic Models, Inc. (REMI), and (3) conduct an analysis of the further fiscal impacts on local government revenues and expenditures. The REMI model is a regional economic forecasting and simulation model which is used here to estimate the employment, population, income and business sales impacts of the army base.

**Key Findings.** The narrative below contains a summary of the total economic activity at Fort Drum and their impacts on the Tri-County region::

- ◆ Direct Activity of the US Department of Defense at Fort Drum -- Fort Drum represents the region's largest employer, with annual expenditures of \$485 million, of which \$326 million is spent on wages for local military and civilian workers (12,978 employees).

The remaining \$159 million of non-wage spending by Fort Drum includes \$66 million of spending for housing, medical care and education of the soldiers and their families in the Tri-County Region. It also includes \$93 million for purchases of materials and services, of which 40% (\$37 million) goes to businesses in the Tri-County region. Thus, \$103 million of Fort Drum spending goes directly to businesses in the region.

- ◆ Indirect, Induced and Dynamic Economic Effects -- The spending by Fort Drum leads to *indirect impacts* on jobs and business orders for its suppliers (and their suppliers). The additional income of workers at Fort Drum and its suppliers is also re-spent on consumer purchases, which represents *induced impacts* on the rest of the economy. Additional *dynamic effects* occur due to market effects on factors such as wage rates.

As a result, the economic activity generated as a result of Fort Drum affects sales and employment across a wide range of businesses, from construction firms to services to restaurants. The indirect, induced and dynamic economic effects on business sales total \$237 million, which includes the \$103 million flowing directly from Fort Drum to businesses in the region. Associated with total indirect and induced effects on business growth are 3,759 additional jobs and \$103 million of wages.

- ◆ **Overall Regional Economic Effect** -- The overall impact of Fort Drum on the regional economy (adding direct effects with indirect and induced effects) is support for 16,737 jobs and \$429 million/year of income for residents of the region.

**Summary of Regional Economic Impacts of Fort Drum (Annual)**

Alternative Measure of Impact	Direct Effect (On-Base)	Indirect, Induced & Dynamic Effect	Total Effect
Jobs	12,978	3,759	16,737
Payroll	\$326 million	\$103 million	\$429 million
Gross Regional Product <sup>1</sup>	\$326 million	\$141 million	\$467 million
Gross Output	\$485 million <sup>2</sup>	\$237 million <sup>3</sup>	\$722 million

<sup>1</sup> represents the sum of payroll and net business income (profit or retained earnings)

<sup>2</sup> represents the total spending budget of the Army base

<sup>3</sup> represents the total effect on sales volume of businesses in the region

Note: The alternative measures of impact cannot be added together, since payroll is a subset of GRP, and GRP is a subset of Gross Output.

- ◆ **Population and Quality of Life Effects.** It is estimated that the expansion of jobs and income has brought in 27,000 more residents to live in the region. The region's quality of life has been enhanced by the expanded range of job opportunities and community activities associated with this employment and population growth.
- ◆ **Fiscal Impacts.** The population and employment associated with Fort Drum generates additional revenues (and corresponding costs) for local, county and state governments. The overall impact on state tax revenues is estimated to be \$43 million/year. Aggregate impacts on county and local government taxes in the Tri-County Region (including all towns, cities, villages and school districts) is estimated to be \$25 million/year. Costs of operating local and state governments have increased by roughly comparable figures. Overall, then, Fort Drum does not appear to have any substantial net shortfall or windfall in public budgets. It has, however, helped to expand the range of public services available to residents of the region.

The economic activity generated by Fort Drum has remained stable in recent years, and continues to support incomes and economic opportunities for many residents of the region.

# ACKNOWLEDGEMENTS

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This report is the product of contributions by a number of individuals and organizations.

- ◆ This project was conducted under the direction of members of the Ft. Drum Regional Liaison Organization (FDRLO) , assisted by Tom Sauter of the Development Authority of the North Country (DANC) and Don Canfield of the Jefferson County Planning Department.
- ◆ The analysis for this study and writing of this report were completed by a project team comprised of Nutter Associates: David Nutter and Ellen Nutter; and Economic Development Research Group: Glen Weisbrod, Teresa Lynch, Susan Moses and Jinevra Howard.
- ◆ The study utilized an economic impact simulation model custom developed for this study by Regional Economic Models, Inc. (REMI), under the direction of George Treyz.
- ◆ The 1998 data on Fort Drum employment and contracting were provided by the following individuals at Fort Drum: Judith Gentner (Deputy Garrison Commander) , Lt. Col. James Angelosante (Director, Installation Business Office), Annie Semo (Supervisory Procurement Analyst, Directorate of Contracting), Alan Cameron (Training Operations Coordinator, Coordination Branch, Readiness Training Division)
- ◆ Interviews and discussions were held with members of the community affected by Fort Drum, to whom additional thanks are due: Terrence Roche and Kathy Mastellon (Greater Watertown Chamber of Commerce), James Edmonson (Executive Director, Jefferson County Job Development Corp.), John McHugh (Director of Planning, Lewis County), Richard Mooers (Director, St. Lawrence County Planning Office), Bruce Armstrong and Donald Canfield (Director and Deputy Director of Planning, Jefferson County), Jerry Hiller and Mary Corriveau (City Manager and Asst. City Manager, Watertown), Carlyle Company (Asst. Superintendent, Indian River School District), Warren Fargo (Superintendent, Watertown School District), Charles Bohlen (BOCES), David Tinker (President, Samaritan Medical Center), Walter Becker (Carthage Hospital), Robert Juravich and Tom Sauter (Executive Director and Director of Project Development, Development Authority of the North Country), Gerald Haenlin (Sr. Energy Consultant, Niagara Mohawk Power Corp.), Thomas Dardaris (Bomax, Inc.), Walter Price (Site Supervisor, Lear Siegler Services, Inc.), Mike Campbell (Manager, Madison Barracks), Christina Roderick, (Asst. Manager, Atlantic Testing), Donna Converse (Lab Director, Converse Laboratories), Walter E. Price, Jr. (Site Supervisor, Lear Siegler Services Inc.), Ed Chamberlain (Seaway Rental Corp.), Kay Gallagher (Manager, Ontario Village Apartments), John Caprara (Caprara Chrysler-Plymouth), Mark Gebo (Attorney, Hrabchak & Gebo), Rose Butler (Coordinator, Wal-Mart),

Art Loran (Days Inn, Watertown), Stephen Sinclair (Partridge Berry Inn), Mary Dudo (Manager, Salmon Run Mall), Mike Lund (Manager, Sears), Gail Rich, (Manager, Sam's Club, Watertown), Rodney Wasicskco (Manager, Ponderosa Steak House, Watertown), William Calhoun (Manager, Hoyt Cinemas, Watertown), and Eleanor Duffy (S.L. George Inc., Jewelers, Watertown).

- ◆ Several existing resource documents were important sources of additional information. These include: (1) Fort Drum: *Economic Impact Statement* (Annual, FY92 - FY98); (2) Jefferson County Dept. of Planning: *Inventory of Economic Impacts from the Fort Drum Expansion*, Spring 1994; (3) National Resource Directories: *Municipal Reference Guide: New York - Northern Edition*, 1998; and (4) New York Office of State Comptroller: *1998 Financial Condition Report*, 1998.

The contributions of all of the above-mentioned parties and individuals are appreciated. Any errors are the responsibility of the report authors.

# **1. INTRODUCTION**

## **❖ 1.1 Fort Drum Overview**

The tri-county Jefferson / St. Lawrence / Lewis region of New York State has served as a major location for US military facilities for nearly 200 years. In the early 1800's, the region was a base for naval and infantry activity patrolling the Upper St. Lawrence River Valley. In 1908, the Army established the "Pine Plains" training facility outside of Watertown, NY, to serve as a training site for 10,000 soldiers. In 1935, the facility served as the site of training exercises for 36,500 soldiers. The facility then known as "Pine Camp" was expanded during World War II with the addition of several hundred new buildings, and it served as the training site for three army divisions as well as a POW camp. The post was renamed "Camp Drum" in 1951, and designated "Fort Drum" in 1974, when a permanent garrison was assigned. In 1985, Fort Drum officially became the home of the 10<sup>th</sup> Mountain Division (Light Infantry), and by 1989 the division was at full strength with over 10,000 soldiers. Between 1986 and 1992, \$1.3 billion was spent on new buildings, roads and other improvements at Fort Drum. The facility also serves as training facility for National Guard forces. Fort Drum today is the largest single source of jobs in the Tri-County region of New York State.

## **❖ 1.2 Objective of the Economic Impact Study**

In 1986, the Development Authority of the North Country (DANC) commissioned a study of the expected regional economic and community impacts associated with the new expansion of Fort Drum. That study, which released its report in 1987, examined effects on the economy of the Tri-County region (comprised of Jefferson, Lewis and St. Lawrence Counties in New York State). In 1998, the Fort Drum Regional Liaison Organization (FDRLO) – assisted by planning and economic development agencies in the region – decided to commission this new study to examine how Fort Drum's activity has actually affected the region's economy. A major motivation for this new study was to help maximize future economic benefits, by improving the communities' understanding of how they are currently affected by Fort Drum.

Accordingly, this report describes the economic impact of Fort Drum operations on the economy of the Tri-County Region. It documents the types of local jobs directly created by the operation of Fort Drum and the types of local jobs indirectly created as a result of additional orders of materials and supplies generated by the Army base, as

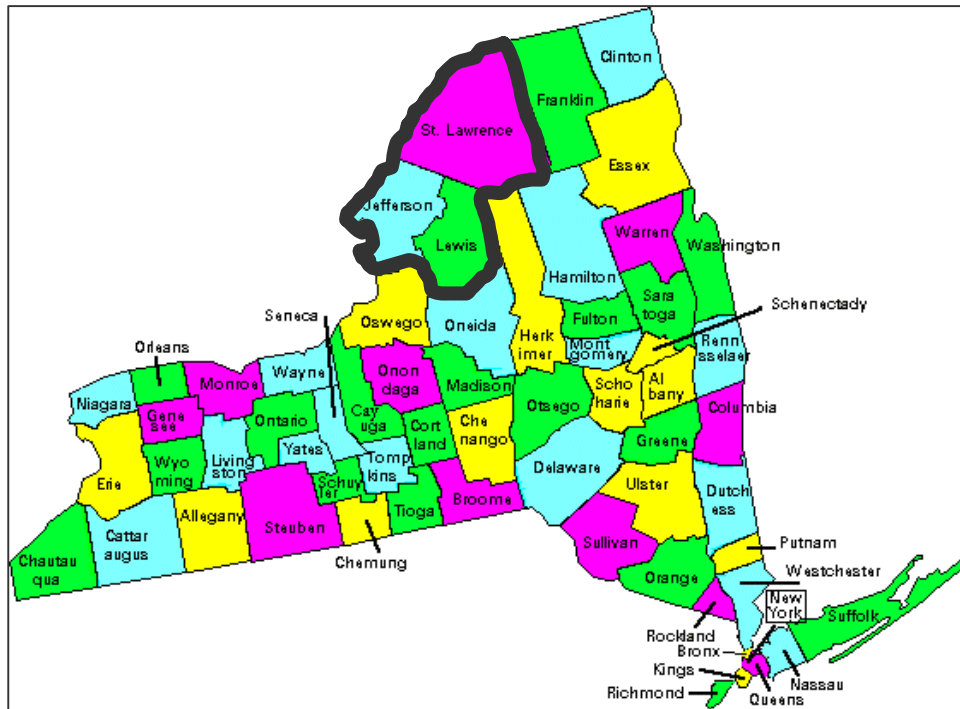
well as respending of worker income. It also shows the magnitude of associated changes in area business sales and personal income for area residents.

An important aspect of this study is that it utilizes a sophisticated economic and demographic simulation model developed by Regional Economic Models, Inc. (REMI). The model, developed with data specific to this region, forecasts the effects of Fort Drum's payroll and spending on the region's overall employment, population, income and business sales. It does this by estimating not only the army base's effects on the region's pattern of business sales and purchases, but also by estimating its effects on supply and demand for labor and materials, market prices and costs, and shifts in the region's population and labor force.

### ❖ 1.3 Study Area

**Location.** The study area is the Tri-County Region of Jefferson County, Lewis County and St. Lawrence County, located in New York State's North Country. The region borders Lake Ontario and the St. Lawrence Seaway. Figure 1-1 shows the location of the region within New York State.

**Figure 1-1 Location of the Tri-County Region Within New York State**

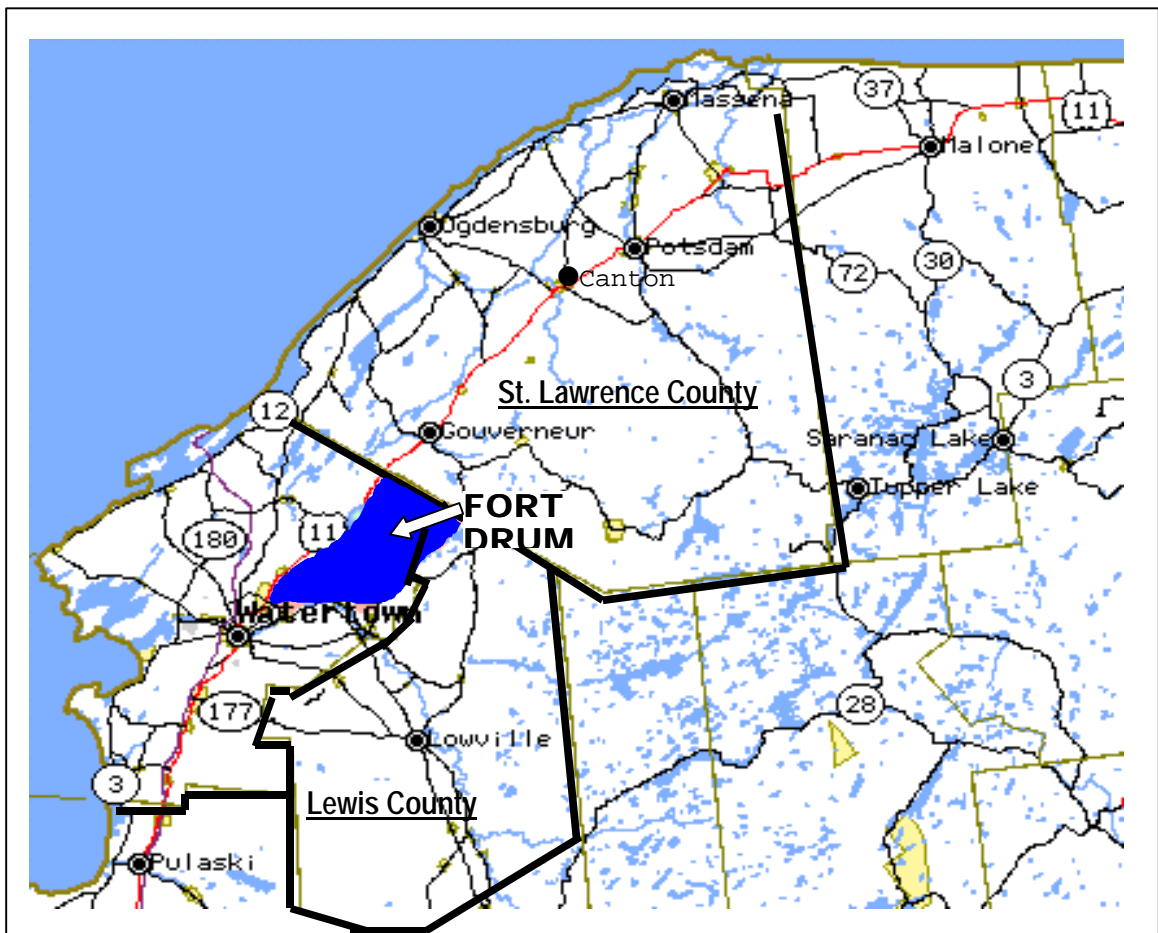




**Population and Communities.** The Tri-County region has an estimated 1998 population of 252,500 people and an employment level of 123,900 jobs. (*Source: Population Estimates Program, US Dept. of the Census; and Regional Economic Models, Inc., projected from US Bureau of Economic Analysis files.*)

Figure 1-2 shows the Tri-County Region, indicating the location of Fort Drum near the region's largest city – Watertown (pop. 27,869). The map also shows its location relative to the region's other major communities -- the city of Ogdensburg (pop. 13,174) and the villages of Massena (pop. 11,867), Potsdam (pop. 9,929), Canton (pop. 6,198), Gouverneur (pop. 5,644) and Lowville (pop. 3,742).

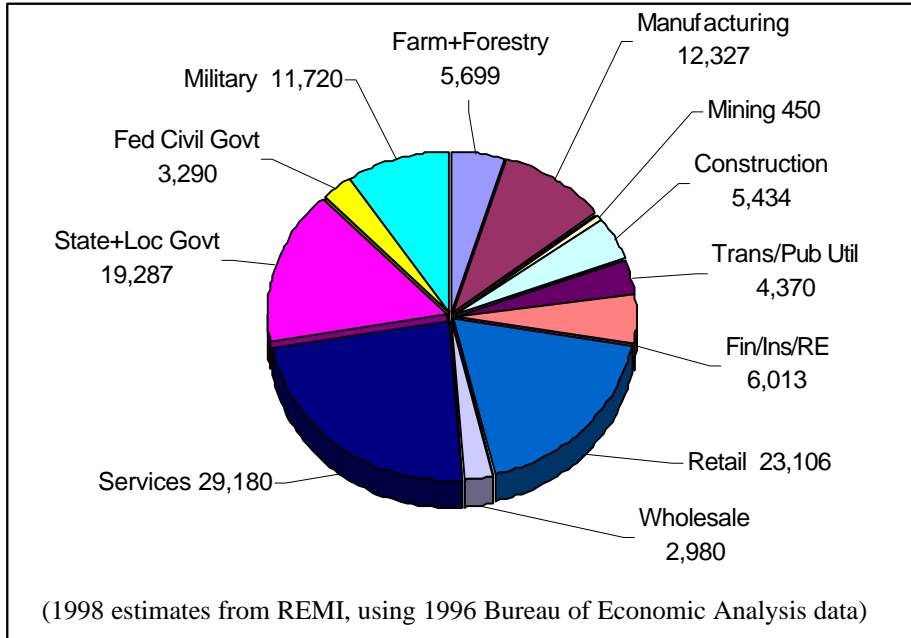
**Figure 1-2. Location of Fort Drum Within the Tri-County Region**



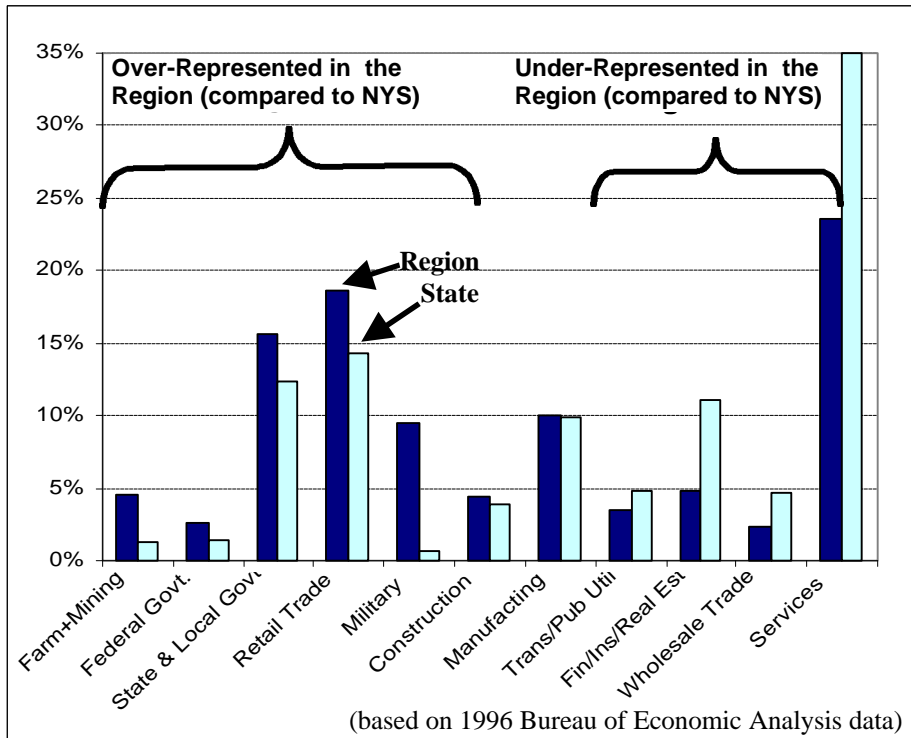
**Economy.** The Tri-County Region of New York's North Country is isolated from other population centers, because of the Adirondack Park located to the east and south, as well as Lake Ontario to the west and the St. Lawrence Seaway to the north. It is largely rural, with a low density of labor force and low average wage rates (only 85% of the national average). A profile of the region's employment base is shown in Figure 1-3, and its differences from the statewide average profile are shown in Figure 1-4. These charts show that the region is characterized by a higher than average

dependence on the military, as well as agriculture, forestry, government and retail jobs. There is also a concentration of industry in the northeast corner of the region (around Massena), and four colleges in Potsdam and Canton.

**Figure 1-3. Employment by Industry in the Tri-County Region**



**Figure 1-4. Comparison of Regional & State Economies (percent of total regional or state employment in each sector)**



## ❖ 1.4 Organization of the Report

The remainder of this report consists of five sections:

- Section 2 provides an explanation of the ways in which local and regional economic impacts occur, and the methodology used to estimate the overall regional impacts of the army base.
- Section 3 describes analysis findings on the pattern of economic activity at Fort Drum, in terms of *on-base* jobs, income and business activity.
- Section 4 describes analysis findings on the regional economic impacts of Fort Drum, in terms of *total regional* jobs, income and business activity.
- Section 5 describes analysis findings on the fiscal impacts of Fort Drum, in terms of state and local tax revenues and expenditures.
- Section 6 provides conclusions regarding the regional economic and fiscal impacts of Fort Drum on the Tri-County Region.

## 2. ANALYSIS PROCESS

### ❖ 2.1 Overview of the Analysis Process

**Elements of the Analysis Process.** For this study, the regional economic impact of Fort Drum is defined as the difference between the Tri-County economy with Fort Drum and what it would be like without Fort Drum. Through an analysis process, the elements of the economy which are directly or indirectly affected by activity at Fort Drum are documented and estimated. In addition, effects that Fort Drum has had on supply and demand for labor, wage rates and costs of living are taken into account. The resulting regional impact can then be viewed in terms of employment (jobs), population, personal income (wages), business sales (output) and/or gross regional product (or value added)<sup>1</sup>.

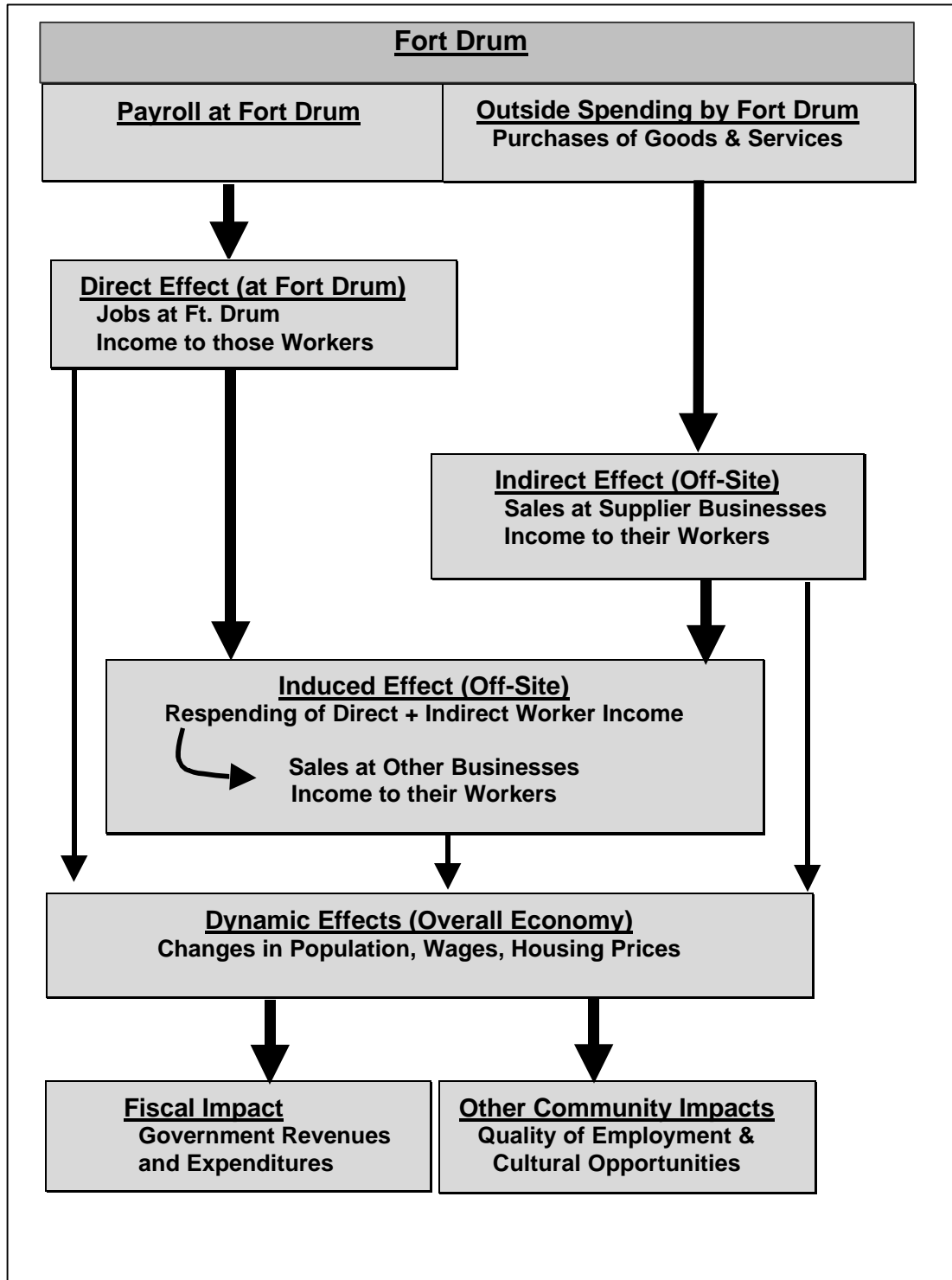
The calculation of overall impacts includes six elements, which are summarized below and graphically illustrated in Figure 2-1:

- 1) **Documentation of Direct Employment & Payroll (at Fort Drum).** *Direct employment* is defined as workers employed by the US Department of Defense (DOD) at Fort Drum, including both military staff based at Fort Drum and civilian employees working there. The payroll (wages) paid by Fort Drum to these workers, who reside within the region, constitutes the direct income effect. This information was supplied directly by Fort Drum staff.
- 2) **Documentation of Spending by Fort Drum.** Fort Drum also spends money for purchases of goods and services from outside vendors. This includes purchases of supplies, utility services, construction and other contract services. The profile of this spending, and the portion of it which flows to suppliers within the Tri-County Region, was calculated on the basis of detailed lists provided by Fort Drum to the consultant team.
- 3) **Estimation of Indirect Economic Effect.** The *indirect economic effect* on the region is defined as the additional business sales, jobs and income generated within the region as a result of spending by Fort Drum on outside vendors (element #2 above). The portion of Fort Drum's direct spending which goes to suppliers within the region is referred to as the "first round indirect effect." It leads to additional sales generated at other businesses in the region which supply parts, materials or

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<sup>1</sup> Gross Regional Product, or Value Added, is a measure of economic activity occurring in the region. It is calculated as the level of business sales in the region minus the cost of non-labor inputs (materials and services) purchased from other businesses. It thus includes wages and profits.

Figure 2-1 Elements of the Economic Impact Analysis Process



services to those first round suppliers. These are referred to as “additional rounds of indirect effects”. The sum total of indirect effects (which result from the spending by Fort Drum) were estimated using the REMI economic forecasting and simulation model. For this study, the model was designed with data specific to the economy of the Tri-County region. (The REMI model is discussed further in Section 2.5.)

- 4) **Estimation of Induced Economic Effect.** The *induced economic effect* is defined as the additional local business sales, jobs and income generated as a result of the re-spending of worker income. This occurs as a result of the increase in personal income associated with direct employment (element #1) and indirect employment (element #3). Wages paid to these workers lead to additional spending by these workers on a variety of consumer goods and services (e.g., clothing, food, medical services, entertainment, etc.). This, in turn, generates new business sales and additional employment throughout the economy. These induced effects also were estimated using the REMI model.
- 5) **Estimation of Dynamic Economic Effects.** *Dynamic effects* occur as the changes in demand for various types of jobs, goods and services (generated by preceding elements #1 - #4) lead to additional effects on wage levels, prices, costs of living, and relative costs of doing business. These effects, in turn, cause further adjustments over time in the region’s population and employment patterns. These dynamic effects also were estimated through use of the REMI model.
- 6) **Estimation of Fiscal Impacts.** The *fiscal impact* is defined as the set of changes in state and local government revenues and expenditures, which occur as a result of Fort Drum’s impact on the regional economy (elements #1-5, above). This includes effects on revenues from property, sales and other taxes, as well as expenditures for schools, public safety and other government services. The magnitude of these effects was estimated through a fiscal impact spreadsheet model, which is being provided to the Fort Drum Regional Liaison Organization.

**Methods.** The methods used to estimate these six elements of regional impact are discussed in this report in terms of three major tasks:

- Data Collection and Interviews (discussed in Section 2.2).
- Model of Regional Economic Effects (discussed in Section 2.3)
- Model of Fiscal Impacts (discussed in Section 2.4).

**Measurement of Impacts.** It is important to note that overall impact is measured in terms of jobs, population, income, business sales, gross regional product and net government income. However, these measures are all different dimensions of the same regional impact, so they cannot be added together. In particular, the income to workers at private sector businesses is a subset of gross regional product (value added), which in turn is a subset of total business sales. Similarly, tax income to state or local governments is a subset of personal and business income.

**Time Period.** This study focuses on providing a profile of economic impact of Fort Drum on the Tri-County Region as of 1998. However, there is also some discussion of the extent to which these impacts have changed over the decade since Fort Drum reached full strength as the home base for the US Army's 10<sup>th</sup> Mountain Division (in 1989), and how they could be affected in the future as the region's economy evolves. To do this, historical economic data and the REMI model were used to track changes in the region's economy over the 1970 – 1998 period.

## ❖ 2.2 Data Collection and Interviews

**Elements.** Data collection and analysis covered: (a) activity at Fort Drum, (b) effects on the local and regional economy and (c) effects on local government. A large number of documents were reviewed, information was extracted and analyzed from data bases, and interviews or discussions were held with over 35 individuals.

**(a) Activity at Fort Drum.** This aspect of the data collection covered information on the pattern of employment and spending generated directly by Fort Drum. It included spending associated with:

- authorized permanent levels of military and civilian personnel
- transient personnel: army and national guard trainees visiting for short periods
- associated military and civilian payroll
- spending on contracts for materials, services, utilities and construction
- spending on non-contract purchases of materials and supplies
- on-base and off-base housing for Fort Drum personnel and their families
- medical care for Fort Drum personnel and their families
- education for Fort Drum personnel and their families
- grants made to local schools and “payments in lieu of taxes” (PILOT)
- other services provided for Fort Drum personnel and their families

These data were obtained directly from Fort Drum staff. Fort Drum publishes an annual report entitled, *Economic Impact of Fort Drum*. The document summarizes the level of direct employment at Fort Drum and provides a breakdown of annual spending. The project team reviewed this annual report for years from 1992 – 1998, to assess whether 1998 was a typical year. In addition, the project team requested from Fort Drum, and received, a detailed list of contracts for construction, services and supplies. The list included a categorization of the type of supplier, its name and its zip code location. The consultant team used this information to calculate the extent to which various types of purchases were made from businesses located within the Tri-County Region. Profiles for purchases were also provided for Fort Drum's non-contract purchases, including credit card purchases.

Further clarifications of employment and spending patterns were provided through discussions with Fort Drum staff -- including staff of the Installation Business Office, the Directorate of Contracting and Training Operations office.

**(b) Local and Regional Economy.** These interviews addressed the nature of the local economy, and the extent to which various elements of the economy depend on Fort Drum activity. They included over 35 interviews, covering:

- key suppliers of goods and services to Fort Drum
- owners and managers of local businesses employing and serving members of the military and military-related dependents
- representatives of the larger local retailers and shopping centers
- local real estate agents and property developers
- representatives of business organizations
- operators of local medical facilities
- providers of utilities and waste disposal services
- representatives of municipalities and county planning departments
- job development agencies

An interview guide was used to structure these interviews. The questions were:

1. What *types of activities* are undertaken by your organization that involve services or goods supplied to Fort Drum, its employees or households?
2. What is the *time pattern* of these activities (multi-year, annual, seasonal, or daily basis)?
3. How are the transactions *formalized* or contractualized?
4. To what extent do these transactions involve *direct expenditures* made for goods or services by Fort Drum?
5. To what extent do these transactions involve *indirect expenditures* to provide goods or services to other organizations which are directly supplying Fort Drum?
6. To what extent do these transactions involve *induced expenditures* made by people whose incomes derive from activities related to Fort Drum?
7. What is the *amount of money* involved in this transactions (over what period of time)?
8. What is the *geographical service pattern* of these transactions?
9. Are there any "*thresholds*" of activity, whereby the investment in facilities or activities of your organization are significantly higher than they would be without Fort Drum?
10. What is your view as to the effect which Fort Drum has on employment and payroll levels within your organization (and an other organizations with which you interact)?

**(c) Effects on Local Government.** This aspect of the data collection covered effects of Fort Drum on local government and public institutions. It included:

- Profiles of the most recent available tax revenues by source (type of tax) for the state, for each of the three counties, for the towns within each county, and for the various cities, villages and school districts within the region.



- Profiles of the most recent available public expenditures by category (type of spending), for the state, for each of the three counties, for the towns within each county, and for the various cities, villages and school districts within the region.<sup>2</sup>

Data came from the New York State Dept. of Revenue, individual counties, and the *Municipal Reference Guide: New York - Northern Edition, 1997/1998*. In addition, interviews were held with representatives of:

- Jefferson, Lewis and St. Lawrence County planning offices
- City of Watertown
- school districts
- Development Authority of the North Country (a quasi-public authority which also provides solid waste disposal)
- employment, economic development and industrial development agencies
- other public agencies.

As with the local economic interviews, these public agency interviews focused on identifying the extent to which various local government bodies and public agencies depended directly or indirectly on Fort Drum for revenues, and provided services for populations directly or indirectly affected by Fort Drum.

## ❖ 2.3 Model of Regional Economic Impacts

**Overview of Model Use.** The total direct, indirect, induced and dynamic effects of the construction project on the Tri-County Region were estimated using a REMI model that was calibrated with data on the economy of the Tri-County Region. In the context of this study, the REMI model is given a set of inputs: the number of military and civilian employees at Fort Drum, the associated payroll, and the pattern of spending (on various types of goods and services). The model then estimates, on a year-by-year basis, the impact of Fort Drum on employment and business output, for each of 53 industry categories and 94 detailed occupational categories. The model also forecasts other variables such as personal income, population, wage rates, and gross regional product (value added) at a similar detailed level.

**REMI Background and Features.** Regional Economic Models, Inc. (REMI) has for nearly twenty years been a national leader in constructing regional and national economic forecasting models, which reveal the economic and demographic impact that public policy initiatives and private sector events may have on a local economy.

Versions of the REMI model have been adopted and used by numerous federal agencies (including the Environmental Protection Agency, Federal Highway

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<sup>2</sup> The *Municipal Resource Guide: NY Northern Edition 1997/1998* provided data for all but two towns in the region. The two towns not included in the calculation are Russell and Norfolk.

Administration, Federal Aviation Administration and National Institute of Standards & Technology). It has also been adopted and used by over half of the states in the country. Within New York State alone, the REMI model is currently used by the State Assembly, State Division of Budget, Empire State Development Corp., NY State Energy Research & Development Corp. (NYSERDA), and NY City Economic Development Corp. It was previously used by the Development Authority of the North Country, as well as by Niagara Mohawk Power Corporation.

The model and its advantages have been widely documented in professional journals, including *The American Economic Review*, *The Review of Economics and Statistics*, *Growth and Change*, and *The Journal of Regional Science*. An article setting forth the current structure of the REMI EDFS model is found in *The International Regional Science Review* and in a book entitled *Regional Economic Modeling*.

A recent, publicly-funded \$200,000 study by the Department of Urban Studies and Planning at the Massachusetts Institute of Technology (MIT) evaluated the range of available economic impact tools and concluded that:

"REMI has the following seven features often unavailable in many other microcomputer-based regional forecasting models:

1. It is calibrated to local conditions using a relatively large amount of local data, which is likely to improve its performance, especially under conditions of structural economic change.
2. It has an exceptionally strong theoretical foundation.
3. It actually combines several different kinds of analytical tools (including economic-base, input-output, and econometric models), allowing it to take advantage of each specific method's strengths and compensate for its weaknesses.
4. It allows users to manipulate an unusually large number of input variables and gives forecasts for an unusually large number of output variables.
5. It allows the user to generate forecasts for any combination of future years, allowing the user special flexibility in analyzing the timing of economic impacts.
6. It accounts for business cycles.
7. It has been used by a large number of users under diverse conditions and has proven to perform."

**Elements of the REMI Model.** The REMI model combines four model features, which interact to form an integrated modeling system. They are:

- a *forecasting element*, which tracks historical changes in population, employment, business sales, and profits for the region for each year over the 1969-1996 period, and then projects future changes for each year over the 1998-2035 time period.

- a *policy impact element*, which estimates how policies and projects change business revenues and operating costs in each industry in the region, and their effects on the region's competitive position and share of national growth;
- a *population element*, which estimates changes in population migration in response to changes in demand for labor, wage levels and living costs.
- an *input-output element*, which accounts for the inter-industry flows of dollars, and the associated indirect and induced economic effects.

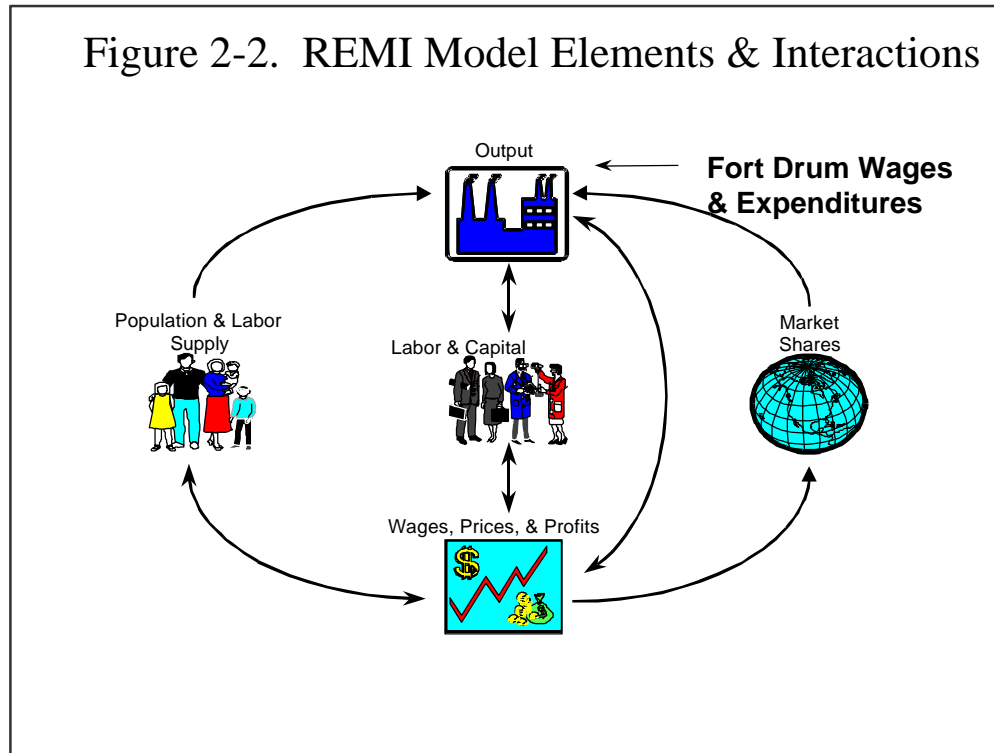
For this study, the input-output element of the REMI model allows it to capture the extent to which households and each specific industry sector make purchases of materials and services from other industries, and the extent to which these materials and services are provided by businesses from within the region. The indirect effect of business supply purchases and the induced effects of additional income and consumer spending are then estimated by the model.

The population, forecasting and policy elements of the REMI model also indicate additional changes in the regional economy associated with of a large number of dynamic economic interrelationships. These include substitution among factors of production in response to changes in relative factor costs, migration in response to changes in expected income, wage responses to changes in labor market conditions, and changes in the share of local and export markets in response to changes in regional profitability and production costs.

The structural components the REMI model and their interactions are illustrated in the schematic in Figure 2-2. In that context, the inputs to the REMI model (wages and spending of Fort Drum) represent increases in the flow of income and business sales in the region's economy (part of the model's output block). The resulting business expansion leads to an increase in demand for labor. That in turn tends to drive up wages, which then attracts more people to live in the region (thus expanding the population and labor supply). The additional population further increases spending in the region and continues the cycle of growth. The factor which constrains this cycle is that it also pushes up costs of living and costs of doing business (which are estimated in the model's wage & price block, and then affect the model's projection of the region's market shares).<sup>3</sup>

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<sup>3</sup> A more complete overview of the REMI model is provided in the article: "Policy Analysis Applications of REMI Economic Forecasting and Simulation Models," International Journal of Public Administration, v.18, n.1, pp.13-42, 1995.



## ❖ 2.4 Model of Fiscal Impact

**Overview of Model Use.** The *fiscal impact* is defined as the change in government revenues and expenditures caused by Fort Drum. To predict these impacts, a fiscal impact model was developed specifically for this project. The model was designed to incorporate accepted procedures of the US Department of Defense Office of Economic Adjustment, and to integrate results from the REMI economic impact model. It is also structured to allow assessment of alternative actions by the Department of Defense, including any future expansion or contraction of activity at the base. By providing an ability to forecast such impacts on the region, the model can be useful for either negotiations or planning.

**Model Objective and Design.** Fiscal impact analysis focuses on how changes in population, employment and income will affect local and state government revenues and expenditures. While the REMI model does show how gain or loss of population and employment will expand or shrink the size of local government, it does not distinguish impacts on local and state government by detailed categories, including public safety, schools, public works, and other services. To estimate such detailed fiscal impacts, a separate fiscal impact model was developed.

Fiscal impact models generally calculate the following:

- How shifts in population and employment will lead to changes in the costs of public services (e.g., safety, education, waste disposal) and

- How shifts in income levels and housing costs will lead to changes in public revenues (e.g., property, sales, and income tax collections).

**Importance of Fiscal Impact Analysis.** Communities often voice concern about the economic impacts that will result from the expansion or contraction of a major employer. While impacts on employment and income are most immediately felt by individuals, they also have major effects on local government revenues and services.

Communities need to understand how their local government costs and services are linked to various economic sectors and employers, so that they can be prepared to respond to possible future changes that could otherwise bring unexpected service demands and/or revenue shortfalls.

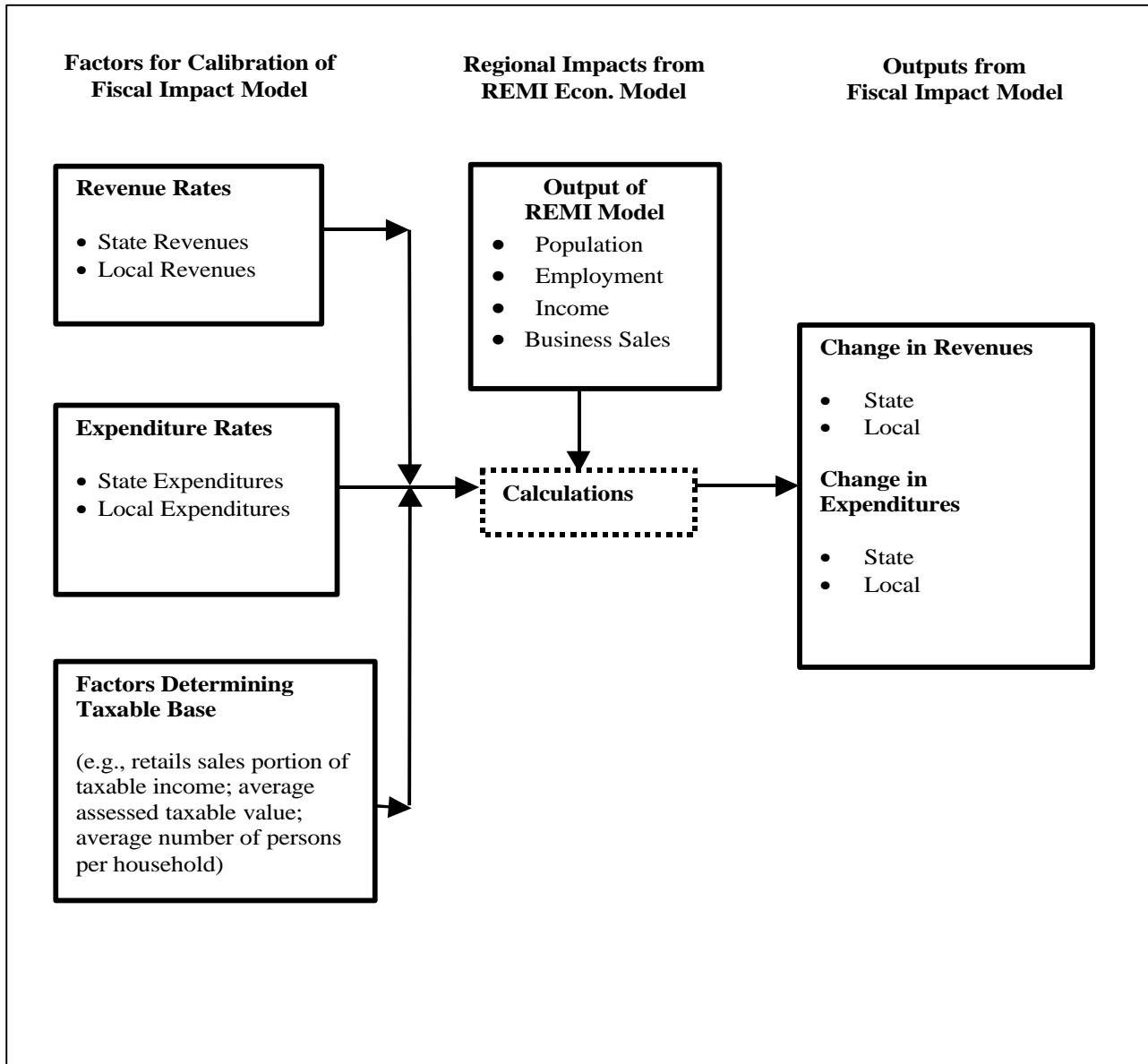
**Conceptual Approach & Methodology.** The Fort Drum fiscal impact analysis uses a fiscal impact model developed by Economic Development Research Group and Nutter Associates. Figure 2-3 provides a conceptual description of this model.

The fiscal impact model is used to calculate *changes* in state and local revenue sources and expenditure for the Tri-County Region. Government revenues are generated in the Tri-County Region from taxes on personal income, corporate profits, retail sales, and real property, as well as by a range of fees. Residents may pay taxes to the state, to their county, to their local jurisdiction (town, village, city) and to their school district. In exchange for these taxes, residents receive services ranging from public works and highways to educational facilities to social services. The rates at which these revenues and expenses occur comprise fundamental factors in the model.

A key aspect of the fiscal impact model is that the various types of revenues and expenses are generated in different ways. For example, the value of property tax revenues is dependent on the assessed value of real property in the region. Sales tax revenues are generated based on the total value of retail sales in the region. Personal income tax revenues derive from the personal income received by residents of the region. Expenditures on government services generally derive from total population and employment size (and secondarily from unemployment and income change).

To actually calculate fiscal impacts, additional factors must be applied to estimate the various elements of the taxable base. The fundamental inputs to the fiscal impact model are the impacts of Fort Drum on population, employment, income and business sales (outputs from the REMI model). These are the primary causal factors which then *drive* changes in the region's tax base (including taxable income, taxable corporate profits, retail sales, gasoline consumption and assessed property values).

Figure 2-3: Components of the Fiscal Impact Model



It is also important to understand that changes in activity at Fort Drum will not necessarily affect all categories of revenues and expenses equally. The example below will help illustrate this point.

If Fort Drum adds 1,000 troops to the base, all of whom are housed on base, the relative impact on property tax revenue and retail sales tax revenue will be different than if the 1,000 troops were housed off-base. Troops housed on-base will have minimal, if any, impact on property values in the region. (Conversely, troops housed off-base would impact housing prices and property values by increasing demand for housing and, thus, housing prices.) Furthermore, if the troops are housed on-base, the region's expenditures on fire services would be minimal insofar as Fort Drum provides its own internal services for fire protection. However, since children of all soldiers will attend the region's schools, school expenditures will increase regardless of where soldiers are housed. The military does provide school aid to local communities to offset this cost. Since the troops will spend portions of their salaries on retail goods sold in the region, sales tax revenues in the region will increase regardless of where troops are housed.

**Calibration.** Government revenues and expenditure vary substantially by category among the villages, towns, cities and counties in the Tri-County Region. However, for the purposes of developing a fiscal impact assessment for the region as a whole, it was necessary to develop an average regional (i.e., for all levels of government combined) per capita dollar value for several government revenue and expenditure categories. Revenue and expenditure data for jurisdictions in the Tri-County area were broken down by the following categories, as reported in *Municipal Resource Guide: NY Northern Edition 1997/98*:

- property taxes,
- sales tax,
- state aid,
- federal aid,
- investment income, and
- miscellaneous revenues.

Expenditures were also broken down, for the jurisdictions within the region, for the following categories:

- transportation,
- general government,
- health,
- public safety,
- economic assistance,
- education,
- culture and recreation,
- utilities, and
- miscellaneous expenses (including capital investments)

For both revenues and expenditures, region-wide profiles of the tax burdens and per capita expenditure rates were then calculated. Information on applicable tax rates was assembled, along with a range of demographic and economic factors necessary to translate the REMI model results (i.e., employment, population, income and business sales) into factors to be used to calculate fiscal impacts (e.g., retail spending, gasoline consumption, assessed property values, etc.).

This process required substantial data collection. Table 2-1 shows the sources for each of the critical data used in the Fort Drum fiscal impact analysis. The analysis relied primarily on published government sources at the federal, state and local levels. Some local data was also collected from, or corroborated through telephone interviews with public agency officials in the Tri-County Region, and representatives of Fort Drum.

**Interpretation.** Results of the Fort Drum fiscal impact assessment provide an estimate of the total revenue dollars and total public expenditures which occur at the state and local levels because of Fort Drum. Two caveats are in order, however:

- (1) The fiscal impact analysis addresses region-wide impacts. While data from each jurisdiction in the region was used to calculate region-wide impacts on government revenues and expenditures, the fiscal impacts of Fort Drum on each individual community were not calculated separately. The proportional impact of Fort Drum on specific communities can be greater or less than the region-wide averages. This is because of geographic variation in the location of communities relative to Fort Drum. Furthermore, there is variation among communities as to where Fort Drum personnel live, shop and go to school.
- (2) The fiscal impact of Fort Drum associated with future expansion or contraction scenarios can be proportionally greater or less than that indicated by this study. Actual impacts would depend on whether the magnitude of changes at the base are large enough to require either new construction or closure of schools, fire stations or other public facilities. Results of this fiscal impact model are based on *average costs* of public services, while *threshold costs* (e.g., the cost of building a new school or fire station) associated with a future scenario may differ depending on the pre-existing and forecast change in demand for those various public facilities. Such threshold costs are not included in the average cost.



**Table 2-1: Fiscal Impact Analysis Data Sources**

<u>Data</u>	<u>Source</u>
State, County & Local Populations (1997)	US Census
State, County & Local Employment (1996)	US Bureau of Economic Analysis
NYS Personal Income	US Bureau of Economic Analysis
NYS Personal Income Tax Rates	NYS Office of the State Comptroller
NYS Corporate Tax Rate	The Tax Foundation
NYS Motor Fuel Tax Rate	Office of Highway Information Management, Federal Highway Admin.
Retail sales portion of personal income	US Consumer Expenditure Survey
NYS Revenues from Taxes, Fees & Intergovernmental Transfers (1998)	NYS Office of the State Controller
NYS Expenditures (1998)	NYS Office of the State Controller
Local Government Revenues from Taxes, Fees & Intergovernmental Transfers (1997)	<u>Municipal Resource Guide: NY Northern Edition 1997/98</u>
Local Government Expenditures (1998)	<u>Municipal Resource Guide: NY Northern Edition 1997/98</u>
Local Government: Average assessed taxable property value per household	Based on average housing sales price (1997 sales) for 3-county region, from NYS Office of Real Property Services
Local Property Tax Equalization	NYS Office of Real Property Services
Local Property Tax Rates	NYS Office of the State Controller
Average Persons/Household	1990 US Census of Population, for 3-county region
Percentage of persons owning homes	1990 US Census of Housing, for 3-county region

## 3. ACTIVITY AT FORT DRUM

### ❖ 3.1 Direct Employment

As defined in Section 2, *direct employment* refers to individuals, both military and civilian, who work at Fort Drum. The US Army employs nearly 13,000 individuals at Fort Drum. In addition, during the course of a year over 30,000 Army and National Guard personnel visit Fort Drum for short periods of time for training. Table 3-1 provides a breakdown of these full-time and transient personnel (trainees). Only those who are based at Fort Drum are counted as contributing to the regional economic and population impacts in this study. Since the transient personnel visit Fort Drum for intensive short-term training, they spend little money locally during their visits, and hence contribute negligibly to the regional economy. (However, the training activities do contribute to the region's economy insofar as some full-time personnel at the base are employed to support and help operate those activities.)

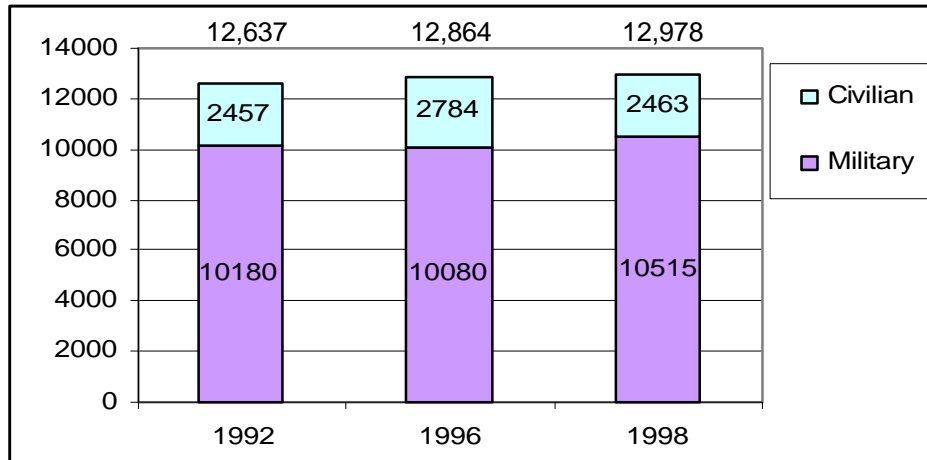
**Table 3-1 Breakdown of Direct Employment at Fort Drum (1998)**

<u>Personnel Category</u>	<u>Number of Employees</u>
<b>Military:</b> Garrison	95
10 <sup>th</sup> Mountain Division	8,438
Non-Division	1,266
<u>Tenants</u>	<u>716</u>
Total Military	10,515
<b>Civilian:</b> Garrison	1,168
Tenants	1,024
<u>Other (Non-appropriated Funds)</u>	<u>271</u>
Total Civilian	2,463
<b>TOTAL FULL-TIME PERSONNEL</b>	<b>12,978</b>
<b>Reserves:</b> Trainees	1,729
<u>Weekend</u>	<u>4,099</u>
Total Reserves	5,828
<b>Nat. Guard:</b> Trainees	11,983
<u>Weekend</u>	<u>8,819</u>
Total National Guard	20,802
<b>Other:</b> ROTC (weekend)	215
<u>Miscellaneous (weekend)</u>	<u>3,321</u>
Total Other	3,536
<b>TOTAL TRANSIENT PERSONNEL</b>	<b>30,166</b>

Source: *Fort Drum Economic Impact Statement, FY 98* (for full-time personnel); Fort Drum Training Operations, Coordination Branch (for transient personnel)

For the full-time (non-transient) staff, Figure 3-1 shows the change over time in the total number of personnel. In the last two years, military personnel increased by 4.3%, while civilian personnel decreased by 11.5%. Overall, the total numbers of on-base personnel have remained in the 12,500 to 13,000 range since 1990.

**Figure 3-1 Change in Fort Drum Employment Levels Over Time**

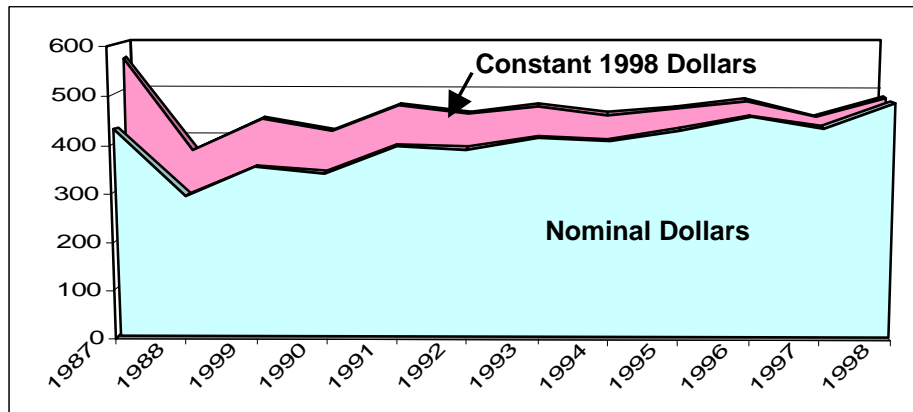


Source: Fort Drum Economic Impact Statements, FY 92, FY96, and FY98

### ❖ 3.2 Direct Spending Level

The pattern of overall spending by Fort Drum, including both wages and purchases, is shown in Figure 3-2. Spending has fluctuated over time, reflecting the timing of construction projects. Total spending in fiscal year 1998 (including Army Corps of Engineers contracts at Fort Drum) was \$485 million. Since 1990, total spending has gradually increased, though the difference is small after controlling for inflation.

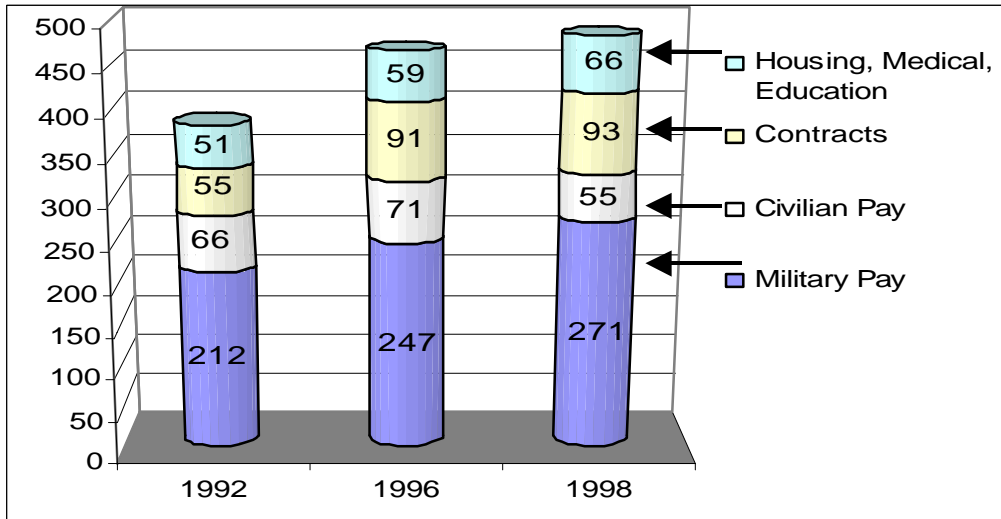
**Figure 3-2 Change in Fort Drum Expenditures Over Time**



Source: from Fort Drum Economic Impact Statements, FY 92-FY98, with adjustments adding spending flows to outside vendors and deducting the value of state aid & charitable giving.

The components of spending by Fort Drum (including Army Corps of Engineers contracts) are shown for three years in Figure 3-3. It shows that over two-thirds of the spending is on staff wages. In the past two years, there have been *increases* in spending on military pay and military staff housing, medical care and education . Over this same time period, spending on civilian pay has *decreased*. A further breakdown of spending for the most recent year (1998) is provided in Table 3-2.

**Figure 3-3 Components of Fort Drum Expenditures (# millions)**



**Table 3-2 Detailed Breakdown of Fort Drum Expenditures (1998)**

<u>Category</u>	<u>Spending (1998)</u>
<b>Wages</b>	
Military Pay	\$ 271.2 m
Civilian Pay	\$ 54.7 m
<b>Housing-Medical-Education</b>	
Housing (on and off-base)	\$ 21.6 m
Medical & Dental	\$ 36.8 m
Local School Aid	\$ 6.8 m (1)
Tuition Assistance	\$ 0.7 m
<b>Contracts &amp; Other Purchases</b>	
Construction	\$ 25.0 m
Army Corps of Engineers	\$ 22.5 m (2)
Electric Power	\$ 7.7 m
Sewer & Solid Waste	\$ 1.8 m
Other Service & Supply Contracts	\$ 23.0 m
Credit Card Purchases	\$ 13.0 m

(1) contributions from US Army only; does not count additional \$2.3 m of state impact aid to schools

(2) value of contracts in current year (Army corps awarded \$68.2 m of contracts in FY98)

**Source:** from *Fort Drum Economic Impact Statement, FY 98*, with adjustments to add spending flows to outside vendors and deduct the value of state aid & charitable giving. Additional data from discussions with Army Corps of Engineers and Ft. Drum Directorate of Contracting.

### ❖ 3.3 Pattern of Spending in the Tri-County Region

**Staff Costs.** Essentially all of the military and civilian wages are paid to persons who live within the Tri-County region. Similarly, nearly all of the ongoing expenditures on facilities and benefits for those staff – including housing, medical care and school children education -- cover costs of facilities and services located within the region. Thus, those elements of Fort Drum spending lead directly to local income.

**Contracting.** Contracts for construction and for services have been awarded to a mix of businesses within and outside of the Tri-County Region. Figure 3-5 shows and estimate of the *percent* of contracts awarded to businesses in the region, and Figure 3-6 shows the estimated *dollar value* of those contracts. There is some variability in these estimates because local businesses may subcontract parts of their work to contractors located outside the region. Conversely, outside businesses may subcontract parts of their work back to local businesses. No information is available to compute the value of these subcontracting agreements. Nevertheless, the graphs provide a reasonable gauge of the overall pattern of contracting.

**Fort Drum Construction Contracts.** This includes construction of on-base buildings and roads. The region's construction industry has grown in strength in recent years, and now receives \$13 million/year -- a majority of the construction contracts issued by Fort Drum. That is a major increase from the early 1990's, when businesses in the region received less than 1/3 of the construction spending (totaling only \$5 million/year).

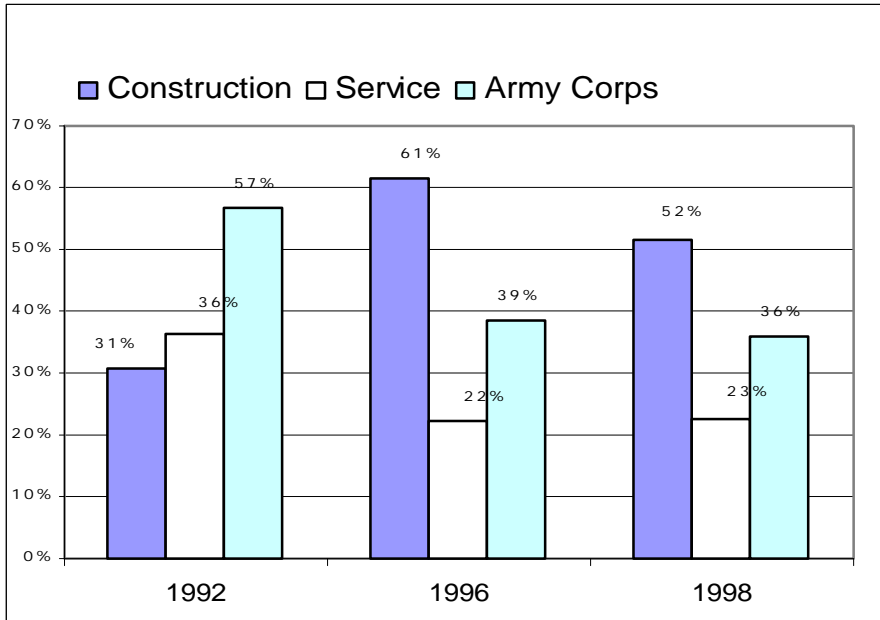
**Fort Drum Service Contracts.** The dollar volume of service contracts going to businesses in the region has fluctuated over time (\$7 million in 1998; \$8-9 million in past years). The portion of these contracts going to businesses in the region has decreased since the early 1990's. This may be the result of (a) changes in the mix of services being purchased by Fort Drum, and/or (b) changes in the mix of vendors available in the region. The latter may be a reflection of the fact that, around the country, many service businesses have undergone mergers and consolidations with larger providers. In that case, a local vendor may now be part of a larger outside firm, but the amount of local jobs and income generated by that business may not have changed.

**Army Corps of Engineers Contracts.** In terms of dollar volume, Army Corps construction contracts add another \$8 million to the region. The portion of this money staying within the region has appeared in recent years to be less than the corresponding portion for general construction contracts. However, this may be a result of different ways of accounting for such impacts. Fort Drum estimates the region's portion of its contracts based on the contractor's address, while the Army Corps of Engineers bases its estimate on the contractor wages paid for local work..

**Non-Contract Purchases.** In addition to its contract purchases, Fort Drum annually spends \$13 million on non-contract purchases through the International Merchant

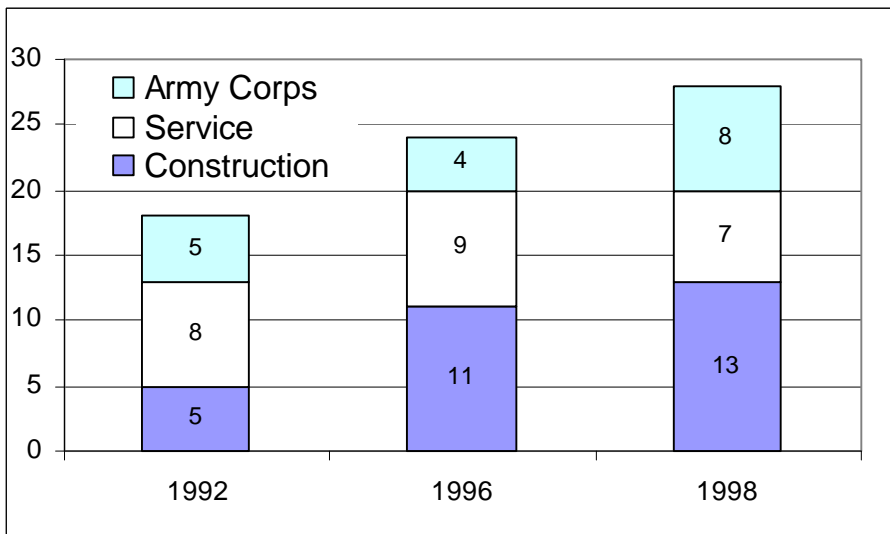
Purchase Authorization Card (IMPAC) Program. Purchases on this government VISA card are all relatively small. Approximately 70% of these purchases (\$9 million) go to businesses in the region.

**Figure 3-5 Percent of Total Contracts Going to Tri-County Businesses**



Source: *Fort Drum Economic Impact Statements, FY 92-FY98*, with supplementary data on contracts from the Installation Business Office, Directorate of Contracting and Army Corps of Engineers.

**Figure 3-6 Value of Contracts Going to Tri-County Businesses (\$ millions/year)**



Source: *Fort Drum Economic Impact Statements, FY 92-FY98*, with supplementary data on contracts from the Installation Business Office, Directorate of Contracting and Army Corps of Engineers.

**Direct Effect on Regional Business Revenue.** The total direct effect of Fort Drum expenditures on business revenues in the Tri-County Region includes: (a) \$28 million of contracts going to businesses in the region, (b) \$9 million of non-contract purchases going to businesses in the region and (c) \$66 million of housing, medical and education spending going to businesses and non-profit agencies in the region. The total direct flow of Fort Drum spending to recipients in the region is thus \$103 of non-labor spending, in addition to the \$326 million of wages paid. This sums to \$429 million.

**Relevance to Economic Impact Model.** Overall, spending by Fort Drum on wages and purchases reflects the direct effects of the base. This information is input into the REMI economic model, discussed earlier in this section, in order to estimate the overall regional economic impact of Fort Drum.

### ❖ 3.4 Direct Community Impacts

**Charity.** Fort Drum soldiers, family members and employees contributed \$202,000 in FY98 to human service organizations in the region, through the "Combined Federal Campaign." This figure has been rising over time -- for instance, it was \$25,000 in FY92. This is a clear regional benefit, but it is counted in the economic impact modeling as an aspect of workers respending their own incomes (rather than as a direct disbursement from the US Army).

**State Aid.** New York State provides \$2.3 million of impact aid to local schools, to supplement the \$6.8 million provided directly by the Department of Defense. This is counted in the fiscal impact modeling, as a state government expenditure and a local government receipt.

**Culture and Recreation.** Fort Drum sponsors a range of activities for residents of the region, including "Mountainfest", the "US Army Soldier Show", and the "Dog Days of Summer" concert. These activities are described further in Fort Drum's annual *Economic Impact Statement*. These are benefits affecting the quality of life, though they do not directly or significantly affect the flow of dollars in the economy.

## 4. REGIONAL ECONOMIC IMPACT

### ❖ 4.1 Flow of Dollars in the Economy

**Sequence of Effects.** The REMI model was used to estimate the overall impact of Fort Drum on the Tri-County economy. It accounted for the following factors:

- The *direct economic effects* were documented in Section 3. They include payroll spent by the US Department of Defense, plus non-payroll (outside) spending by the Department of Defense to vendors providing goods and services to Fort Drum.
- The *indirect economic effects* are additional (off-site) jobs and income supported by Fort Drum's non-payroll expenditures for services and supplies, as well as staff benefits.

The magnitude of total indirect effects depend on: (a) the types of purchases made, and (b) the extent to which those purchases go to businesses located within the region. Figure 4-1 shows, for different types of purchases, the estimated portion of spending which goes to businesses located within the region. That portion is very high for some types of purchases (such as medical care and sewer/water/waste services), and much lower for other types of purchases (such as food, electric power and manufactured products).

- The *induced economic effects* result from re-spending of wages associated with the direct and indirect employment. As workers re-spend their income on consumer purchases, they generate business sales and employment in other sectors of the economy.

The magnitude of these induced effects depends on: (a) the amount of spending resulting from directly and indirectly generated wages, (b) the profile of consumer spending and (c) the extent to which that spending goes to businesses in the region. The latter is calculated by the REMI model based on the make-up of the region's economy. Figure 4-2 shows a profile of the average pattern of consumer spending in the US.

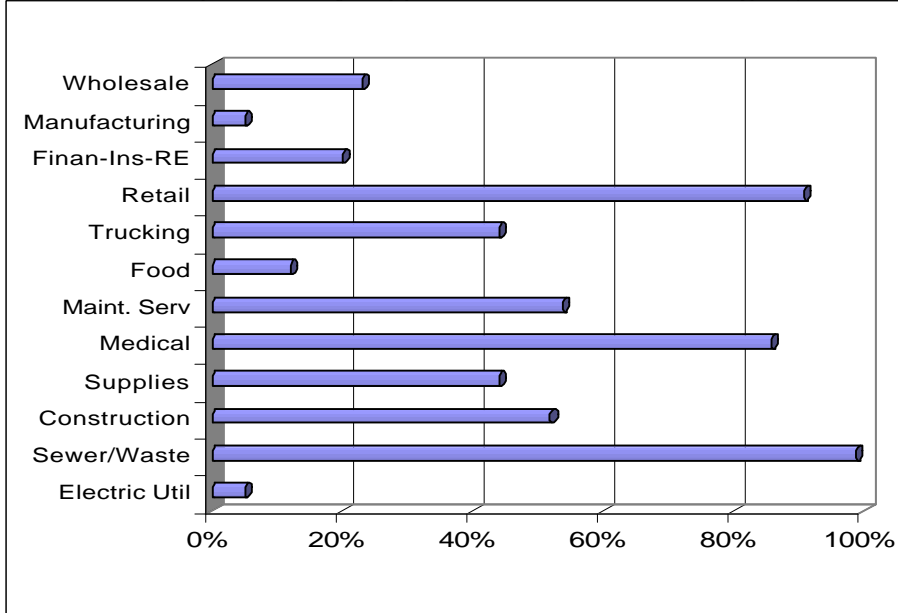
- Other *dynamic economic effects* on overall economic impacts may include changes over time in labor markets, living costs and business operating costs.

For instance, the creation of civilian jobs at Fort Drum can have the effect of: (a) providing new income to a previously unemployed resident of the region, (b) shifting the job of a previously-employed resident of the region, or (c) attracting a new person to the region to fill a job vacancy created directly or indirectly by the base. Such impacts on labor markets and population



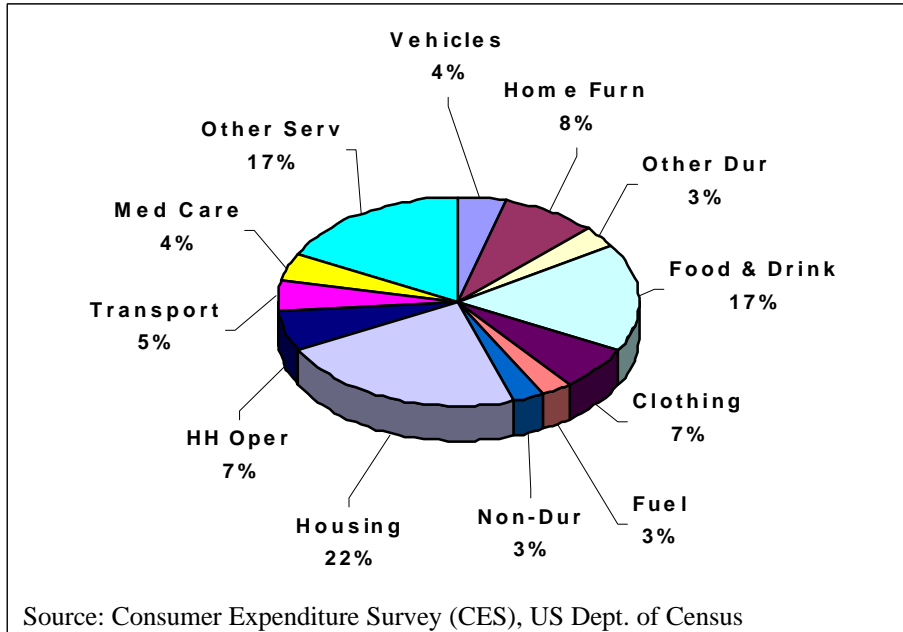
movements were calculated by the REMI economic impact model, and are reflected in the overall estimates of net employment in the region.

**Figure 4-1 Regional Purchase Coefficients**  
(percent of purchases of intermediate or final goods which are provided by suppliers located within the region)



Source: Fort Drum contract records (for maintenance services, supplies, construction and sewer/waste services); Niagara Mohawk Power Co. (for electric utility service), business interviews (for retail) and Regional Economic Models, Inc. (for other categories).

**Figure 4-2 Breakdown of Off-Base Consumer Spending**



**Gross Flows of Dollars (Business Sales).** Fort Drum's impact on the annual flow of dollars in the regional economy, as estimated by the REMI model, is shown in Figure 4-3. This schematic traces how the spending on wages and purchases by Fort Drum leads to business sales in the regional economy, through a series of steps.

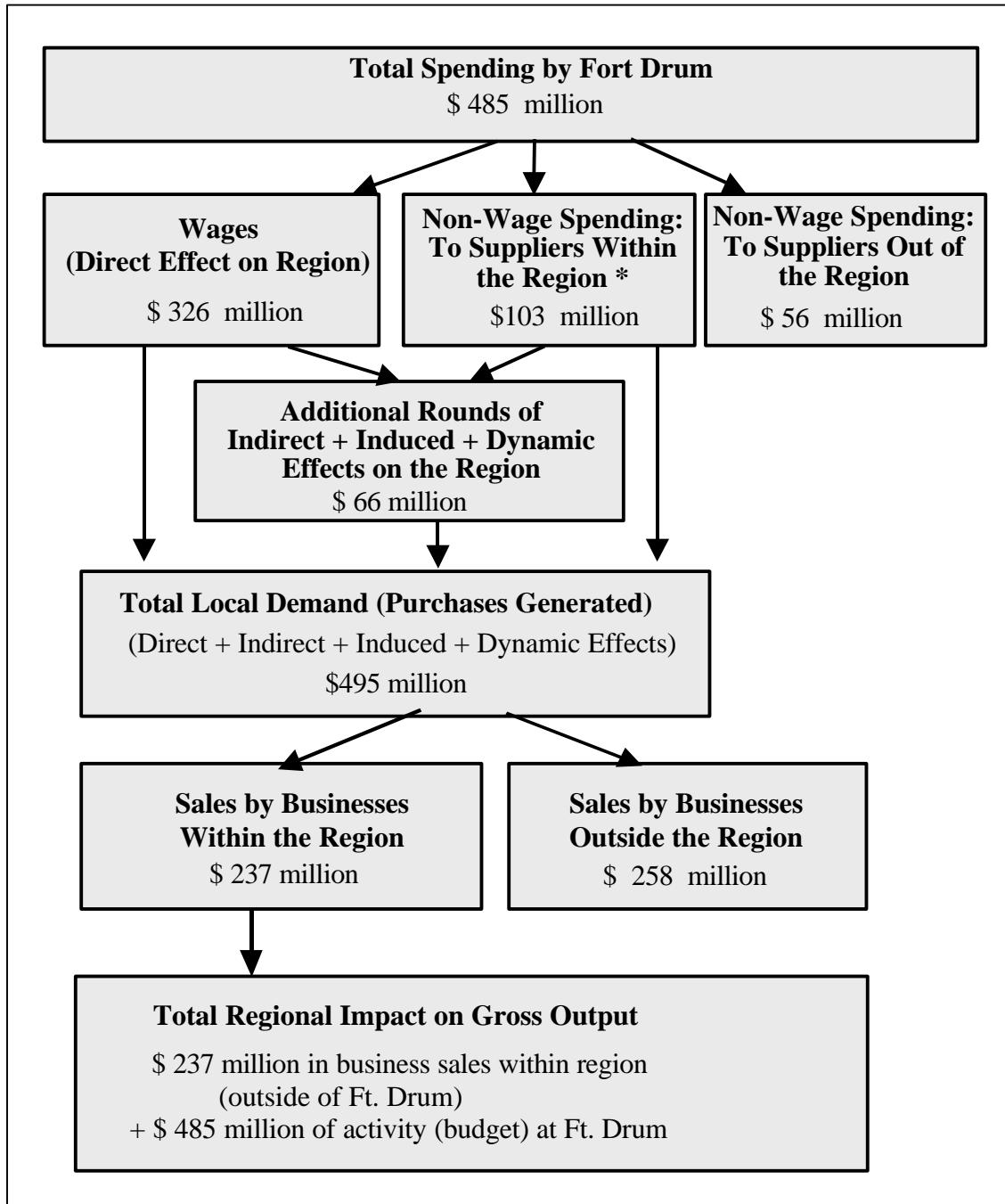
- First, the schematic shows how the \$485 million of total annual Fort Drum spending is split between (1) wages paid to its workers and (2) spending on outside vendors. Overall, \$429 million of that total spending (\$326 of wages and \$103 of non-wage spending) goes to recipients within the region. This is a relatively high proportion, which is due to the fact that much of the non-wage spending is for housing, medical care and education of children -- items which are nearly all provided within the region.
- Then, it shows that vendors located in the region also re-spend part of their sales income on purchases of materials and supplies. Altogether, this adds another \$66 million of business purchases in the regional economy, on top of the \$103 million of Fort Drum purchases going to suppliers in the region, and \$326 million of Fort Drum worker income to be respent on consumer purchases. This yields a total of \$495 million of demand (spending) by individuals and businesses (including the Army base) located in the region.
- Of that total personal and business spending, the economic model estimates that \$258 million of it goes to producers and suppliers located outside the region, leaving \$237 million in business sales (outside of Fort Drum) within the region. The high proportion going outside of the region is due to the fact that many types of equipment, materials and consumer goods are not made within the region. This additional activity occurring within the region represents the *indirect, induced and dynamic economic effects*. (See Section 2.1 for definitions of these terms.)
- The total impact on gross output in the region is the generated private business activity (\$237 million of sales outside of Fort Drum) plus the measure of economic activity at Fort Drum (i.e., the \$485 million of operating budget).

**Net Flows of Income (GRP and Wages).** The preceding discussion represented economic activity in terms of gross business sales (output). The *net impact* on economic activity, which avoids double counting of dollars, is calculated by deducting the portion of business sales activity (output) at each step which goes directly to purchasing goods and services sold by others. This subset of total business output is known as Gross Regional Product or Value Added. The impact of Fort Drum on GRP is \$467 million per year -- \$141 million for generated private business activity (outside of Fort Drum) plus \$326 for activity occurring at Fort Drum.

GRP essentially includes wages paid to workers (by Fort Drum or by businesses outside of Fort Drum) plus retained corporate income (which is relevant only for businesses outside of Fort Drum). The subset of GRP which is wages paid to workers represents total personal income. The impact of Fort Drum on personal

income is \$429 million per year -- \$103 million for wages of businesses outside of Fort Drum plus \$326 of wages paid at Fort Drum.

**Figure 4-3**  
**Effect of Fort Drum on Overall Spending and Business Sales in the Economy**

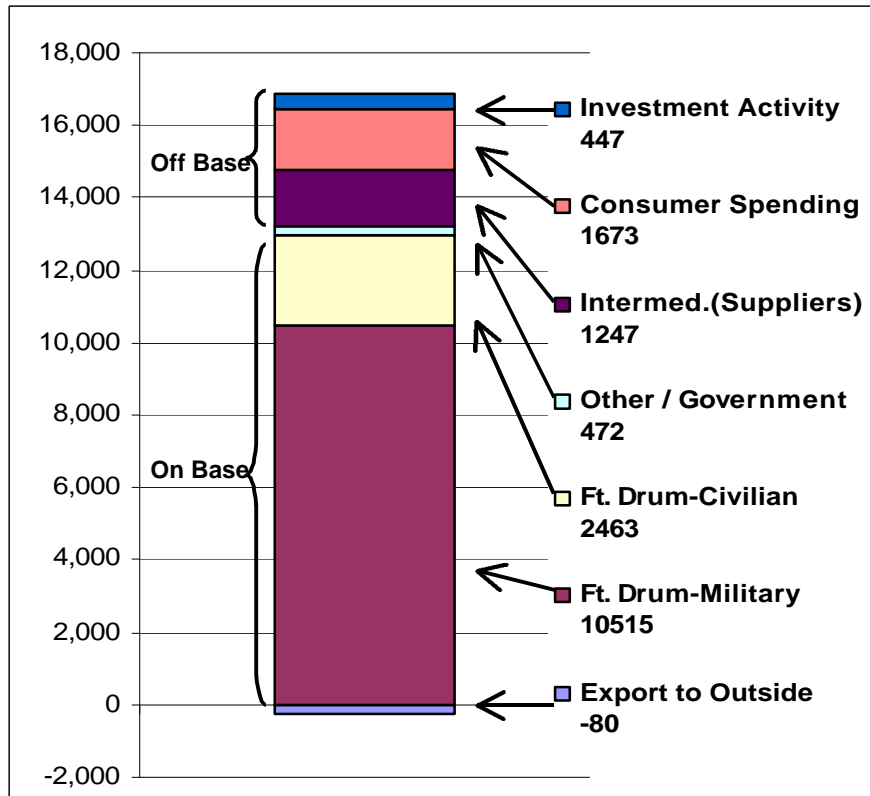


\* This represents the first-round indirect effects

## ❖ 4.2 Overall Economic Impacts

The spending and re-spending of dollars generated by Fort Drum, as traced in the preceding schematic, leads to the creation of 16,737 jobs through several mechanisms. Figure 4-4 breaks down the employment impacts by their cause.

**Figure 4-4 Breakdown of Overall Employment Impact, by Cause**



The majority of the job impact shown in Figure 4-4 occurs at Fort Drum. This includes 10,515 Fort Drum military personnel plus 2,463 Fort Drum civilians. Together, these two groups represent the *direct employment effect*. The remaining categories of workers (discussed below) altogether account for 3,759 non-base workers. They are referred to as “non-base” since they do not work for the base, though some of them are employees of service vendors who may do some (or all) of their work on the base.

Jobs at businesses within the region supplying goods and services are labeled here as “intermediate (supplier)” jobs. They represent the *indirect employment effect*, and they include 1,204 jobs at vendors directly serving Fort Drum, plus 319 jobs at other suppliers to those vendors.

Income made by the direct and indirect employees is re-spent on various purchases of housing, retail goods and services. They are labeled here as “consumer spending”

jobs, and represent the *induced employment effect*. There are 1,673 jobs in this category.

The final category of jobs is the *dynamic employment effect* estimated by the REMI model. This include 447 jobs labeled as "investment activity" (which are attributable to investment in new buildings and facilities to meet the needs of economic growth) and 200 jobs labeled as "other government (which are local and state government jobs to meet the needs of a growing population). They are partially offset by a loss of 80 jobs (shown at the bottom of Figure 4-4) labeled as "exports to outside the region" (representing jobs lost due to rising labor costs relative to outside areas).

**Overall Results.** Findings from the impact analysis on pp.28-30 are as follows:

**Overall Impact on Gross Business Output.** Fort Drum's supplier (vendor) purchases result in \$103 million/year of sales for those businesses in the region which sell goods and services directly to Fort Drum. As dollars expended by Fort Drum's suppliers and Fort Drum personnel are recirculated through the economy, regional impact rises to \$237 million/year of business sales outside of Fort Drum. The base's own \$485 million/year operating budget can then be added for purposes of measuring the total activity level of business and government institutions located within the region. This yields a total gross economic output impact of \$722 million/year.

**Overall Impact on Gross Regional Product (GRP).** GRP is a measure of net economic activity actually occurring in the region. It is calculated as the value of business output in the region minus the cost of materials and services purchased from other businesses. It thus represents the value of wages plus business profits. The regional GRP impact is \$141 million/year outside of Fort Drum. Adding the \$326 million/year of wages occurring at Fort Drum yields a total GRP impact of \$467 million/year.

**Overall Impact on Personal Income.** The income created by this additional economic activity totals \$103 million/year of wages for jobs outside of Fort Drum, plus \$271 million/year of military wages and \$55 million/year of Fort Drum civilian wages. This yields a total personal income impact of \$429 million/year.

**Overall Impact on Employment.** The employment created by this additional economic activity include 3,759 additional jobs outside of Fort Drum, plus 10,515 military and 2,463 civilian jobs at Fort Drum. This yields a total employment impact of 16,737 jobs.

(Note that the output, GRP and income measure are alternative views of the same economic impacts, and cannot be added together.)

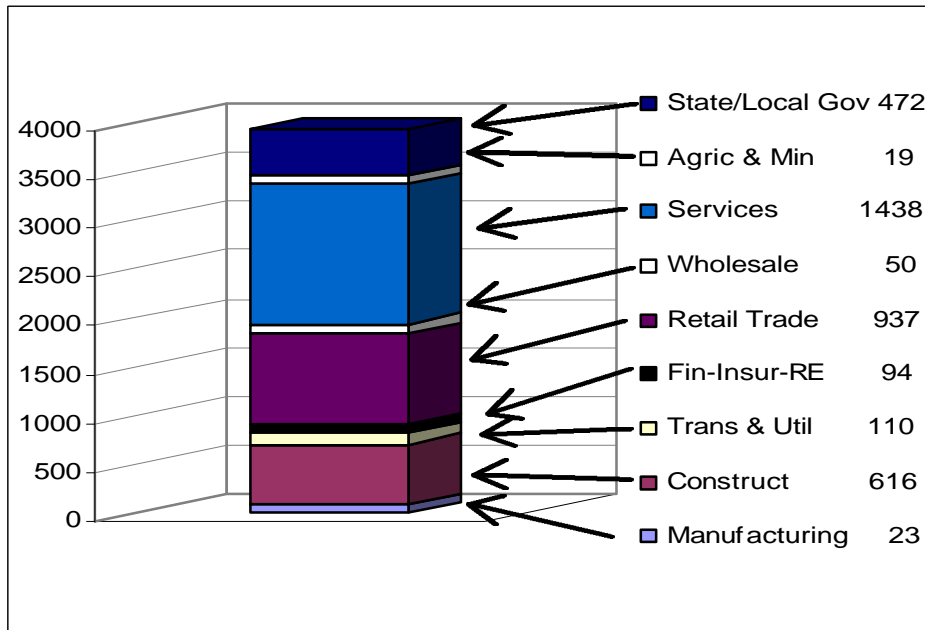
**Additional Wage Rate Impact.** Besides bringing in new jobs, both the results of the REMI modeling and a review of historical trends confirm that Fort Drum has caused increasing average income levels for previously existing residents of the region. This is particularly important because the region has had low income levels compared to the rest of New York State.

**Additional Population Impact.** The REMI model also includes a demographic component, which utilizes historical data to estimate how the growth of jobs affects population in-migration to the Tri-County Region. It estimates that the expansion of civilian jobs at Fort Drum and elsewhere in the economy are indirectly responsible for a net in-migration of 3,700 people into the region, in addition to its direct impact on bringing in 23,000 Army staff and family members to the region. The total effect of Fort Drum is thus estimated to be nearly 27,000 additional people living in the region.

### ❖ 4.3 Mix of Jobs

**Breakdown by Economic Sector.** The 3759 non-Fort Drum jobs created in the region span several sectors of the economy, as shown in Figure 4-5. The largest share of employment growth is for jobs in services (1,438), retail (937) and construction (616). The construction and service jobs are generated by Fort Drum spending and by consumer spending, while the retail jobs are generated mostly by consumer spending. Smaller numbers of jobs are created in the finance, insurance, real estate, transportation, public utilities, and government sectors.

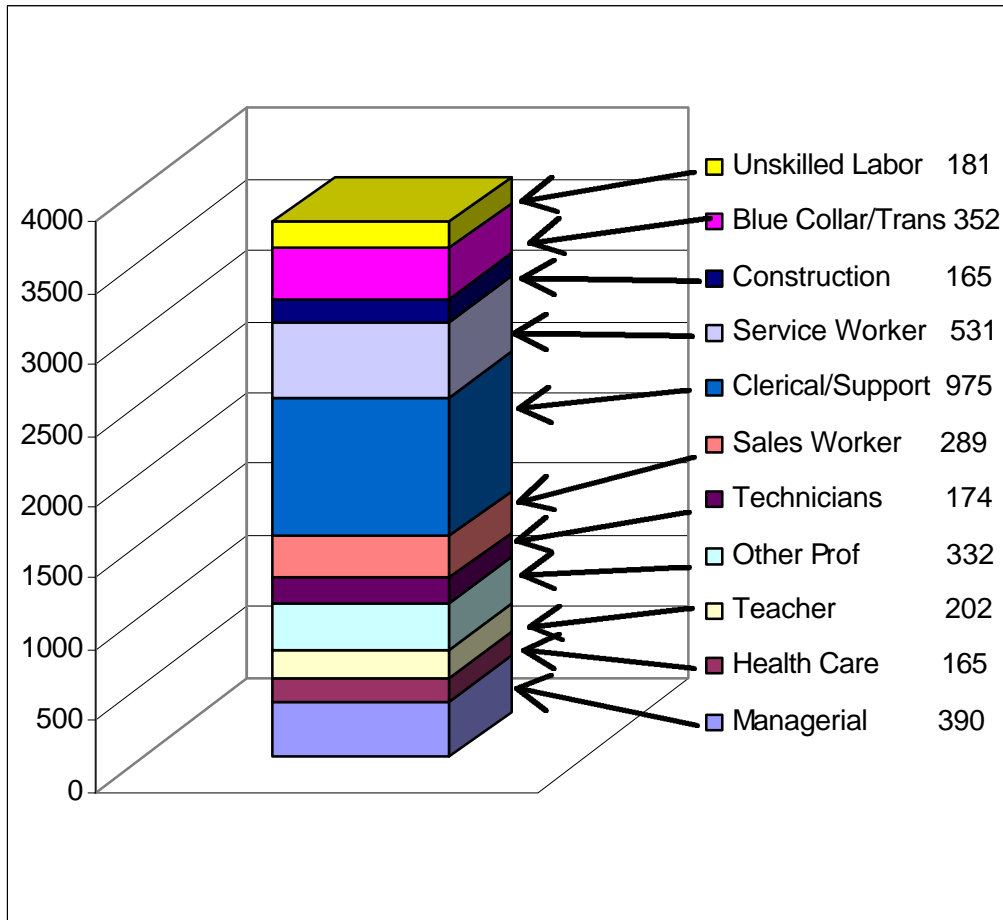
**Figure 4-5 Industry Breakdown of Non-Base Employment Impacts**



It is notable that the net impact on manufacturing (as shown in Figure 4-5) is a small positive, despite the loss of some export jobs due to higher wage rates (as shown earlier in Figure 4-4). This means that Fort Drum is now helping to support the manufacturing sector rather than displacing manufacturing jobs, as had been expected at the time of the 1987 study.

**Breakdown by Occupation.** The 3,759 non-base jobs, which are supported as an indirect or induced impact of Fort Drum’s spending, also represents a wide range of occupations. A breakdown of these jobs by occupation is shown in Figure 4-6. Most notably, these jobs include management occupations, professional specialty occupations, technicians, sales workers, clerical workers, service workers and construction trades.

**Figure 4-6 Occupation Breakdown of Non-Base Employment Impacts**

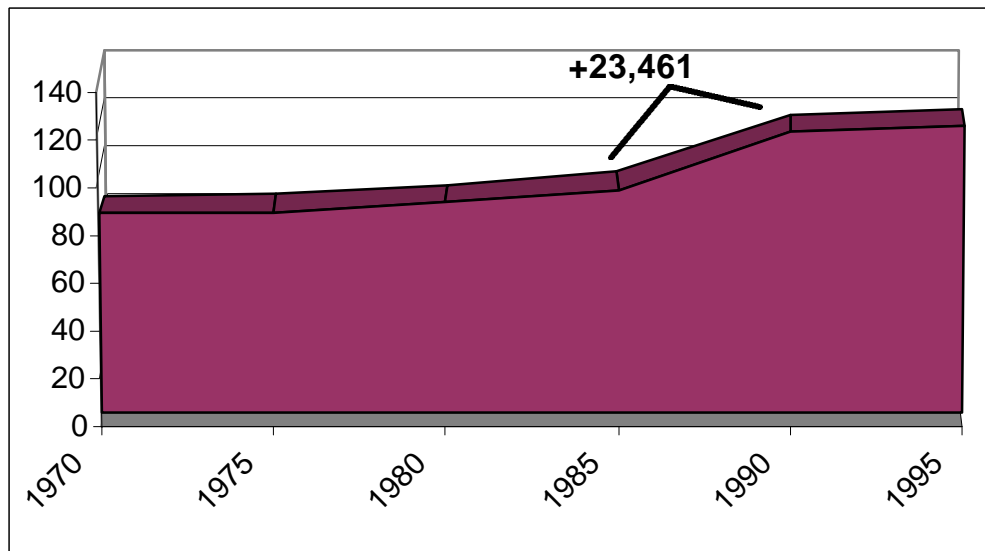


## 4.4 Comparison with Actual Historical Data

**Past Employment Changes.** The impacts presented in Sections 4.1 - 4.3 were estimated by the REMI model, calculated by comparing the actual today with a hypothetical situation today assuming that Fort Drum did not exist. However, we also have some past experience with the startup of Fort Drum between 1985 and 1989. Figure 4-6 shows the change in total employment in the Tri-County Region, based on U.S. Bureau of Economic Analysis county-wide data from 1970 - 1995. It shows a relatively steady pattern before 1985 and after 1990, but a dramatic change in the 1985-1990 period. During that period, military employment at Fort Drum increased by 9,054, and total regional employment jumped by 23,461 jobs.

When observing past trends, we cannot be sure how much other factors, such as national economic cycles or localized plant openings/closures, also served to increase or decrease observed employment and population levels. However, it is notable that these *observed* changes in employment and population are in fact larger than the REMI model's *estimates* of impacts due just to Fort Drum.

**Figure 4-6 Trends in Total Employment in the Tri-County Region, 1970-1995 (thousands)**

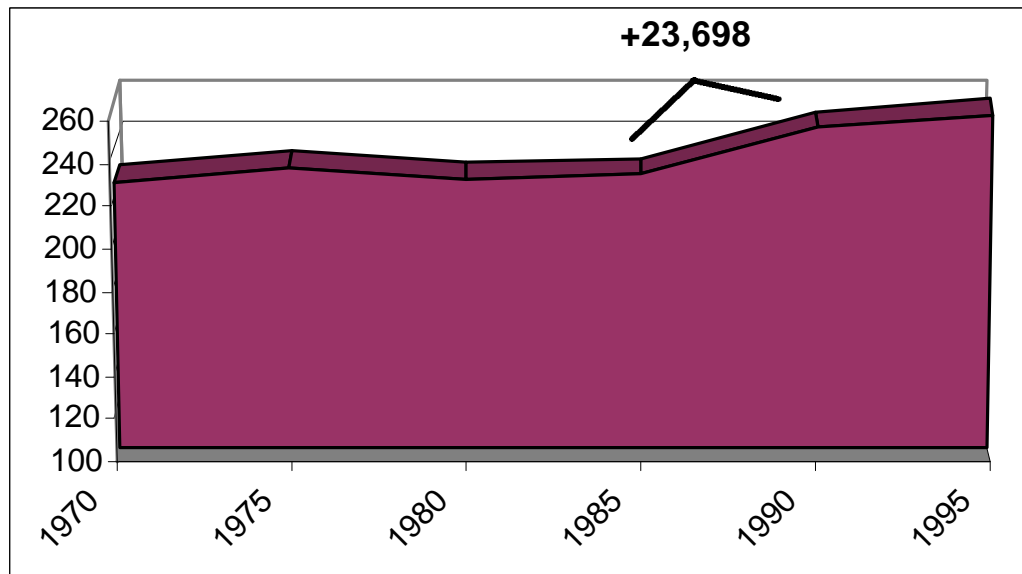


Source: *Regional Economic Models, Inc., estimated on the basis of US Bureau of Economic Analysis files.*



**Past Population Changes.** Figure 4-7 shows the change in total regional population, based on the US Census and the annual Current Population Survey estimates. It shows a relatively stagnant population base before 1985, and a dramatic increase in the 1985-1990 period. During that period, regional population increased by 23,698.

**Figure 4-7 Trends in Total Population in the Tri-County Region, 1970-1995 (thousands)**



Source: *Regional Economic Models, Inc., based on Population Estimates Program, US Dept. of the Census.*

**Mix of Jobs.** Table 4-1 shows the historical and current mix of jobs in the region. It shows that there has been a continued decline in the region's farm, mining and manufacturing employment since 1970, while there have been increases in the other sectors of the economy over that time period. However, there were dramatic increases in some sectors between 1985 and 1990, which are beyond the normal trend. These occurred in the military, construction, retail, services and state/local government sectors. The first of these represents the build up of personnel at Fort Drum, while the others represent growth resulting from the resulting population and economic growth in the region. The two sectors which had the largest absolute growth in number of additional jobs were retail and services, which are the very same sectors which were shown (earlier in Figure 4-6) to be the major beneficiaries of jobs resulting from Fort Drum.

**Table 4-1  
Changes in Regional Employment Composition and Population Size Over Time**

	Year					Change 1985-1998	
	1980	1985	1990	1995	1998 est	Percent	Number
<b>Employment</b>							
Farm +Ag/Forestry	7,259	7,050	6,043	5,847	5,699	-19%	-1,351
Manufacturing	16,330	14,588	13,895	12,518	12,347	-15%	-2,241
Mining	708	700	562	523	459	-34%	-241
Construction	2,837	3,936	5,402	5,046	5,434	38%	1,498
Trans/Pub Util	3,651	3,772	4,246	4,217	4,370	16%	598
Fin/Ins/Real Est	4,663	3,877	4,542	5,680	6,013	55%	2,136
Retail Trade	13,235	15,677	21,106	22,210	23,106	47%	7,429
Wholesale Trade	2,975	2,698	2,579	2,810	2,980	10%	282
Services	18,083	21,721	25,356	27,283	29,180	34%	7,459
State & Local Govt	15,793	15,874	19,192	19,375	19,287	22%	3,413
<u>Federal Govt.</u>	<u>2,073</u>	<u>2,480</u>	<u>4,037</u>	<u>3,306</u>	<u>3,290</u>	<u>33%</u>	<u>810</u>
Total Civilian Emp	87,607	92,373	106,960	108,815	112,165	21%	19,792
<u>Military</u>	<u>1,189</u>	<u>1,990</u>	<u>11,044</u>	<u>11,626</u>	<u>11,720</u>	<u>489%</u>	<u>9,730</u>
Total Employment	88,796	94,363	118,004	120,441	123,885	31%	29,522
Population	227,295	226,820	250,518	257,416	255,966	31%	29,522

*Source: Regional Economic Models, Inc., estimated on the basis of US Bureau of Economic Analysis files and US Dept. of the Census Population Estimates Program.*

**Additional Adaptation to Fort Drum.** In addition, our analysis of the REMI results indicate that the region has adapted over time to the economic opportunities provided by Fort Drum, by increasing its Regional Purchase Coefficient (RPC). The RPC is the portion of business demand (purchases) supplied by businesses within the region. The value of the region's overall RPC rose from 0.23 in 1985 to 0.30 by 1995. As the RPC increases, the employment impacts of Fort Drum on the region's businesses also grows.

## ❖ 4.5 Interviews

**Objectives and Selection Process.** While reviews of historical trends and economic estimation models yield important information about the impact of Fort Drum, they do not fully reflect the broad ways in which Fort Drum causes impacts on various institutions in the region and various sectors of the regional economy. Therefore, to more fully understand the workings of the three-county economy in relationship to Fort Drum, over thirty interviews were conducted with area businesses and institutions. The purpose of the interviews was to obtain information on key relationships between providers of particular goods and services, employers and levels of activity at the military base. Potential interviewees were selected to

represent those types and sizes of businesses which would have the highest likelihood of having a significant portion of their business affected by the presence of Fort Drum in the region.

Individual interviewees were identified through review of earlier studies and discussion with the Fort Drum Regional Liaison Organization (FDRLO), base personnel, planning departments in the three counties and chamber of commerce and economic development agency personnel. The Greater Watertown Chamber of Commerce's 1998-1999 Membership Directory and Buyer's Guide was reviewed for this purpose with chamber staff. The 1998 Jefferson County Industrial Directory and Business Services Guide was reviewed with the staff of the Jefferson County Job Development Corporation.

Interviews were conducted between February and April of 1999, with questions based on the Interview Guide included in this section. The interview results were also used to adjust the Regional Purchase Coefficients used in the REMI Model (for retail, services and housing construction), as well as to refine the estimates of fiscal impacts (associated with expenditures on health care and education).

**Findings.** Following are generalized summaries of the interviews by type of business or institution. For purposes of these interviews, Fort-Drum related impact is defined as sales and/or employment by or of military personnel and their families, or civilian personnel employed at the base and their families. The need for confidentiality precludes identifying individual businesses.

**Overall Impact --** In general, the impact on levels of business activity and employment is felt most in Jefferson County. St. Lawrence, and especially Lewis, Counties have had less impact. Regarding type of activity, greatest impacts are on retail, housing, and service providers, including education and health-care. Considerably less impact is felt on manufacturing and industrial businesses.

**Retail, Restaurants, Entertainment and Lodging --** The Fort-Drum related population constitutes a major component of the demand for retail goods within the region, especially in the portions of the study area near the Fort. In that area, interviewees indicated that the greatest Fort Drum-related impacts on retailing, restaurants, entertainment and lodging are generally felt by those establishments which represent national chains. Regarding location, the greatest impacts are felt in the Salmon Run Mall area (at I-81 and NYS Route 3/Arsenal Street), and to a lesser extent, east of Watertown in the area of Route 3 near the Fort entrance. Twenty to thirty percent of sales in big box-type retailers and national chain restaurants located in or near Salmon Run Mall are estimated to be made to Fort Drum households. The same or even higher percentages of employees in these establishments are military spouses or retirees. The years of Fort Drum's build-up (1987-1993) were said to be the "dynamite" years, with double digit sales growth of 10+ percent annually. Growth has slowed to 2-3 percent annually in recent years.

Regarding type of merchandise, the Fort Drum trade is a very youthful market, and the greatest retail impacts are felt in the areas of apparel, electronics, music, automobile and furniture/appliances. The highest percentage cited by interviewees was for movie theaters, with up to 50 percent of business due to Fort Drum households, military and civilian.

Military deployment at Fort Drum affects various types of retailers differently. Typically, there is actually a sales increase as soldiers soon to depart “stock up” before they leave to go to places where there will be negligible retailing. When the military personnel return they will also spend more as a result of “pent-up” demand. One negative, however, is that the longer a deployment goes on, the greater the probability that spouses and dependents will leave the area for the duration. If a deployment occurs during the holiday season, there will be a greater tendency for spouses to go home. Interviewed business representatives confirmed their expectations that any changes in activity at Fort Drum would affect that portion of their business proportionately.

***Residential Rental Market*** -- There are several large (200+ units) market rate apartment complexes which have been developed since the Fort expansion in desirable locations within commuting distance of the Fort. Interviewees report that up to 30 percent of tenants in these type of developments are Fort Drum-related. Farther from the Fort, that percentage is considerably smaller.

***Hospitals and Health-Related Facilities*** -- Health care is provided to military personnel on base, but Fort Drum is the only military base in the country without its own military hospital. Until recently, the Army flew many military patients to other national military hospitals and were able to do this without charging the expense to their military budget. Accounting rules have since become more strict, however, and it is expected that use of local hospitals will increase as a result. At present local health-care facilities report that 7-15 percent of their business is military-related.

***Manufacturing/Industry*** -- Interviewees report that the influence of Fort Drum on local manufacturing and industrial businesses is minimal. There are a few businesses which sell goods and services to the military, but the majority of sales and workforce of manufacturing/industrial businesses in the three-county area is not Fort-related.

***Education*** -- Among the school districts most heavily affected by Fort Drum are the Indian River, Carthage and Watertown Districts, and the Jefferson-Lewis-Hamilton-Herkimer-Oneida BOCES, all of which indicate that about 18-20 percent of their student body/budget is Fort Drum-related. The districts indicated that student bodies had been in decline before the expansion of Fort Drum, that there was a significant build-up during the expansion of the Fort, and that student population has stabilized in recent years.

## 5. FISCAL IMPACTS

### ❖ 5.1 Introduction

**Military Bases and Fiscal Impact Analysis.** As with any activity that adds thousands of people to the population of a region, the presence of Fort Drum generates fiscal impacts on government at both the state and regional/local levels. However, the fiscal impacts of military installations differ substantially from the fiscal impacts of private sector developments such as a new factory. There are several factors causing these differences.

One factor is that, military personnel themselves do not pay taxes to state and local governments in the same ways that civilians do. For example, soldiers based at Fort Drum do not pay income taxes to New York State, but instead they pay income taxes to their home states. Furthermore, soldiers living on base do not pay any property taxes.

In addition, while military bases do increase population and employment, the federal government (i.e., the Department of Defense) does not pay taxes, although it does make payments for some services that are typically provided by state and local governments. For example, government-owned properties are exempt from local property taxes. Fort Drum does, however, make “Payment in Lieu of Taxes “ (PILOT) to local governments based on its use of off-base housing. The Department of Defense also provides school aid to help pay for the education of the children of military personnel stationed at Fort Drum (either on-base or off-base).

Because military bases affect state and local revenues and expenses differently than do private sector investments, the fiscal impact analysis for Fort Drum required the development of a fiscal model that evaluates impacts separately for different categories of the population.

**Population Categories.** For purposes of fiscal impact analysis, the regional population generated as a consequence of Fort Drum can be classified into four categories: (1) military personnel living on-base, (2) military personnel living off-base, (3) military spouses and dependents, and (4) civilian personnel (including direct employment at Fort Drum as well as indirect and induced employment throughout the region). These categories are important because each category is treated differently for some local and state government revenue and expenditure categories.

For example, military personnel, whether living on- or off-base, only pay income taxes to New York State if their permanent residence is New York State, while spouses employed in New York and all civilian employees of the base do pay New York State income taxes. Because the military provides many services (e.g., fire protection, social services, health services, etc.) on-base, local governments do not incur costs for these services for on-base personnel at the same rate as they do for soldiers and civilians living in apartment buildings or homes off-base. These differences dictate that the impacts of each of these population sectors be estimated separately for each state and local revenue and expenditure category.

**Coverage of Fiscal Impacts.** The fiscal impacts of Fort Drum were estimated in terms of overall effects on government revenues and expenditures, at both the state level and at the regional level. The latter was defined as the total impact on the sum of all counties and local government bodies (including towns, cities, villages and school districts) in the region.

These fiscal impacts were estimated on the basis of the regional analysis of economic and population impacts, as reported in Section 4. They thus reflect not only the direct impact of Fort Drum itself, but also the government revenues and expenditures occurring because of indirect and induced changes in the region's employment and population base.

## ❖ 5.2 Local Government Impacts

### A. LOCAL & COUNTY REVENUES

As described in Section 3, revenues for the towns, villages, counties and school districts in the region were summed to estimate region-wide government revenues in the following categories: (1) property taxes -- county, town and municipal, (2) property taxes -- school districts, (3) county sales tax, (4) inter-governmental revenue, and (5) other taxes and fees.<sup>1</sup> In addition, three categories of local revenues specific to Fort Drum were added: (6) Payments in Lieu of Taxes (PILOTs), (7) Department of Defense payments to schools, and (8) state Impact Aid.<sup>2</sup>

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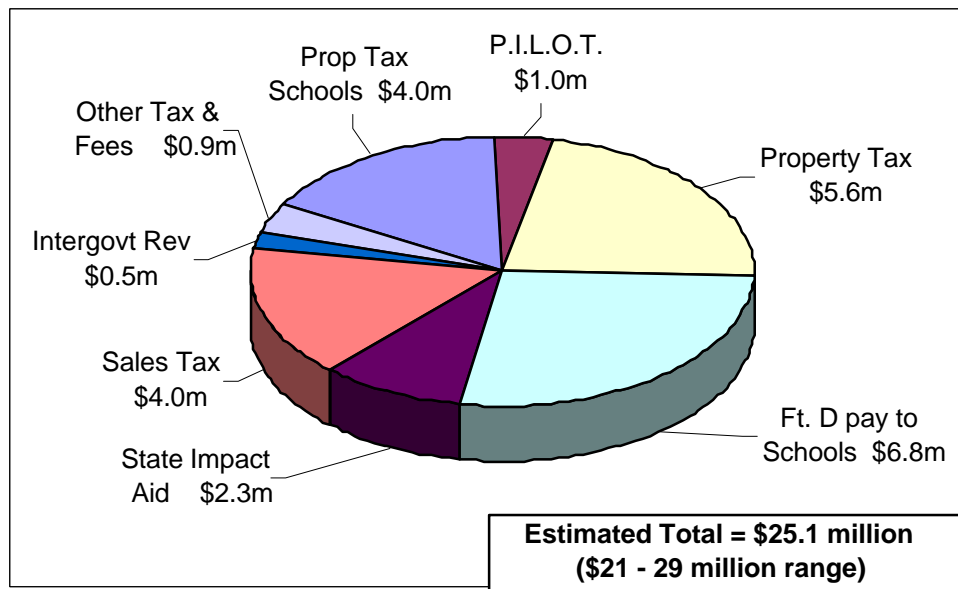
<sup>1</sup> The source for 1996 revenues for these categories for each town, village and county in the region is Municipal Resource Guide: NY Northern Edition 1997/98. Data was missing for just two towns: Russell and Norfolk. 1996 is the most recent year for which comparable data is available for each jurisdiction.

<sup>2</sup> Sources for these categories were Fort Drum: Economic Impact Statement 1998 (for payments to schools and state impact aid), and Judy Gentner, Deputy Garrison Commander at Fort Drum (for PILOTs).

Figure 5.1 shows the 1998 estimated impact of Fort Drum on each of these categories of local/county government revenues. Some of the key factors driving these results are summarized below:

- **Local property taxes** are levied by counties, towns, cities and villages, and school districts. Property taxes are generated by the additional private sector housing and business property that has been developed directly or indirectly because of Fort Drum. However, no property taxes are paid for federally-owned properties. The army makes up for this by making **Payments in Lieu of Taxes (PILOTs)** to local government, based on its use of off-base housing. The federal government also makes **Payments to Schools**. The state provides additional **State Impact Aid** to schools.
- **County Sales Tax** revenues are generated from spending on retail goods by people (military and civilian) whose income is directly or indirectly generated by Fort Drum. Military personnel generate sales tax revenues at a slightly lower rate since some of their purchases of food, clothing and other retail goods are made at the Post Exchange (PX).
- **Intergovernmental revenues** include disbursements to county and local governments from the state and federal governments. The model assumes that Fort Drum’s contribution to these revenues, as well as to **Other Taxes & Fees**, are generated in proportion to the regional population change attributable to Fort Drum.

**Figure 5-1 Dollar Value of Fort Drum’s Impact on Local & County Government Revenues, by Revenue Category**



Source: Fiscal Impact Model developed by Economic Development Research Group & Nutter Associates

The total impact of Fort Drum on the revenues of counties, towns, cities, villages and school districts in the region is estimated to be roughly \$25 million/year.<sup>3</sup> This includes direct, indirect and induced impacts of Fort Drum on the region's economy and population.

## **B. LOCAL & COUNTY EXPENDITURES**

Categories of government expenditures incurred at the county/local level include: (1) general government, (2) public safety, (3) social services, (4) public health, (5) education, (6) transportation, (7) utilities, (8) recreation and (9) other (miscellaneous). Expenditures in these categories for all towns, villages, counties and school districts in the region were summed to estimate region-wide government expenditures.<sup>4</sup>

Figure 5.2 shows the 1998 estimated impact of Fort Drum' on each category of the region's local/county government expenditures. In general, these expenditures are estimated using constant per capita factors, which were applied to the change in population due to Fort Drum. The per capita factors for Fort Drum impacts were the same as those for the population at large, except as noted below:

- Fort Drum does provide on-base *Health* and *Social Services* for its military personnel. For that reason, Fort Drum's military personnel put lower per capita demands on these types of services offered by local government.
- Fort Drum also provides *Public Safety* services and *Recreation* facilities which are used most by its on-base personnel. However, military families living off-base do generate the same kind of per capita demands for public safety (police, fire and ambulance coverage) and recreation as the rest of the population.
- Fort Drum's on-base and off-base populations cause roughly the same per capita cost burden as the rest of the population for *Transportation* (which includes local roads) and *Utilities* (which includes street lighting).<sup>5</sup>

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<sup>3</sup> Because there is not precise data available to calculate the exact level of impact of the Fort Drum population on each category of revenue, the \$25 million figure should be considered an estimate. Accounting for the possibility of variations in assumptions, the impact likely falls in the range of \$21 million to \$29 million.

<sup>4</sup> The source for 1996 expenditures for these categories for each town, village and county in the region is Municipal Resource Guide: NY Northern Edition 1997/98. Data was missing for just two towns: Russell and Norfolk. 1996 is the most recent year for which comparable data is available for each jurisdiction.

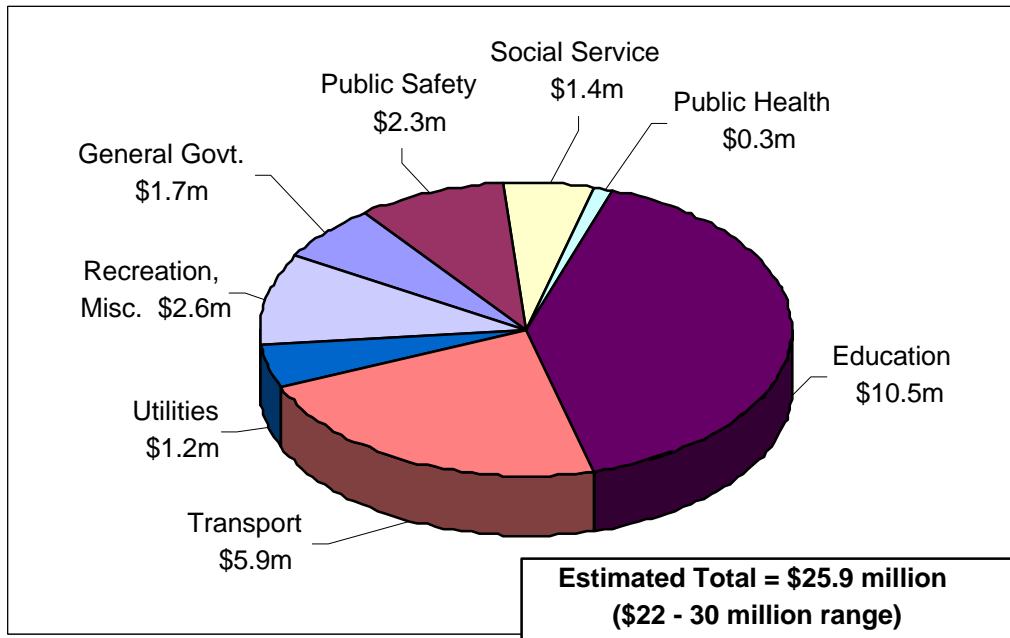
<sup>5</sup> There is no published source of data for the impact of Fort Drum on these government services. The assumption that Fort Drum's per capita impact on these services is similar to that of the general public was derived through discussions with Fort Drum personnel.



- Fort Drum families are assumed to cause nearly the same per capita cost burden as the rest of the population for local **Public Education**. These costs are directly reimbursed by Department of Defense payments to schools and by state impact aid.

The fiscal impact model estimates the total impact of Fort Drum on the expenditures of counties, towns, cities, villages and school districts in the region to be roughly \$26 million/year.<sup>6</sup> This includes direct, indirect and induced impacts of Fort Drum on the region's economy and population.

**Figure 5-2 Dollar Value of Fort Drum’s Impact on Local & County Government Expenditures, by Expenditure Category**



Source: Fiscal Impact Model developed by Economic Development Research Group & Nutter Associates

### ❖ 5.3 State Government Impacts

Fort Drum has impacts on New York State government revenues and expenditures only insofar as it causes a net increase in the state's population, business sales and income. People who move from another part of the state to the Tri-County Region due to Fort Drum cause little or no net change in state revenues and state expenditures. However, additional business sales and personal

<sup>6</sup> Because there is not precise data available to calculate the exact level of impact of the Fort Drum population on each category of expenditure, the \$26 million figure should be considered an estimate. Accounting for the possibility of variations in assumptions, the impact likely falls in the range of \$22 million to \$30 million.

income which are created as a consequence of Fort Drum (and which would not have occurred in New York State without it) do generate additional revenues as well as some costs.

For purposes of this study, it was assumed that nearly all of the Fort Drum military personnel and their families are new residents of New York State, as military personnel assigned to Fort Drum come from all over the country. However, nearly all of the civilian workers (at Fort Drum or elsewhere in the region) are assumed to be either: (a) previous residents of New York State or (b) military family members whose impact has already been counted.

## **A. STATE REVENUES**

For the purposes of this analysis, state revenues were divided into seven categories: (1) sales and other consumer taxes, (2) motor fuel tax, (3) personal income tax, (4) corporate taxes, (5) other taxes and fees, (6) federal grants and (7) debt repayment.

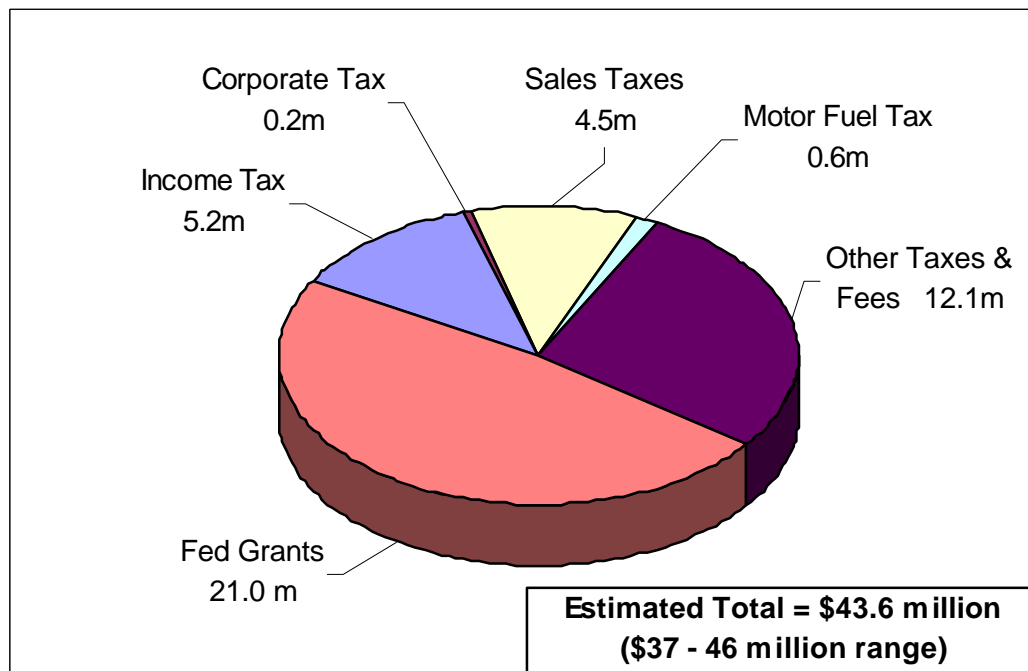
Figure 5.3 shows the 1998 estimated impact of Fort Drum on each of these categories of state government revenue, based on application of the methodology previously laid out in Section 2.4. Some of the key factors driving these results are summarized below:

- The portion of income spent on taxable retail purchases (as opposed to housing and non-taxable services) by military personnel and their families is assumed to be roughly the same rate as that of the general population. However, they generate slightly less *Sales Tax* revenue, insofar as some of their purchases are made tax-free at the Post Exchange (PX).
- Military personnel and their families purchase gasoline and hence pay *Motor Fuel Tax* at roughly the same per capita rate as the general population. It is also assumed that *Other Taxes and Fees* are paid by all military personnel at the same per capita rate as the general population.
- Military personnel contribute very little to New York State *Income Tax* revenues, as only a small portion of soldiers stationed at Fort Drum claim New York State as their state of residence. However, additional wage income is created by private business activity as a consequence of Fort Drum spending, and that does lead to additional state income tax revenues.
- While Fort Drum is the single largest employer in the Tri-County region, the base is a public facility and hence does not contribute to state *Corporate Tax* revenues. However, the indirect private business growth (generated as a consequence of Fort Drum spending) does generate additional state corporate tax income.
- *Federal Grant* aid is the largest category of revenue in the New York State budget. It is disbursed through a complex set of mechanisms, driven by many

factors, such as population, poverty levels and unemployment. The actual effect of Fort Drum's military population on federal grants to New York State is unknown, and is the largest cause of uncertainty in the analysis of state revenue impacts. The current estimates assume that federal grant receipts are proportional to the statewide population change – which is estimated as the number of Fort Drum military families.

The total impact of Fort Drum on New York State government revenues is estimated to be roughly \$43 million/year.<sup>7</sup> This includes direct, indirect and induced impacts of Fort Drum on the state's personal income, business output and population.

**Figure 5.3: Dollar Value of Fort Drum's Impact on State Government Revenues, by Revenue Category**



Source: Fiscal Impact Model developed by Economic Development Research Group & Nutter Associates

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<sup>7</sup> . Because there is not precise data available to calculate the exact level of impact of the Fort Drum population on each category of revenue, the \$43 million figure should be considered an estimate. Accounting for the possibility of variations in assumptions, the impact likely falls in the range of \$37 million to \$46 million.

**B. STATE EXPENDITURES.**

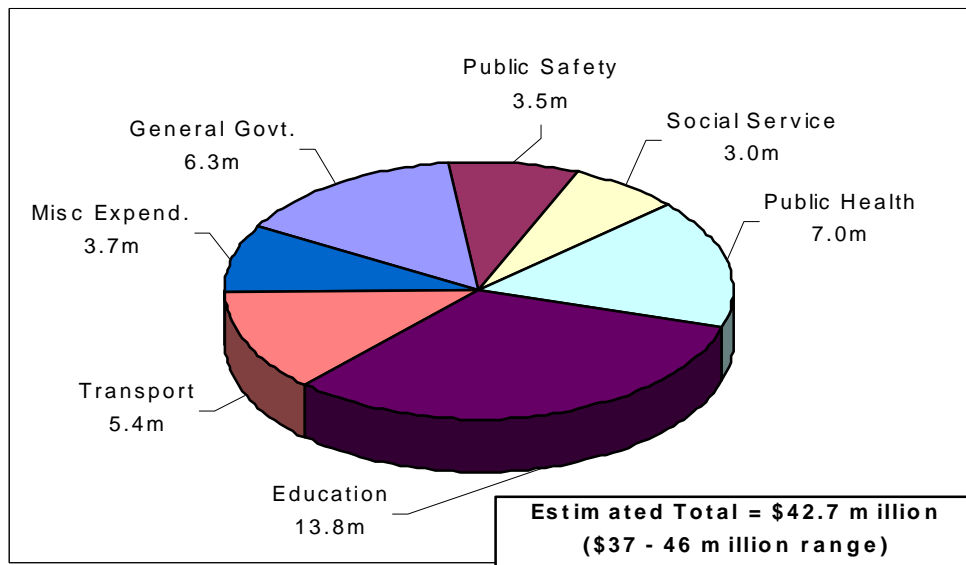
The major categories of State government expenditures are: (1) general government, (2) public safety, (3) social services, (4) public health, (5) education, (6) transportation and (7) miscellaneous expenditures.

Figure 5.4 shows the level of state expenditures for each of these categories generated by Fort Drum. In general, these expenditures are estimated to be constant per capita factors, applied to the change in population due to Fort Drum. In general, these expenditures are estimated to be constant per capita factors, applied to the change in population due to Fort Drum. However, there are some key exceptions:

- Because the military provides *Health* care and *Social Services* for its soldiers and their dependents, per capita expenditures in these categories for military personnel and their families is smaller than that for the general population.
- State expenditures on *Education*, *Transportation* and *Miscellaneous Expenses* are assumed to be incurred in proportion to the population change.

The total impact of Fort Drum on New York State government expenditures is estimated to be roughly \$43 million/year.<sup>8</sup>

**Figure 5-4 Dollar Value of Fort Drum’s Impact on State Government Expenditures, by Expenditure Category**



Source: Fiscal Impact Model developed by Economic Development Research Group & Nutter Associates

<sup>8</sup> Because there is not precise data available to calculate the exact level of impact of the Fort Drum population on each category of expenditure, the \$43 million figure should be considered an estimate. Accounting for the possibility of variations in assumptions, the impact likely falls in the range of \$37 million to \$46 million.

## ❖ 5.4 Overall Fiscal Impacts

**Overall Result.** As shown in Table 5-1, total (state and local combined) government revenues generated by the base are estimated to be roughly \$69 million (i.e., in the range of \$59 - 79 million) annually. Total government expenditures are also estimated to be in that same range. It is clear that Fort Drum substantially increases the size of both state and local governments. That is, Fort Drum increases demand on local and state government services and requires state and local government to expand to provide these services. However, Fort Drum generates revenues for local and state governments that generally pay for these expanded services. Thus, Fort Drum does *not* appear to cause a large surplus or deficit to state and local governments.

**Portion of Total Government Budget.** It is also useful to compare the estimated fiscal impacts of Fort Drum with the overall budget of the state government and the overall budget of local/county governments within the region. The first half of Table 5-1 addresses the local/county level, and shows the estimated impact of Fort Drum in terms of revenues and expenditures for the total of all municipalities, counties and school districts in the region. That section also shows the total "regional budget" -- which represents the sum of all revenues and expenditures by those local and county governments and school districts.

By comparing the estimated Fort Drum impact on local/county governments with the total budget of those governments within the region, the proportional impact of Fort Drum can be seen. Thus, the estimated impact of Fort Drum on local and county governments in the Tri-County Region (roughly \$25 million/year of revenues and expenditures) represents 3.7 percent of the combined annual budgets for the region's county and local government bodies.

The same kind of comparison can be made by comparing the estimated Fort Drum impact on the state government with the overall state budget. The estimated net impact of Fort Drum on New York State government (roughly \$43 million/year of revenues and expenditures) represents 0.06 percent of the state's annual budget.

Care must be taken, however, in interpreting these findings particularly for county and local governments. The locations of residents and businesses associated with Fort Drum are not evenly distributed around the region. There are some geographic concentrations of populations, apartment developments, retail and other businesses whose incomes depend directly or indirectly on Fort Drum. Thus, the sensitivity of individual county and local governments to activity levels at Fort Drum can be substantially greater or smaller than the percentages shown here, depending on their proximity to the base, and the number of Fort Drum-related people living in their communities.

**Table 5-1 Fiscal Impacts Compared to Total Government Budgets**

<b>COUNTY/LOCAL IMPACT</b>	<b>Total Budget (millions)</b>		<b>Percent of Total</b>	
	<b>Regional Budget</b>	<b>Ft Drum Impact</b>	<b>Regional Budget</b>	<b>Ft Drum Impact</b>
<b>Local/County/School Revenue</b>				
Property Tax: Co & Munic	\$176.0	\$5.6	26%	22%
Ft.D Housing: P.I.L.O.T.	\$0.0	\$1.0	0%	4%
Property Tax: School Dist	\$127.4	\$4.0	19%	16%
Ft. D payment to Schools	\$0.0	\$6.8	0%	27%
State Impact Aid	\$0.0	\$2.3	0%	9%
Sales Tax	\$59.4	\$4.0	9%	16%
Intergovt Revenue	\$114.4	\$0.5	17%	2%
Other Taxes & Fees	\$199.0	\$0.9	29%	4%
<b>TOTAL</b>	<b>\$676.2</b>	<b>\$25.1</b>	<b>100%</b>	<b>100%</b>
<b>Local/County Expenditures</b>				
General Government	\$54.7	\$1.7	8%	7%
Public Safety	\$51.4	\$2.3	7%	9%
Social Services	\$104.7	\$1.4	15%	5%
Public Health	\$46.2	\$0.3	7%	1%
Education	\$176.7	\$10.5	25%	40%
Transportation	\$61.7	\$5.9	9%	23%
Utilities	\$39.3	\$1.2	6%	5%
Recreation and Misc.	\$159.7	\$2.6	23%	10%
<b>TOTAL</b>	<b>\$694.4</b>	<b>\$25.9</b>	<b>100%</b>	<b>100%</b>
<b>STATE IMPACT</b>	<b>State Budget</b>	<b>Ft Drum Impact</b>	<b>State Budget</b>	<b>Ft Drum Impact</b>
<b>State Revenue</b>				
Income Tax	\$17,744.6	\$5.2	27%	12%
Corporate Taxes	\$6,581.4	\$0.2	10%	1%
Sales & Consumer Taxes	\$9,359.8	\$4.5	14%	10%
Motor Fuel Tax	\$493.3	\$0.6	1%	1%
Other Taxes & Fees	\$9,343.2	\$12.1	14%	28%
Fed Grants	\$21,643.6	\$21.0	33%	48%
<b>TOTAL</b>	<b>\$65,165.9</b>	<b>\$43.6</b>	<b>100%</b>	<b>100%</b>
<b>State Expenditures</b>				
General Government	\$4,872.1	\$6.3	7%	15%
Public Safety	\$2,730.0	\$3.5	4%	8%
Social Services	\$9,162.0	\$3.0	14%	7%
Public Health	\$21,654.0	\$7.0	33%	16%
Education	\$17,873.7	\$13.8	27%	32%
Transportation	\$4,186.3	\$5.4	6%	13%
Miscellaneous	\$2,870.0	\$3.7	4%	9%
Past Debt Repayment	\$3,008.0	\$0.0	5%	0%
<b>TOTAL</b>	<b>\$66,356.0</b>	<b>\$42.7</b>	<b>100%</b>	<b>100%</b>

## 6. CONCLUSIONS

**Economic Role of Fort Drum.** Fort Drum is the region's largest employer, and thus a major element of the Tri-County economy. It's effects include the following:

- ***The Army Base as a Direct Generator of Jobs and Personal Income.*** Fort Drum alone employs 12,978 full-time workers, with a payroll of \$326 million/year. These are the *direct effects*.
- ***The Army Base as a Generator of Additional Non-Base Impacts.*** Fort Drum also purchases \$103 million/year of goods and services from suppliers in the region. These purchases by the Army base, on top of the wages which its workers spend on consumer purchases, lead to a *indirect, induced and dynamic* effects. Altogether, these effects support \$237 million/year of business sales in the region, with 3,759 associated jobs and a payroll of \$103 million/year.
- ***Total Impacts.*** Adding together the base and non-base effects, Fort Drum is responsible for 16,737 jobs and \$429 million/year of personal income added to the region. That represents nearly 14% of all jobs and income in the region.

**Table 6-1 Summary of Regional Economic Impacts of Fort Drum (Annual)**

Alternative Measure of Impact	Direct Effect	Indirect, Induced & Dynamic Effect	Total Effect
Jobs	12,978	3,759	16,737
Payroll	\$326 million	\$103 million	\$429 million
Gross Regional Product <sup>1</sup>	\$326 million	\$141 million	\$467 million
Gross Output	\$485 million <sup>2</sup>	\$237 million <sup>3</sup>	\$722 million

<sup>1</sup> represents the sum of payroll and net business income (profit or retained earnings)

<sup>2</sup> represents the total budget of the Army base

<sup>3</sup> represents the total effect on sales volume of businesses in the region

Note: The alternative measures of impact cannot be added together, since payroll is a subset of GRP, and GRP is a subset of Gross Output.

**Economic Structural Change.** Both the REMI model analysis for the Tri-County Region and the review of historical patterns show that the region's economy has changed over time in response to Fort Drum. This includes:

- ***Composition of the Economy.*** Fort Drum has supported substantial expansion of the economic activity in the construction, retail and service

sectors since 1985. Associated with this expansion is capital investment in buildings and equipment to accommodate that growth.

- ***Regional Dependence.*** Since the expansion of Fort Drum, there has been a substantial strengthening of suppliers within the region. That has helped the region become more self-sufficient, as the proportion of total regional spending which is met by local suppliers has risen significantly since 1985.

**Government Impact.** The growth of personal income and business revenue due to Fort Drum has increased taxes and other sources of public revenue by roughly \$25 million for municipalities, counties and school districts in the region, and \$44 million for the State of New York. The growth of employment and population due to Fort Drum has also increased public expenditures for schools, public safety, roads and parks, by roughly those same amounts. Thus Fort Drum does not appear to have caused any substantial net shortfall or windfall in public budgets. It has, however, helped to expand the range of public services available to residents of the region.