

Sources of Employment Growth in the North Country

Kameliia Petrova*

Abstract

This study looks at employment changes in the North Country region (Franklin, Essex, Clinton, Jefferson, Lewis and Saint Lawrence counties) during the period 1990 - 2007 using the National Establishments Time Series, decomposes the sources of employment changes and, in the process, identifies the main sources of employment growth. The study was supported financially by the New York State Department of Labor.

1. Introduction

The North Country has a clear vision about future economic development. Most of it has to do with the efforts of local administrations and the business community to improve the entrepreneurial climate. It has become clear that one of the main channels for success in the area is developing and locating resources for local business to encourage their successful growth and development. Support from local and state government in developing different programs such as tax relief and participation programs has had a great impact on the local business climate.

The North Country economy has been based mostly on local businesses. There are a few big employers, but the main focus has been developing local entrepreneurial talent. Local communities, at the county level, have made a great effort to provide the necessary help and support for both new and existing businesses during challenging times. Eight of the fifty-two NY State Enterprise zones are in the North Country. However, little is known about the past area trends in employment dynamics and sources of employment growth, as well as their use as indicators for the local economic condition.

Employment change can be described as a dynamic process with two main outcomes: job creation and job destruction. Job creation, or employment growth, results from the birth of new businesses, growth of existing businesses and relocation of businesses to a particular area or region. In a similar manner, job destruction, or employment decline, results from death and contraction of existing businesses and relocation of existing businesses out of an area or region. The process of employment change can also be decomposed into three separate net effects: net effect of birth and death of businesses, expansion and contraction of businesses, and relocation of businesses in and out of the region.

This study of the employment changes in the North Country region during the period 1990 – 2007 was accomplished using a newly available and unique data set – the National Establishments Time Series (NETS). In the study, I provide a decomposition of the sources of employment changes

*Associate Professor, Department of Economics and Finance, SUNY Plattsburgh, 101 Broad Street, Plattsburgh, NY 12901, Email: kpctr001@plattsburgh.edu, Tel: 518-564-4187, Fax: 518-564-4215

and, in the process, identify the main sources of employment growth. The results of the study suggest that the two main sources of job creation are business establishment births and expansion of existing establishments. At the same time, deaths and contraction of existing establishments cause most of the job destruction in the region. The net effects of both business expansions and contractions and business births and deaths contribute positively to employment growth in some periods, and negatively in others. The net effect of business establishments moving into and out of the region is almost zero. Most establishments move within the region. New jobs are mainly created as a result of births of new business establishments rather than the expansion of existing ones. Deaths of new businesses account for a little over one half of the job destruction in the region. With the exception of Agriculture, Forestry, Fishing and Hunting, the North Country Region falls well short of the average statewide wages for all industries. Most of the job creation has been in industries that have relatively low average wages, while most of the job loss has been in industries with higher wages. During the period under review, deaths of companies totaled 47,525, while births totaled 6,635.

The rest of the paper is organized as follows. Section two provides a description of the NETS data used in the study. Section three follows with a decomposition of the sources of employment growth in the North Country. Section four continues with a decomposition of the sources of employment growth across industry. Finally, section five presents conclusions and policy implications that can be drawn from the research.

2. Overview of the North Country Economy

In 2007 the North Country region, made up of Clinton, Essex, Franklin, Lewis, Jefferson, and St. Lawrence Counties, accounted for 1.5 percent of New York State's private sector employment¹. The average wages in the region were 50 percent lower than the state's private sector wages. Clinton, Jefferson, and St. Lawrence counties accounted for 76 percent of the region's private sector employment. Franklin and Jefferson counties were in the top half of the 62 New York State counties in employment growth from 2004 to 2007. Their employment growth (5.7 and 7.4 percent respectively) exceeded the state's employment growth rate of 3.9 percent.

The North Country region has a slightly smaller share of retirement age workers (18 percent) than the state average across all industries (20 percent). The region's share of retirement age workers in Financial Services, Information, Natural Resources and Mining, Retail Trade, and Other Services industries is higher than the statewide average.

From the 56 reportable, non-confidential, 3-digit North American Industry Classification System (NAICS) industry sectors, 28 met at least one of the three competitiveness criteria defined by the Bureau of Labor Statistics: location quotient, relative average wage and differential employment growth rate². The total employment in these 28 industries accounts for 48 percent of the private employment in the North Country region for 2007. While no industries met all three competitive criteria, 5 industries met two of the criteria. The employment concentration in Forestry and Logging is more

than 18 times the concentration of the state as a whole. Animal Production, Primary Metal Manufacturing and Paper Manufacturing all exceed the state concentration. Forestry and Logging is the only industry sector with a relative wage higher (3 percent higher) than the corresponding state wage.

Of the 28 competitive industries in the North Country region 11 were projected to have positive employment growth between 2007 and 2016. The highest projected employment growth is in Forestry and Logging, which is the top most competitive sector in the area. Other sectors with high projected employment growth are Support Activities for Agriculture and Forestry, Support Activities for Transportation, Animal Production, Crop Production and Wood Product Manufacturing. Sectors that have traditionally been strongly represented in the region, such as Accommodation and Paper Manufacturing are projected to experience employment decline by 2016. The industries with the highest projected employment decline are Publishing Industries and Heavy and Civil Engineering.

3. Data: The National Establishment Time-Series Database

3.1 Overview

The data set used in the study is the National Establishment Time Series (NETS). The NETS is a longitudinal data created by Walls & Associates from the original Dun & Bradstreet (D&B) cross-section files of the Data Universal Numbering System (DUNS) marketing information. The D&B files collection is an on-going effort to capture every business establishment in the United States in each year. The main target of this data collection is the business community. A set of indicators, such as D&B Ratings and PayDex scores, are calculated providing a useful tool in the process of decision-making.

The files with marketing information are assembled through the collection of data from many different sources: telephone calls, court filings, newspapers and electronic news, payment information, company filings and reports, government registries, licensing data, public utilities, the US Secretaries of State and the US Postal Service. Using DUNS, D&B assigns a 9-digit identification sequence to every establishment in the data. Since 1990 the DUNS has been adopted by many government agencies in the US and has become internationally recognized.

This study uses an extract from the NETS covering all business establishments that were located in the North Country (Franklin, Essex, Clinton, Jefferson, Lewis and Saint Lawrence counties) between 1990 and 2007 and their headquarters, regardless of the location.

The unit of observation is a business establishment, which is defined as an entity or business at a single physical location. It is often the case that firms own more than one establishment that might be located in different geographical areas and operate in different industries. The NETS data indicate whether an establishment is a stand-alone firm or a branch of a multi-establishment firm. Most of the establishments, however, are stand-alone firms.

The following variables have been used in the study: current establishment location (zip codes including the 4-digit extension); Federal Information Processing Standard (FIPS) county codes in each year; type of location (single location, headquarters, branch) in each year; employment in each year; SIC/NAICS codes at the 8-digit level in each year; if the establishment moved, the year of movement, origin zip code, origin city, origin state, destination zip code, destination city, destination state.

3.2 Advantages of the NETS

The NETS has several beneficial characteristics, one of which is that the data cover the whole universe of establishments. Over the period 1990-2007, the database includes annual information on 15 to 20 thousand establishments in the North Country providing about 500 to 600 thousand jobs. A total of 40,264 establishments are covered in the 1990-2007 North Country extract from the NETS. Characteristically, the North Country is populated with a small number of large establishments and a significant number of small establishments.

There was a change in the data collection process in 1991. After a federal court ruling that allowed regional Bell companies to sell information collected by them, D&B expanded its database by using the telephone directory to identify businesses. Neumark et al. (2005, 2006 & 2008) report that this change resulted in a significant increase in the number of establishments and jobs at the NETS, and that for the period after 1991 the data sets reported considerably more very small establishments compared to other data sources. Even though Neumark et al. (2005, 2006 & 2008) chose to drop the 1990-1991 data, for the purpose of my analysis I have included these two years. A comparison of data from the 1990-1991 period and the rest of the data show that there is no significant difference in terms of the number of establishments observed.

One additional property of the NETS is that the database provides complete information on business relocation. As Neumark et al. (2005, 2006 & 2008) note, other data sources have been used in studies of employment dynamics. Some of the most popular among researchers are the Census of Manufacturers, the Longitudinal Research Database, and the Unemployment Insurance Data. There are also some newer data sets based on Census and Bureau of Labor Statistics data. The NETS database, however, tracks business address changes and identifies business moves over time within the entire country.

3.3 Relocations, Births, and Deaths

In recording the relocation of an establishment that existed previously versus a new establishment, the DUNS number plays a significant role. DUNS numbers are unique and never recycled. If one establishment closes, its DUNS number is stored under "inactive" or "out of business." The same DUNS number can be reassigned only if the establishment reopens. Every time there is an update of the establishments' database, D&B contacts the last recorded address, or headquarters in case an establishment is a part of a multi-unit firm. If a new establishment has been founded and

investigation shows that there is no previous record, a new DUNS number is assigned. This systematic procedure allows for differentiation between relocations, birth, and deaths.

An establishment that relocates is identified by street address and zip code changes from one year to another. The data include both establishments that moved to the North Country and establishments that moved out of the North Country. There are two limitations on the information that can be extracted from this form of relocation (Neumark, 2006). The first limitation refers to the difference between moving out and branching out. Moving out occurs when a company located in the North Country moves out of the area. This company will be in the NETS. However, when a company located in the North Country decides to open an establishment outside the North Country area, a process called branching out, this new establishment will not be registered in the data. The main presumption is that opening a new establishment in the North Country area has a different cost than opening the same establishment outside of the area.

The second limitation has to do with the type of relocation. The NETS data follow only physical relocations. There are, however, other types of relocations. If a job position is moved to another location of the same firm, this type of relocation will be observed as a decrease in employment in the first location and increase of employment in the second. Also, when activities from different locations are consolidated and moved to a single location, this change will be observed as an expansion of one establishment and closing of another.

3.4 Data Assessment

The NETS data had been thoroughly examined in Neumark et al. (2005) studying employment change in California. They provide a detailed investigation of the quality, reliability and potential limitations of the data, concluding that the NETS are a reliable source of information about the process of employment change.

4. Employment Dynamics in North Country Region

The following information presents the decomposition of the sources of employment change and growth in the North Country: births and deaths, expansion and contraction, and relocation (in and out of the region).

4.1 Decomposition of the Sources of Employment Growth

Table 1 presents decomposition of the sources of employment growth over overlapping three-year periods for 1990-2007. The table consists of three panels. Panel A, Employment change, provides the starting employment, ending employment and the overall change for each period. Panel B, Gross flows, shows the number of jobs created by birth, expansion and move in of establishment, and number of jobs lost due to death, contraction and move out of establishments. Panel C, Employment change, details decomposition of the process of employment change into three net flows. This

NEW YORK ECONOMIC REVIEW

Table 1. Decomposition of Employment Growth in the North Country Area, 1990-2007

	'90-'93	'91-'94	'92-'95	'93-'96	'94-'97	'95-'98	'96-'99	'97-'00	'98-'01	'99-'02	'00-'03	'01-'04	'02-'05	'03-'06	'04-'07
A. Employment change															
Starting Employment	166,674	165,690	166,297	178,832	174,749	181,887	179,868	181,305	182,611	183,888	188,931	195,331	203,481	197,759	196,018
Ending Employment	178,832	174,749	181,887	179,868	181,305	182,611	183,888	188,931	195,331	203,481	197,759	196,018	192,138	189,511	189,143
Change	12,158	9,059	15,590	1,036	6,556	724	4,020	7,626	12,720	19,593	8,828	687	(11,343)	(8,248)	(6,875)
B. Gross flows															
Job creation															
Birth	29,617	30,179	35,095	22,464	29,376	25,812	24,505	20,092	21,944	28,551	26,371	21,720	15,663	16,335	15,894
Expansion	11,772	16,924	12,359	14,101	13,962	14,084	18,111	21,680	22,905	20,183	19,149	21,101	23,089	22,580	19,135
Move in	1,121	1,894	1,449	1,359	1,270	1,686	1,770	1,818	1,465	1,488	1,511	1,767	2,252	2,546	2,508
Job destruction															
Death	16,420	20,160	18,934	20,560	20,520	22,822	22,411	20,473	18,512	17,952	24,230	26,503	29,965	25,014	23,334
Contraction	11,855	17,715	12,361	14,895	15,895	16,464	16,530	14,134	13,330	10,992	12,098	15,375	19,987	22,376	19,110
Move out	2,077	2,063	2,018	1,433	1,637	1,572	1,425	1,357	1,752	1,685	1,875	2,023	2,395	2,319	1,968
C. Net flows															
Employment change =	12,158	9,059	15,590	1,036	6,556	724	4,020	7,626	12,720	19,593	8,828	687	(11,343)	(8,248)	(6,875)
(birth-death)	13,197	10,019	16,161	1,904	8,856	2,990	2,094	(381)	3,432	10,599	2,141	(4,783)	(14,302)	(8,679)	(7,440)
+ (expansion - contraction)	(83)	(791)	(2)	(794)	(1,933)	(2,380)	1,581	7,546	9,575	9,191	7,051	5,726	3,102	204	25
+ (move in - move out)	(956)	(169)	(569)	(74)	(367)	114	345	461	(287)	(197)	(364)	(256)	(143)	227	540

decomposition is done for periods of three years, instead of annually. Because of imputations and rounding (Walls & Associates, 2003), the NETS data are less reliable for shorter periods of time. Thus, changes shown over a three-year period are preferable to annual ones.

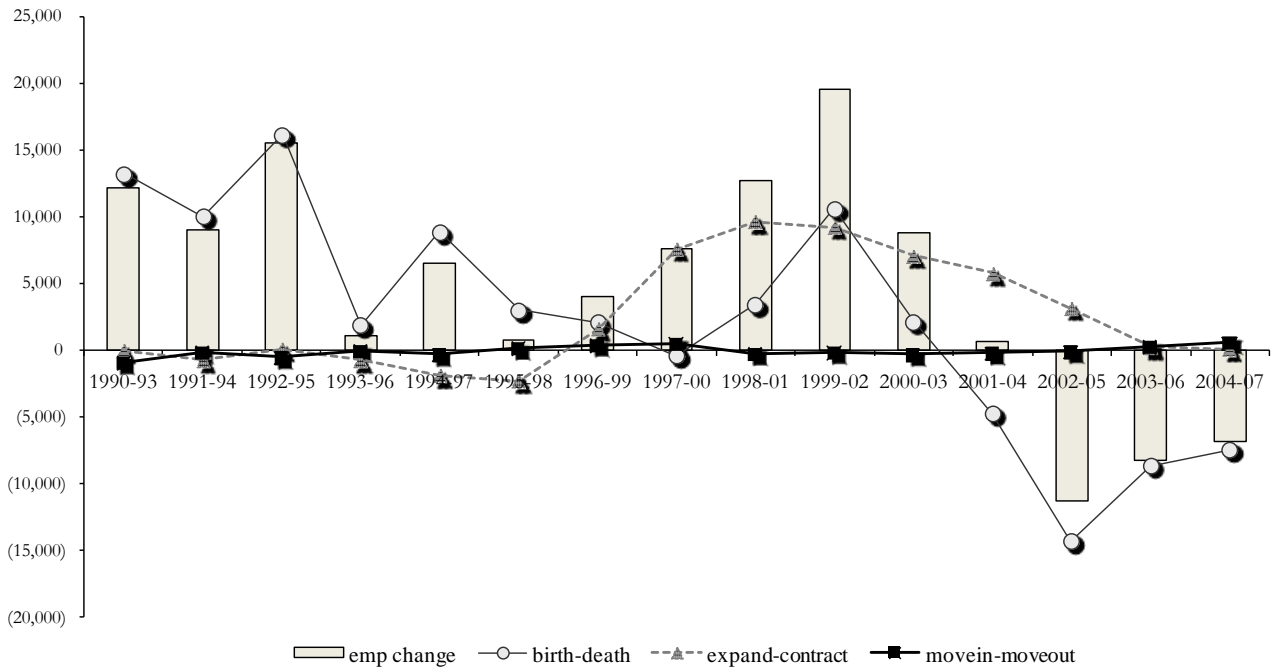
Table 1 show that the net effect of business expansions and contractions is positive for some periods and negative for others. This process follows the business cycle to some degree. In periods of high economic growth, more new establishments, and respectively jobs, are created than are closed down and jobs lost. The opposite happens during recession and times of slow economic growth when many business owners close down, thus relatively more establishments, and jobs, are lost. For example, with the exception of 1997-2000 when 381 jobs were lost, the net effect of expansion and contraction is positive all the way until 2001-2004 when 4,783 are cut, followed by three more periods of an equivalently high number of job losses. These periods follow the recession of 2001-2002, as officially defined by the National Bureau of Economic Research. This can also be seen in Figure 1.

In a similar manner, births and deaths of establishments affect the overall employment change positively for some years and negatively for others. One would expect there to be mostly a positive effect since the establishments that survive are more likely to be the ones that grow and not the ones that contract. What is interesting, however, is that in the case of the North Country region, the net effects of expansions and contractions are negative until 1996-1999. The negative effect is relatively small for the first four periods. For example, 83 jobs are cut due to birth-death for the 1990-1993 period and only 2 jobs for the 1992-1995 period. At the same time, the cuts amount to 1,933 jobs in the 1994-1997 period and 2,380 jobs in the 1995-1998 period respectively. For all periods after that, the region experiences a positive net effect of birth and deaths. The strongest is the effect for the 1998-2001 period and the 1999-2002 period with over nine thousand jobs created.

Finally, the net effects of relocations in and out of the region are insignificant, as can be seen from both Table 1 and Figure 1. Relocation of establishments in the region contributes about 2 percent of job creation, relative to births and expansions. At the same time relocation of establishments out of the region contributes about 7 percent of the total job destruction relative to deaths and contractions. As can be seen from the bottom row of Table 1 the net effect of relocations amounts to an average of 200 jobs a year. This, compared to the net effect of birth and deaths and expansions and contractions, is 15 to 20 times less in magnitude of the effect. It is easy to see that birth and deaths and expansions and contractions are the main processes contributing to the employment dynamics in the North Country.

Figures 2.1 and 2.2 present the relative importance of the different factors of job creation and destruction. Figure 2.1 shows that birth of new establishments is the main source of job creation for almost all of the periods included. Only after 2002 is there a small change in this order as expansions slightly outweigh births. One can see clearly from the figures that the number of jobs created by relocation of establishments into the region is extremely small throughout the whole period. The side panel of Figure 2.1 shows the distribution of job creation across the three different sources. Births

**Figure 1. Net Employment Changes Due to Different Business Dynamics
North Country Region, 1990-2007**



contributed an overwhelming 70 percent of the total job creation, while expansions contribute 28 percent, and relocations only 2 percent.

Figure 2.2 shows the distribution of the source of job destruction. In each period, the death of business establishments is the main source of job destruction, accounting for 54 percent of the job loss for the period observed. Contractions account for 39 percent and relocations out of the region only 7 percent.

4.2 Effect of Relocations

Tables 2A and 2B³ show relocations in and out of the region by number of establishments and number of jobs respectively. The results indicate that some establishments left the North Country, resulting in job losses, and some moved in the area, bringing new jobs. As can be seen from the last column in Table 2A, the net loss/gain from relocations as a percentage of the total number of establishments in the area is very small. The worst years, when the number of establishments leaving the area is the highest, are 2003, 2004, & 2005 with 124, 135 and 105 establishments respectively. This amounts on average, to 0.006 percent of the total number of establishments in the region. At the same time, the

worst net effect has been observed in 2000 and 2007, when the total net loss of number of establishments was 18 and 12 respectively. The loss reported for the period 2003-2005 has been

**Job Creation and Destruction
North Country Region, 1990-2007**

Figure 2.1

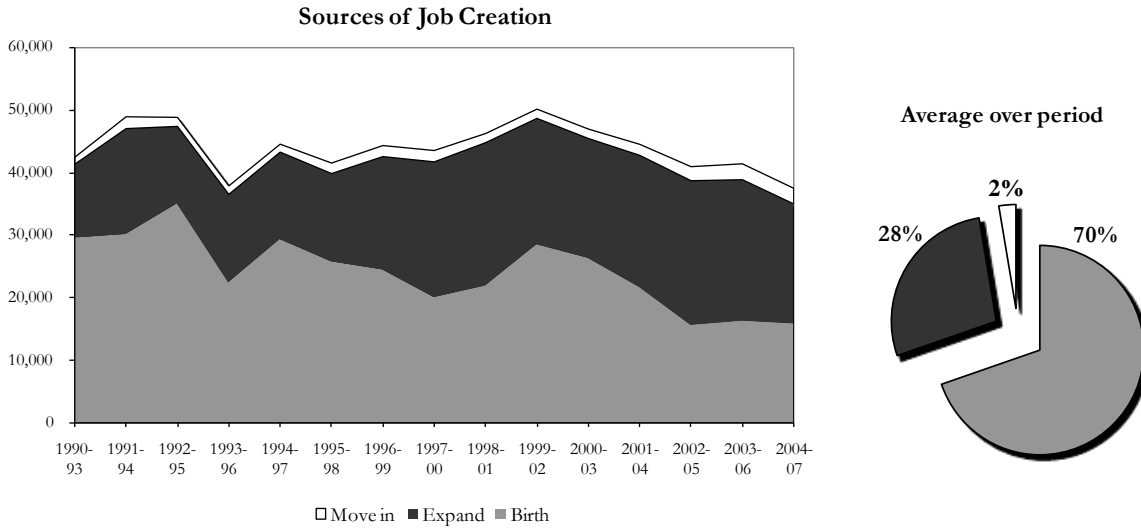
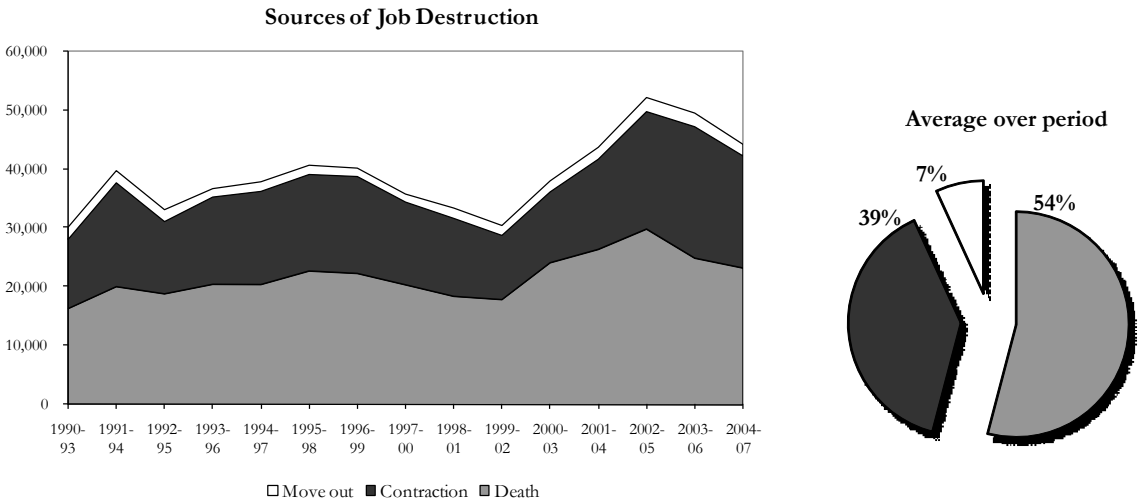


Figure 2.2



offset by equally high number of establishments moving in the area. In terms of number of jobs lost, the worst year was 1992 when 1,364 jobs were lost due to businesses leaving the North Country. The best year for the region was 2004, with 1,049 new jobs created by businesses relocating to the region.

Table 2 Business Relocation and Its Effect on Employment in the North Country, 1990-2007

A. By number of establishments

	Moved in	Moved out	Net effect	Total number of	Net loss. % of
1990	58	47	11	15,531	0.071
1991	40	37	3	15,876	0.019
1992	46	42	4	17,142	0.023
1993	46	46	-	16,983	-
1994	47	51	(4)	18,223	(0.022)
1995	69	77	(8)	18,505	(0.043)
1996	76	80	(4)	19,071	(0.021)
1997	58	58	-	19,138	-
1998	66	60	6	19,186	0.031
1999	60	54	6	19,260	0.031
2000	56	74	(18)	19,474	(0.092)
2001	78	82	(4)	20,752	(0.019)
2002	93	91	2	21,293	0.009
2003	116	124	(8)	21,193	(0.038)
2004	137	135	2	21,205	0.009
2005	107	105	2	21,603	0.009
2006	80	83	(3)	21,377	(0.014)
2007	82	94	(12)	21,816	(0.055)

B. By number of jobs

	Moved in	Moved out	Net effect	Total number of jobs	Net loss. % of
1990	752	319	433	165,690	0.260
1991	369	394	(25)	166,297	(0.015)
1992	773	1,364	(591)	178,832	(0.356)
1993	307	305	2	174,633	0.001
1994	279	349	(70)	181,767	(0.040)
1995	684	779	(95)	179,878	(0.052)
1996	723	509	214	181,040	0.119
1997	363	284	79	182,335	0.044
1998	732	632	100	183,652	0.055
1999	370	441	(71)	188,631	(0.039)
2000	386	679	(293)	194,898	(0.155)
2001	755	565	190	203,137	0.098
2002	626	631	(5)	197,294	(0.002)
2003	871	827	44	195,298	0.022
2004	1,049	937	112	191,560	0.057
2005	588	555	33	188,821	0.017
2006	410	476	(66)	188,461	(0.035)
2007	251	353	(102)	184,772	(0.054)

Tables reporting relocations by number of establishments and number of jobs for each county are available on request from the author. Clinton County lost the highest number of establishments among all counties in the region. Seventy eight establishments left in 2003 and 2004, which resulted in a loss of more than 600 jobs over the two-year period. Essex County lost the highest number of jobs over a single year, 455 jobs lost in 1992. Similar results are reported for Franklin County. The net effects of relocations are insignificant by both number of establishments and number of jobs for Jefferson, Lewis and Saint Lawrence Counties.

4.3 Effect of Births and Deaths

Tables 3A and 3B show births and deaths, for the region overall, by number of establishments and number of jobs respectively. For every year from 1995 to 2005 the region lost more than one thousand businesses. The worst years were 2002, with 1502 establishments and 2005, with 1630 establishments. In terms of net effects, the total number of establishments increased by 7 percent in

Table 3. Business Birth and Death and Their Effect on Employment in the North Country Area, 1990-2007

A. By number of establishments

	Birth	Death	Net effect	Total number of	Net loss. % of
1990	725	638	87	15,531	0.560
1991	973	781	192	15,876	1.209
1992	2,047	886	1,161	17,142	6.773
1993	722	725	(3)	16,983	(0.018)
1994	1,963	696	1,267	18,223	6.953
1995	983	1,109	(126)	18,505	(0.681)
1996	1,693	1,124	569	19,071	2.984
1997	1,194	1,080	114	19,138	0.596
1998	1,124	1,061	63	19,186	0.328
1999	1,126	1,077	49	19,260	0.254
2000	1,288	1,011	277	19,474	1.422
2001	2,315	1,154	1,161	20,752	5.595
2002	1,700	1,502	198	21,293	0.930
2003	1,403	1,074	329	21,193	1.552
2004	1,093	1,466	(373)	21,205	(1.759)
2005	1,862	1,630	232	21,603	1.074
2006	1,403	985	418	21,377	1.955
2007	1,427	916	511	21,816	2.342

B. By number of jobs

	Birth	Death	Net effect	Total number of jobs	Net loss. % of
1990	3,758	4,544	(786)	165,690	(0.471)
1991	6,717	6,355	362	166,297	0.218
1992	19,142	5,521	13,621	178,832	8.197
1993	4,320	8,284	(3,964)	174,633	(2.217)
1994	11,633	5,129	6,504	181,767	3.724
1995	6,511	7,147	(636)	179,878	(0.350)
1996	11,232	8,244	2,988	181,040	1.663
1997	8,069	7,431	638	182,335	0.352
1998	5,204	6,736	(1,532)	183,652	(0.841)
1999	6,819	6,306	513	188,631	0.279
2000	9,921	5,470	4,451	194,898	2.361
2001	11,811	6,176	5,635	203,137	2.892
2002	4,639	12,584	(7,945)	197,294	(3.911)
2003	5,270	7,743	(2,473)	195,298	(1.255)
2004	5,754	9,638	(3,884)	191,560	(1.989)
2005	5,311	7,633	(2,322)	188,821	(1.212)
2006	4,829	6,063	(1,234)	188,461	(0.653)
2007	4,207	7,653	(3,446)	184,772	(1.829)

both 1992 and 1994, and 6 percent in 2001. The region gained 19,142 jobs in 1992, an 8 percent increase. From 2002 to 2007, the area experienced an average annual job loss of 1 – 1.5 percent.

Tables reporting births and deaths by number of establishments and number of jobs for each county are available on request from the author. The highest gains in new establishments were observed in 1992-1994, ranging from a 5 percent increase for Franklin County to a 10 percent increase for Lewis County. Saint Lawrence County reported the highest gain in jobs in a single year, an 11 percent increase of the total number of jobs in 1992. Jefferson County had the highest gain in both new establishments and new jobs over the whole period. Lewis County was the only county in the region that reported a net job loss over the whole period of observation. The most significant job losses, across all counties, were observed at the end of the period, in years when the number of new establishments outweighed the number of establishments closing down. What this means is that the new born businesses offered relatively fewer jobs compared to the jobs lost due to businesses shutting down.

4.4 Effect of Expansions and Contractions

Table 4 shows expansions and contractions by number of jobs for the region as a whole. For most of the years during the period of observation, expansion of establishments outweighs contraction. The highest negative effect is observed in 1995 when the 1,844 jobs (1 percent of the total number of jobs) were lost. The best years are 1997 and 1998, when the net positive effects of jobs gained amount to 3,173 and 2,096 respectively. For both years, this is about 2 percent of the total number of jobs for the region.

Table 4. Business Expansion and Contraction and their Effect on Employment in the North Country, 1990-2007

	Expansion	Contraction	Net effect	Total number of jobs	Net loss. % of
1990	9,414	9,543	(129)	165,690	(0.077)
1991	2,329	2,299	30	166,297	0.018
1992	4,711	5,851	(1,140)	178,832	(0.686)
1993	5,083	4,195	888	174,633	0.497
1994	4,080	4,832	(752)	181,767	(0.431)
1995	5,009	6,853	(1,844)	179,878	(1.014)
1996	4,982	4,769	213	181,040	0.119
1997	8,060	4,887	3,173	182,335	1.753
1998	8,551	4,455	4,096	183,652	2.248
1999	6,094	3,966	2,128	188,631	1.158
2000	5,382	2,561	2,821	194,898	1.496
2001	7,544	5,569	1,975	203,137	1.014
2002	8,162	7,232	930	197,294	0.458
2003	7,368	7,144	224	195,298	0.114
2004	6,959	7,954	(995)	191,560	(0.509)
2005	4,721	3,969	752	188,821	0.393
2006	3,682	3,999	(317)	188,461	(0.168)
2007	4,660	4,061	599	184,772	0.318

Tables reporting expansions and contractions in the number of jobs by county are available on request from the author. Franklin County experienced the highest number of years (ten) with negative net effects of expansions and contractions out of all counties in the region. The most significant loss was observed in 2004 when 2,225 jobs were cut due to business contractions, resulting in a total net loss of 7 percent of the total number of jobs.

4.5 Net Flows and Employment Change

The net contribution of each of the three net processes (birth - death, expansion - contraction and relocation in -relocation out) is shown against the overall employment change in Figure 1. As was mentioned earlier, and confirmed in Figure 1, the net effect of relocation is almost zero, with no contribution to the employment changes observed.

The net effect of births and deaths mimics the overall employment changes for almost all periods. For the first four and the last two 3-year periods almost 100 percent of the employment change is due to the net effect of births and deaths. Not only relocations, but also expansions and contractions have zero net effect. For the rest of the periods included, the net effect of births and deaths still follows the overall employment changes. However, the net effect of expansions and contractions picks up significantly between 1996 and 2003. For example, the employment growth between 1997 and 2001 is

due to net flows from both births - deaths and expansions - contractions. The latter is positive until 2003, while the former plunges dramatically in 2002-2005.

An important lesson from this analysis so far is that both births and deaths of business establishments have significant and very distinguishable effects in the process of employment growth. Births of new establishments are widely recognized as a criterion for economic growth. At the same time, deaths of establishments are equally important in the process of job destruction. Overall, employment changes in the North Country region until 1996 are due to the net effect of the birth and death of business establishments, and to the net effect of expansions and contractions afterwards. Finally, one can conclude that due to the large magnitude of the effects of the births - deaths and expansion - contraction processes, a small change in each of the four underlying sources of employment change could potentially result in a significant shift in employment growth. Changes in in-and-out of the region relocations, on the other hand, will have little or no impact on local employment.

4.6 Changes in the Interval Length

As discussed above, the length of the interval of analysis will affect the magnitude of the effects of job creation and destruction on employment growth. A few things might be expected to change. The total number of jobs created or lost over shorter periods of time might be larger than those observed over relatively longer periods of time due to temporary fluctuations and seasonality. In addition, the effects of births and deaths will be relatively larger over longer periods of time. This is because when the interval of observation gets longer, more establishments experience birth and death. This reinforces the fact that the NETS database is more reliable for periods of three years or longer.

Table 5 presents the decomposition of employment change into births, deaths, expansions, contractions and relocations for one, two, three, five and nine years. The results show that changes in the interval length do not seem to affect the relative order of significance of the sources of job creation and job destruction. Regardless of the interval chosen, births and deaths have the largest contributions, followed by expansions and contractions, and relocations in and out of the region are last.

4.7 Types of Relocations

As shown in Table 6A and Table 6B, establishments are more likely to move locally than to exit. In Table 6A, all establishments that moved in the North Country region were divided in three groups: establishments that moved in from outside of the region, establishments that moved in from a different county within the region and, finally, establishments that moved within the same county. In a similar manner, Table 6B presents the results for the establishments that moved out, dividing them into three categories: establishments that moved out of the region, establishments that moved to a different county and establishments that moved within the same county. The average results for both tables

Table 5. Employment Change Decomposition, 1990-2007 Various Interval Lengths of Observation**A. In absolute values**

	Birth (1)	Expansion (2)	Move in (3)	Gross Creation (4) (1) + (2) + (3)	Death (5)	Contraction (6)	Move out (7)	Gross Destruction (8) (5)+ (6) + (7)	Net Change (9) (4) – (8)
1 year	135,147	107,381	10,288	252,816	314,277	94,262	11,228	419,767	(166,951)
2 years	131,389	107,381	10,288	249,058	309,733	94,262	10,080	414,075	(165,017)
3 years	131,389	107,381	10,288	249,058	309,733	94,262	10,080	414,075	(165,017)
5 years	101,210	90,457	8,394	200,061	289,573	76,547	8,017	374,137	(174,076)
9 years	141,966	115,963	11,020	268,949	320,583	98,726	10,840	430,149	(161,200)

B. In percentage

	Birth (1)	Expansion (2)	Move in (3)	Gross Creation (4) (1) + (2) + (3)	Death (5)	Contraction (6)	Move out (7)	Gross Destruction (8) (5)+ (6) + (7)
1 year	53.5%	42.5%	4.1%	100%	74.9%	22.5%	2.7%	100%
2 years	52.8%	43.1%	4.1%	100%	74.8%	22.8%	2.4%	100%
3 years	52.8%	43.1%	4.1%	100%	74.8%	22.8%	2.4%	100%
5 years	50.6%	45.2%	4.2%	100%	77.4%	20.5%	2.1%	100%
9 years	52.8%	43.1%	4.1%	100%	74.5%	23.0%	2.5%	100%

should be the same. Of all establishments that relocate, 63 percent relocate within the same county, 10 percent move out of the county, but stay within the North Country region and 27 percent move out of the region. What this means is that the effect of relocations on the employment for the region as a whole would be smaller than the effect of relocations on the county level. In both cases, however, this effect is negligible.

5. Employment Dynamics across Industry

This section presents an analysis of the employment dynamics in the North Country Region by industry, based on the results in Table 7 and Table 8. Table 7 shows the decomposition of employment change by expansion-contraction, birth-death and relocation in and out of the region. Table 8 gives the 2007 average wages across industry sectors and subsectors and also across counties.

The North Country Region lost 31,298 jobs and gained 9,280 jobs between 1990 and 2007. This resulted in a net loss of 22,018 jobs for that period. The largest losses were in the areas of Manufacturing (7,755), Educational services (9,909) and Health Care and Social Assistance (7,852). Job losses in these three areas accounted for 81.5 percent of all job losses for the period. The largest gains were in the areas of Retail Trade (1,994), Professional, Scientific and Technical services (2,744) and Admin, Support, Waste Management and Remedial services (3,390). Job gains in these three areas accounted for 87.6 percent of all job gains.

All of the following calculations were determined using the 2007 average wage for the North Country Region.

Table 6. Relocations by Type, 1990-2007

A. Move in

	Total	From out of	From out of	Within	From out of	From out of	Within county.
1990	58	23	9	26	40%	16%	45%
1991	40	15	3	22	38%	8%	55%
1992	46	13	5	28	28%	11%	61%
1993	46	14	3	29	30%	7%	63%
1994	47	10	8	29	21%	17%	62%
1995	69	12	6	51	17%	9%	74%
1996	76	13	5	58	17%	7%	76%
1997	58	11	2	45	19%	3%	78%
1998	66	18	9	39	27%	14%	59%
1999	60	16	4	40	27%	7%	67%
2000	56	7	8	41	13%	14%	73%
2001	78	18	11	49	23%	14%	63%
2002	93	29	11	53	31%	12%	57%
2003	116	24	12	80	21%	10%	69%
2004	137	43	11	83	31%	8%	61%
2005	107	33	14	60	31%	13%	56%
2006	80	26	3	51	33%	4%	64%
2007	82	20	7	55	24%	9%	67%

B. Move out

	Total	Out of	Out of	Within	Out of the	Out of the	Within county.
1990	47	12	9	26	26%	19%	55%
1991	37	12	3	22	32%	8%	59%
1992	42	9	5	28	21%	12%	67%
1993	46	14	3	29	30%	7%	63%
1994	51	14	8	29	27%	16%	57%
1995	77	20	6	51	26%	8%	66%
1996	80	17	5	58	21%	6%	73%
1997	58	11	2	45	19%	3%	78%
1998	60	12	9	39	20%	15%	65%
1999	54	10	4	40	19%	7%	74%
2000	74	25	8	41	34%	11%	55%
2001	82	22	11	49	27%	13%	60%
2002	91	27	11	53	30%	12%	58%
2003	124	32	12	80	26%	10%	65%
2004	135	41	11	83	30%	8%	61%
2005	105	31	14	60	30%	13%	57%
2006	83	29	3	51	35%	4%	61%
2007	94	32	7	55	34%	7%	59%

5.1 Job Loss

The average wage for Manufacturing is \$44,781. There are 11 sub-categories applicable to the North Country Region, with average wages ranging from \$21,355 to \$72,177. The net loss in wages for this category is \$240,395,069. The average wage for Educational services is \$28,345, resulting in a total loss of wages of \$280,870,605. The average wage for Health Care and Social Assistance is \$34,383. There are four sub-categories, with the average wage ranging from \$20,170 to \$43,143. The net loss for wages in this category is \$284,357,934. The total loss of wages for these three areas of job loss is \$805,623,608.

NEW YORK ECONOMIC REVIEW

Table 7 Employment Change Decomposition by Industry in North Country region, 1990-2007

Industry Title	Net Employment Change, 1990-2007					Annualized Change as share of 1990 employment			
	Starting Employment	Total	Expansion- Contraction	Birth- Death	Move	Total	Expansion- Contraction	Birth- Death	Move
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
All Industries	3,007,340	(32,698)	8,981	(40,890)	(789)	-0.06%	0.02%	-0.08%	0.00%
Agriculture, Forestry, Fishing, and Hunting	63,163	(884)	435	(1,312)	(7)	-0.08%	0.04%	-0.12%	0.00%
Crop Production	16,310	(141)	102	(239)	(4)	-0.05%	0.03%	-0.08%	0.00%
Animal Production	37,198	(744)	261	(1,003)	(2)	-0.11%	0.04%	-0.15%	0.00%
Forestry and Logging	6,734	(25)	67	(92)	0	-0.02%	0.06%	-0.08%	0.00%
Fishing, Hunting and Trapping	291	(5)	1	(6)	0	-0.10%	0.02%	-0.12%	0.00%
Support Activities for Agriculture and Forestry	2,630	31	4	28	(1)	0.07%	0.01%	0.06%	0.00%
Mining	11,155	(36)	243	(279)	0	-0.02%	0.12%	-0.14%	0.00%
Oil and Gas Extraction	66	(11)	(12)	1	0	-1.01%	-1.11%	0.08%	0.00%
Mining (except Oil and Gas)	10,776	(7)	275	(282)	0	0.00%	0.14%	-0.15%	0.00%
Support Activities for Mining	313	(18)	(20)	2	0	-0.33%	-0.37%	0.04%	0.00%
Utilities	23,940	(539)	(142)	(399)	2	-0.13%	-0.03%	-0.09%	0.00%
Utilities	23,940	(539)	(142)	(399)	2	-0.13%	-0.03%	-0.09%	0.00%
Construction	154,345	(89)	2,913	(2,841)	(161)	0.00%	0.10%	-0.10%	-0.01%
Construction of Buildings	54,349	(507)	496	(988)	(15)	-0.05%	0.05%	-0.10%	0.00%
Heavy and Civil Engineering Construction	38,191	(1,968)	(600)	(1,302)	(66)	-0.29%	-0.09%	-0.19%	-0.01%
Specialty Trade Contractors	61,805	2,386	3,017	(551)	(80)	0.21%	0.27%	-0.05%	-0.01%
Manufacturing	380,796	(7,755)	(1,118)	(6,596)	(41)	-0.11%	-0.02%	-0.10%	0.00%
Food Manufacturing	34,005	(310)	249	(547)	(12)	-0.05%	0.04%	-0.09%	0.00%
Beverage and Tobacco Product Manufacturing	1,123	5	8	(3)	0	0.02%	0.04%	-0.01%	0.00%
Textile Mills	6,757	30	27	3	0	0.02%	0.02%	0.00%	0.00%
Textile Product Mills	1,246	2	69	(66)	(1)	0.01%	0.30%	-0.30%	0.00%
Apparel Manufacturing	5,292	(146)	(143)	(5)	2	-0.16%	-0.15%	-0.01%	0.00%
Leather and Allied Product Manufacturing	17,724	(766)	(780)	14	0	-0.25%	-0.25%	0.00%	0.00%
Wood Product Manufacturing	7,087	(84)	44	(123)	(5)	-0.07%	0.03%	-0.10%	0.00%
Paper Manufacturing	87,356	(2,571)	(1,169)	(1,402)	0	-0.17%	-0.07%	-0.09%	0.00%
Printing and Related Support Activities	9,595	(190)	209	(396)	(3)	-0.11%	0.12%	-0.23%	0.00%
Petroleum and Coal Products Manufacturing	1,170	(41)	7	(48)	0	-0.20%	0.03%	-0.23%	0.00%
Chemical Manufacturing	29,542	(920)	(355)	(565)	0	-0.18%	-0.07%	-0.11%	0.00%
Plastics and Rubber Products Manufacturing	17,214	(318)	670	(988)	0	-0.10%	0.21%	-0.33%	0.00%
Nonmetallic Mineral Product Manufacturing	10,221	(360)	(34)	(326)	0	-0.20%	-0.02%	-0.18%	0.00%
Primary Metal Manufacturing	51,954	(999)	(511)	(488)	0	-0.11%	-0.05%	-0.05%	0.00%
Fabricated Metal Product Manufacturing	11,850	4	34	(30)	0	0.00%	0.02%	-0.01%	0.00%
Machinery Manufacturing	11,258	325	224	132	(31)	0.16%	0.11%	0.06%	-0.02%
Computer and Electronic Product Manufacturing	14,432	(142)	(70)	(69)	(3)	-0.05%	-0.03%	-0.03%	0.00%
Electr. Equip., Appliance, & Compon. Manuftr.	17,675	(565)	(40)	(518)	(7)	-0.18%	-0.01%	-0.17%	0.00%
Transportation Equipment Manufacturing	24,231	(703)	44	(772)	25	-0.16%	0.01%	-0.18%	0.01%
Furniture and Related Product Manufacturing	3,561	55	(8)	68	(5)	0.09%	-0.01%	0.11%	-0.01%
Miscellaneous Manufacturing	17,503	(61)	407	(467)	(1)	-0.02%	0.13%	-0.15%	0.00%
Wholesale Trade	113,576	87	1,361	(1,196)	(78)	0.00%	0.07%	-0.06%	0.00%
Merchant Wholesalers, Durable Goods	61,964	675	747	(61)	(11)	0.06%	0.07%	-0.01%	0.00%
Merchant Wholesalers, Nondurable Goods	51,612	(588)	614	(1,135)	(67)	-0.06%	0.07%	-0.12%	-0.01%

Table 7 Cont. p2

Retail Trade	414,138	1,994	3,027	(946)	(87)	0.03%	0.04%	-0.01%	0.00%
Motor Vehicle and Parts Dealers	49,889	(378)	408	(763)	(23)	-0.04%	0.05%	-0.09%	0.00%
Furniture and Home Furnishings Stores	10,685	88	37	55	(4)	0.05%	0.02%	0.03%	0.00%
Electronics and Appliance Stores	9,910	289	(50)	349	(10)	0.16%	-0.03%	0.19%	-0.01%
Buld. Material and Garden Equip. & Supplies Dealers	28,842	(164)	511	(674)	(1)	-0.03%	0.10%	-0.13%	0.00%
Food and Beverage Stores	107,651	770	701	73	(4)	0.04%	0.04%	0.00%	0.00%
Health and Personal Care Stores	27,930	(329)	204	(531)	(2)	-0.07%	0.04%	-0.11%	0.00%
Gasoline Stations	15,548	(206)	121	(326)	(1)	-0.07%	0.04%	-0.12%	0.00%
Clothing and Clothing Accessories Stores	21,853	998	(3)	1,022	(21)	0.25%	0.00%	0.25%	-0.01%
Sporting Goods, Hobby, Book, and Music Stores	18,106	767	59	718	(10)	0.23%	0.02%	0.22%	0.00%
General Merchandise Stores	76,913	(657)	546	(1,253)	50	-0.05%	0.04%	-0.09%	0.00%
Miscellaneous Store Retailers	33,925	522	191	342	(11)	0.08%	0.03%	0.06%	0.00%
Nonstore Retailers	12,886	294	302	42	(50)	0.13%	0.13%	0.02%	-0.02%
Transportation and Warehousing	113,794	31	1,104	(944)	(129)	0.00%	0.05%	-0.05%	-0.01%
Air Transportation	5,501	(150)	88	(229)	(9)	-0.15%	0.09%	-0.24%	-0.01%
Rail Transportation	1,077	(45)	3	(48)	0	-0.24%	0.02%	-0.25%	0.00%
Water Transportation	166	5	0	5	0	0.17%	0.00%	0.17%	0.00%
Truck Transportation	30,377	(51)	440	(455)	(36)	-0.01%	0.08%	-0.08%	-0.01%
Transit and Ground Passenger Transportation	12,271	265	387	(121)	(1)	0.12%	0.17%	-0.06%	0.00%
Pipeline Transportation	59	11	1	10	0	0.95%	0.09%	0.87%	0.00%
Scenic and Sightseeing Transportation	1,997	(45)	76	(121)	0	-0.13%	0.21%	-0.35%	0.00%
Support Activities for Transportation	33,041	404	422	9	(27)	0.07%	0.07%	0.00%	0.00%
Postal Service	14,049	19	175	(156)	0	0.01%	0.07%	-0.06%	0.00%
Couriers and Messengers	4,435	(34)	144	(177)	(1)	-0.04%	0.18%	-0.23%	0.00%
Warehousing and Storage	10,821	(348)	(632)	339	(55)	-0.18%	-0.33%	0.17%	-0.03%
Information	64,676	164	200	21	(57)	0.01%	0.02%	0.00%	0.00%
Publishing Industries (except Internet)	29,057	(3)	(138)	180	(45)	0.00%	-0.03%	0.03%	-0.01%
Motion Picture and Sound Recording Industries	1,290	80	8	72	0	0.33%	0.03%	0.30%	0.00%
Broadcasting (except Internet)	12,754	49	174	(113)	(12)	0.02%	0.08%	-0.05%	-0.01%
Telecommunications	5,418	24	71	(47)	0	0.02%	0.07%	-0.05%	0.00%
Data Processing, Hosting, and Related Services	4,473	284	(17)	301	0	0.34%	-0.02%	0.36%	0.00%
Other Information Services	11,684	(270)	102	(372)	0	-0.13%	0.05%	-0.18%	0.00%
Finance and Insurance	73,692	(1,664)	(472)	(1,182)	(10)	-0.13%	-0.04%	-0.09%	0.00%
Monetary Authorities-Central Bank	320	0	0	0	0	0.00%	0.00%	0.00%	0.00%
Credit Intermediation and Related Activities	35,440	(788)	1	(781)	(8)	-0.12%	0.00%	-0.12%	0.00%
Securities, Commodity Contracts, & Oth Relat. Activ.	5,273	(1)	15	(23)	7	0.00%	0.02%	-0.02%	0.01%
Insurance Carriers and Related Activities	32,348	(841)	(462)	(369)	(10)	-0.15%	-0.08%	-0.06%	0.00%
Funds, Trusts, and Other Financial Vehicles	311	(34)	(26)	(9)	1	-0.64%	-0.48%	-0.16%	0.02%
Real Estate and Rental and Leasing	51,464	(19)	40	(31)	(28)	0.00%	0.00%	0.00%	0.00%
Real Estate	38,515	(433)	63	(469)	(27)	-0.06%	0.01%	-0.07%	0.00%
Rental and Leasing Services	12,634	432	(14)	447	(1)	0.19%	-0.01%	0.19%	0.00%
Lessors of Nonfinancial Intangible Assets (w/o Copyrigh	315	(18)	(9)	(9)	0	-0.33%	-0.16%	-0.16%	0.00%
Professional, Scientific and Technical Services	116,372	2,744	1,386	1,382	(24)	0.13%	0.07%	0.07%	0.00%
Professional, Scientific, and Technical Services	116,372	2,744	1,386	1,382	(24)	0.13%	0.07%	0.07%	0.00%
Management of Companies and Enterprises	4,950	(92)	(48)	(44)	0	-0.10%	-0.05%	-0.05%	0.00%
Management of Companies and Enterprises	4,950	(92)	(48)	(44)	0	-0.10%	-0.05%	-0.05%	0.00%
Admin., Support, Waste Mngt, & Remed. Services	78,239	3,390	1,548	1,879	(37)	0.24%	0.11%	0.13%	0.00%
Administrative and Support Services	69,444	3,229	1,509	1,739	(19)	0.25%	0.12%	0.14%	0.00%
Waste Management and Remediation Services	8,795	161	39	140	(18)	0.10%	0.02%	0.09%	-0.01%
Educational Services	385,848	(9,909)	4,081	(13,980)	(10)	-0.14%	0.06%	-0.20%	0.00%
Educational Services	385,848	(9,909)	4,081	(13,980)	(10)	-0.14%	0.06%	-0.20%	0.00%
Health Care and Social Assistance	441,148	(7,852)	5,665	(13,488)	(29)	-0.10%	0.07%	-0.17%	0.00%
Ambulatory Health Care Services	105,208	805	1,210	(386)	(19)	0.04%	0.06%	-0.02%	0.00%
Hospitals	158,282	(6,529)	2,868	(9,397)	0	-0.23%	0.10%	-0.34%	0.00%
Nursing and Residential Care Facilities	74,817	(2,251)	908	(3,159)	0	-0.17%	0.07%	-0.24%	0.00%
Social Assistance	102,841	123	679	(546)	(10)	0.01%	0.04%	-0.03%	0.00%

NEW YORK ECONOMIC REVIEW

Table 7 Cont. p3

Arts, Entertainment and Recreation	50,793	333	7	343	(17)	0.04%	0.00%	0.04%	0.00%
Performing Arts, Spectator Sports, and Related Indus	8,483	702	(35)	734	3	0.44%	-0.02%	0.46%	0.00%
Museums, Historical Sites, and Similar Institutions	10,398	(483)	(304)	(179)	0	-0.26%	-0.16%	-0.10%	0.00%
Amusement, Gambling, and Recreation Industries	31,912	114	346	(212)	(20)	0.02%	0.06%	-0.04%	0.00%
Accommodation and Food Services	281,423	(2,459)	1,016	(3,427)	(48)	-0.05%	0.02%	-0.07%	0.00%
Accommodation	88,670	(1,298)	1,245	(2,531)	(12)	-0.08%	0.08%	-0.16%	0.00%
Food Services and Drinking Places	192,753	(1,161)	(229)	(896)	(36)	-0.03%	-0.01%	-0.03%	0.00%
Other Services (except Public Administration)	183,828	537	(1,585)	2,150	(28)	0.02%	-0.05%	0.06%	0.00%
Repair and Maintenance	38,165	349	69	297	(17)	0.05%	0.01%	0.04%	0.00%
Personal and Laundry Services	32,744	326	(58)	385	(1)	0.06%	-0.01%	0.06%	0.00%
Religious, Grantmaking, Civic, Profes., & Similar Org.	112,919	(138)	(1,596)	1,468	(10)	-0.01%	-0.08%	0.07%	0.00%

Table 8. Annual Average Wages by Industry Sectors and Subsectors in the North Country Region, 1990-2007 (in dollars)

	Industry Title	New York	Clinton	Essex	Franklin	Jefferson	Lewis	St Lawrence
All Industries		61,402	33,130	29,305	28,149	30,213	29,073	31,884
Agriculture, Forestry, Fishing, and Hunting		27,154	29,334	26,239	nd	24,444	26,104	30,826
	Crop Production	24,541	26,649	31,818	nd	10,868	nd	16,155
	Animal Production	29,072	31,981	21,085	22,285	24,411	25,362	23,918
	Forestry and Logging	31,796	25,391	20,909	44,131	28,239	30,133	47,861
	Fishing, Hunting and Trapping	33,299	nd	nd	--	--	--	nd
	Support Activities for Agriculture and Forestry	31,138	nd	nd	nd	24,281	nd	nd
Mining		54,411	22,828	47,962	nd	35,465	--	56,034
	Oil and Gas Extraction	82,189	--	--	--	--	--	--
	Mining (except Oil and Gas)	51,210	22,828	47,962	nd	nd	--	56,034
	Support Activities for Mining	65,357	--	--	--	nd	--	nd
Utilities		92,622	82,251	65,958	62829	82,105	60,090	74,609
Construction		55,873	45,283	41,197	28995	41,497	39,424	41,698
	Construction of Buildings	55,180	39,014	34,908	27517	40,307	22,627	42,013
	Heavy and Civil Engineering Construction	72,504	66,746	43,540	27951	51,737	161,554	46,530
	Specialty Trade Contractors	54,220	44,848	47,104	30254	41,052	31,522	40,878
Manufacturing		56,001	45,827	53,250	31486	40,189	42,527	55,411
	Food Manufacturing	38,114	11,079	17,684	nd	38,917	39,820	30,312
	Beverage and Tobacco Product Manufacturing	98,178	nd	nd	--	nd	--	nd
	Textile Mills	55,800	nd	--	--	23,898	--	--
	Textile Product Mills	39,636	--	nd	nd	nd	--	--
	Apparel Manufacturing	47,524	nd	nd	nd	nd	--	nd
	Leather and Allied Product Manufacturing	39,778	nd	--	--	--	--	nd
	Wood Product Manufacturing	36,219	22,557	nd	32,663	29,086	28,075	26,848
	Paper Manufacturing	50,849	44,416	nd	--	43,850	50,027	52,296
	Printing and Related Support Activities	46,805	23,613	23,638	21,473	27,859	nd	nd
	Petroleum and Coal Products Manufacturing	60,612	nd	nd	nd	nd	--	nd
	Chemical Manufacturing	69,330	nd	nd	nd	nd	nd	nd
	Plastics and Rubber Products Manufacturing	42,174	31,721	--	nd	nd		nd
	Nonmetallic Mineral Product Manufacturing	50,842	nd	31,955	20,034	36,034	nd	57,343
	Primary Metal Manufacturing	57,140	nd	--	--	--	--	72,177
	Fabricated Metal Product Manufacturing	47,134	37,092	nd	nd	nd	nd	39,207
	Machinery Manufacturing	61,022	nd	nd	--	nd	nd	
	Computer and Electronic Product Manufacturing	81,713	33,097	nd	--	nd	--	54,498
	Electr. Equip., Appliance, & Compon. Manuftr.	52,123	nd	nd	--	32,142	--	nd
	Transportation Equipment Manufacturing	66,489	nd	nd	--	nd	--	--
	Furniture and Related Product Manufacturing	38,439	nd	23,086	21,868	nd	19,110	--
	Miscellaneous Manufacturing	49,499	31,716	nd	nd	nd	nd	42,037
Wholesale Trade		69,186	39,325	29,755	34,918	40,021	37,247	35,318
	Merchant Wholesalers, Durable Goods	65,353	39,682	32,427	36,717	38,275	nd	36,719
	Merchant Wholesalers, Nondurable Goods	68,834	37,218	26,529	31,327	41,271	30,132	30,228

Table 8 Cont. p.2

Retail Trade		29,191	22,223	21,698	21,366	22,614	19,449	21,182
Motor Vehicle and Parts Dealers		44,414	30,760	31,207	25,904	34,490	26,301	29,378
Furniture and Home Furnishings Stores		33,654	24,185	nd	21,663	32,057	nd	25,305
Electronics and Appliance Stores		41,215	21,608	nd	nd	22,728	nd	20,382
Buld. Material and Garden Equip. & Supplies Dealers		32,781	32,044	28,153	26,654	26,423	23,016	22,621
Food and Beverage Stores		21,916	17,379	16,847	18,887	17,619	15,688	18,892
Health and Personal Care Stores		35,375	28,608	32,203	28,844	28,843	nd	28,476
Gasoline Stations		18,656	16,283	16,660	14,626	15,781	13,436	14,915
Clothing and Clothing Accessories Stores		27,726	12,485	16,460	20,049	13,683	--	15,083
Sporting Goods, Hobby, Book, and Music Stores		20,547	15,279	18,328	nd	15,541	nd	16,197
General Merchandise Stores		21,793	18,137	19,743	17,059	17,995	nd	18,309
Miscellaneous Store Retailers		30,888	24,117	16,950	17,214	18,533	6,241	16,203
Nonstore Retailers		52,245	35,710	33,737	31,010	35,152	nd	29,776
Transportation and Warehousing		42,366	32,833	21,316	37,920	36,483	33,450	24,452
Air Transportation		62,634	nd	nd	nd	nd	--	--
Rail Transportation		43,465	nd	--	--	nd	--	--
Water Transportation		79,131	nd	nd	--	--	--	--
Truck Transportation		42,484	37,080	21,618	38,566	34,279	28,691	33,913
Transit and Ground Passenger Transportation		30,215	20,388	nd	--	21,767	nd	12,743
Pipeline Transportation		69,374	--	--	--	nd	--	--
Scenic and Sightseeing Transportation		29,142	--	--	--	nd	--	nd
Support Activities for Transportation		48,173	34,550	nd	nd	45,199	--	31,139
Postal Service		27,505	--	nd	--	nd	--	--
Couriers and Messengers		39,150	29,044	--	--	37,998	--	nd
Warehousing and Storage		38,572	nd	nd	nd	--	--	51,107
Information		86,303	40,278	34,567	30,838	37,143	20,657	35,679
Publishing Industries (except Internet)		87,326	30,741	28,571	17,533	31,833	nd	25,103
Motion Picture and Sound Recording Industries		83,590	nd	nd	nd	nd	nd	nd
Broadcasting (except Internet)		102,087	37,058	nd	nd	33,858	nd	26,648
Telecommunications		82,275	63,173	60,042	72,740	56,631	nd	63,734
Data Processing, Hosting, and Related Services		93,929	nd	--	nd	nd	--	nd
Other Information Services		64,615	14,530	10,139	nd	17,276	6,809	19,729
Finance and Insurance		207,965	42,180	38,299	32,503	44,116	39,529	37,713
Credit Intermediation and Related Activities		113,118	36,480	34,945	30,951	37,551	33,454	33,948
Securities, Commodity Contracts, & Oth Relat.		379,615	77,490	nd	nd	nd	nd	154,065
Insurance Carriers and Related Activities		89,466	45,768	30,398	31,559	44,177	nd	34,028
Funds, Trusts, and Other Financial Vehicles		nd	--	nd	nd	nd	--	--
Real Estate and Rental and Leasing		55,674	26,112	23,126	21,454	24,665	20,623	20,112
Real Estate		56,249	28,314	nd	22,784	22,095	20,668	19,979
Rental and Leasing Services		44,730	21,606	nd	18,981	30,276	20,390	20,224
Lessors of Nonfin. Intangible Assets (w/o Copyright)		129,056	nd	nd	--	--	--	--
Professional, Scientific and Technical Services		84,873	28,210	35,095	47,267	40,358	35,071	32,099
Management of Companies and Enterprises		141,205	358,745	25,813	nd	57,732	nd	45,890
Admin., Support, Waste Mngt, & Remed. Serv.		39,422	20,124	19,306	nd	23,153	nd	24,658
Administrative and Support Services		38,924	18,563	17,903	26,447	23,042	15,043	23,457
Waste Management and Remediation Services		49,615	43,195	34,002	nd	25,178	nd	37,291
Educational Services		43,660	25,563	29,985	26,826	20,451	nd	38,902
Health Care and Social Assistance		41,395	38,140	32,247	34,262	36,663	nd	30,605
Ambulatory Health Care Services		47,654	43,033	nd	nd	47,767	42,258	39,512
Hospitals		54,365	nd	nd	nd	41,674	--	39,140
Nursing and Residential Care Facilities		31,992	25,201	31,852	22,092	25,804	nd	23,332
Social Assistance		24,665	nd	21,803	20,625	23,204	17,619	17,600
Arts, Entertainment and Recreation		44,550	17,696	23,121	19,562	15,821	12,769	13,323
Performing Arts, Spectator Sports, and Related Ind.		79,517	nd	16,569	nd	16,118	nd	nd
Museums, Historical Sites, and Similar Institutions		39,935	nd	19,413	nd	15,733	nd	nd
Amusement, Gambling, and Recreation Industries		21,431	17,899	25,541	17,575	15,790	13,277	12,278
Accommodation and Food Services		21,114	13,343	19,422	13,642	13,288	10,095	11,614
Accommodation		35,266	16,183	23,528	21,879	15,806	12,301	14,385
Food Services and Drinking Places		18,751	12,824	14,877	12,258	12,934	9,574	11,278
Other Services (except Public Administration)		31,876	17,909	19,335	24,558	21,360	14,033	20,428
Repair and Maintenance		32,957	28,405	23,423	20,800	31,929	22,440	27,792
Personal and Laundry Services		25,107	20,210	16,853	21,178	17,528	11,526	18,300
Religious, Grantmaking, Civic, Profes., & Similar Org.		37,753	13,535	18,939	26,703	13,445	10,309	18,253

5.2 Job Gain

The average wage for Retail Trade is \$21,417. There are 12 sub-categories, with the average wage in each ranging from \$15,283 to \$33,077. The net gain in wages for this category is \$28,127,406. The average wage for Professional, Scientific and Technical services is \$36,350, resulting in a total wage gain of \$99,744,400. The average wage for Admin, Support, Waste Management and Remedial services is \$21,810. There are 2 sub-categories, with average wages of \$20,743 and \$34,917. The net gain in wages for this category is \$71,728,954. The total wage gain for these three areas of job gain is \$201,600,760.

The above calculations demonstrate that a large net loss is realized due to compounding of job gains and losses. The region's realized net gains/losses of wages are directly related to some of the findings discussed above. First, that new born businesses offered relatively fewer jobs compared to the jobs lost due to businesses shutting down; and second, that most of the new jobs are minimum wage, low paying jobs. These findings suggest possible changes in the region's tax base; disposable income, standard of living, as well as overall economic conditions.

5.3 Breakdown within Loss Areas

Jobs lost in the Manufacturing area accounted for approximately 24.8 percent of the total job loss for the region. Of these losses, the largest loss was in the paper manufacturing segment. This high job loss, coupled with the available data showing that the average wages for this segment were among the highest in the overall category, resulted in an overall wage loss of \$122,500,437. This wage loss accounts for approximately 51 percent of the total wage loss in the manufacturing area, indicating that the loss of paper manufacturing jobs had a significant impact on the economy.

Although the average wage in the area of Educational services is much lower than that of Manufacturing or Health Care, it is significantly higher than both Retail and Admin., Support, Waste Management & Remedial Services. The job losses in this area also accounted for approximately 31.7 percent of the total job loss. With a total impact of \$280,870,605 in lost wages, the loss felt from this area alone surpasses the total wages gained in the three areas of job gains noted above.

Finally, the loss of jobs in the Health Care category accounted for approximately 25 percent of the total job loss. Within this category, there was an increase in jobs (805) connected to Ambulatory Health Care services. The data shows that the average wage for this sub-category was the highest in the category. This increase offset the overall wage losses of this category by \$34,729,310. There was a small increase (103) in jobs in the Social Services sub-category. The average wage in that category is the lowest in the segment at \$20,170, which resulted in an offset of the category loss of \$2,480,910.

5.4 Breakdown within Gain Areas

The largest gain in jobs (3,390) occurred within the area of Admin, Support, Waste Management and Remediation services. This category is divided into two sub-categories; Admin and Support

services, and Waste Management and Remediation services. The largest job gain (3,299) in this category occurred in the Admin and Support services sub-category. The average wage in that sub-category, \$20,742, is far lower than that of the Waste Management sub-category, \$34,916, meaning that the bulk of job growth in this category is attributed to the lowest average wage jobs.

The second largest gain in jobs (2744) occurred within the area of Professional, Scientific and Technical services. This category provided the largest financial gain of the three areas of job gains detailed here and was responsible for the largest gain of all job/wage gains.

Finally, the third largest gain in jobs occurred in the Retail Trade category. In this category, there was an overall gain of 3,728 jobs and an overall loss of 1,734 jobs, resulting in a net gain of 1,994. The largest amount of job gains in this category occurred in the sub-categories with the lowest average wages, ranging from \$15,552 to \$17,612, while the sub-categories with the highest average wages, ranging from \$18,248 to \$29,673, saw the largest job loss.

The top three job loss categories are also the top three categories in the number of business "deaths". Both Educational Services and Health Care had establishment "deaths" of over 13,000 for the period. At the same time, these establishments had positive expansion in the workforce of surviving establishments which helped to offset the loss. The Manufacturing category saw a high "death" rate, 6,596 companies, along with a contraction of the workforce in surviving businesses which added to the reduction in jobs.

Both the Professional and Admin categories had the highest "birth" rates for the listed establishments. This, coupled with expansion of workforce in existing establishments for both categories, resulted in the highest job gains among all businesses. The Retail Trade category saw a death, or reduction, in the number of businesses, but that was offset by a large expansion in the workforce of surviving businesses.

There is evidence then, that most critical factors for job growth are the birth or death rate of establishments, combined with an expansion or contraction in the workforce of existing establishments.

With the exception of Agriculture, Forestry, Fishing and Hunting, the North Country Region falls well short of the average statewide wages for all businesses.

Most of the job creation has been in businesses that have relatively low average wages, while most of the job loss has been in businesses with higher wages.

During the period of review, deaths of companies totaled 47,525, while births totaled 6,635.

6. Conclusions and Policy Implications

The study looks at the sources of employment growth in the North Country region for the period 1990-2007. I found that employment growth is driven much more by expansion and contraction of existing establishments and birth and death of new establishments, than by business relocations. Business relocation of establishments in and out of the area has a small effect on the loss of jobs, with

businesses moving most often within, rather than out of the region. The length of the interval of analysis slightly affects the decomposition of the sources of employment change, however, the relative order of significance of the sources of job creation and job destruction remains the same. With the exception of Agriculture, Forestry, Fishing and Hunting, the North Country Region falls well short of the average statewide wages for all industries.

The overall employment figures in the North Country region appear to remain relatively stable during the period under observation. However, simply looking at employment figures alone does not give a complete picture of the economic health of the region. As detailed in the body of this study, job losses were greatest among those industries with higher wages and job gains were greatest among those industries with low wages. As this is a regional study, the impact of lower wages on Federal and State income taxes was not addressed. However, the impact of the resultant differential in wages must logically affect the region in a negative manner.

As overall wages and earning capability in an area decrease, disposable income will also fall, even if prices for necessities such as food and housing remain stable. Thus, even though businesses that provide necessities may remain fairly insulated from the downturn in wages, those that deal in nondurables, goods not considered as essential or necessary for day to day survival (new cars, electronics, household furnishings, etc.) will likely see a decrease in sales. If a positive can be taken from this, it is possible that businesses involved in the repair of these types of goods will see an increase in their business. Even those businesses that deal in necessities may see a change in the purchasing patterns of people with lesser wages. This slowing of consumption will affect not only the businesses, but will lower the amount of sales tax received by local governments.

There are some areas in the North Country region that will not be affected as strongly due to their proximity to major metropolitan areas in Canada coupled with a favorable exchange rate between the US and Canada. Indeed, this may explain the increase in jobs in the retail sector, which tend to be low paying.

In order to increase wages and the standard of living in the North Country region, I believe it is essential that local leaders recruit businesses that require workers with higher skills and, subsequently, that pay higher wages. Although tax breaks and low utility rates will help attract businesses, those factors alone will not necessarily attract businesses that will pay the wages necessary to increase the area's standard of living. It is essential, then, that local community colleges and technical schools institute programs that provide a skilled labor force, targeted toward those industries that are sought after. This may entail some visionary thinking regarding industries that are not yet established, but that have potential for long term growth and employment. It will take an investment, time and, to some, a leap of faith, but without the willingness to change the way the region approaches employment, we will remain, at best, stagnant and, at worst, will see more of a decline in the economic health of this region.

In conclusion, studying the sources of employment growth on local, regional and state levels proves invaluable when it comes to formulating labor market policies. In defense of this statement I would point out the fact that the Bureau of Labor Statistics started publishing quarterly data on business employment dynamics in 2003. The results of such studies can be used by local governments for allocation of resources, direction of incentives and recruitment of viable businesses with a long-term commitment to the area.

ENDNOTES

1. The information on employment, wages, regional competitive industries and employment projections by industry in this section is taken from the Bureau of Labor Statistics Quarterly Census of Employment and Wages. The information on age demographics by industry is taken from the New York State Department of Labor Local Employment Dynamics database.
2. The criteria state that location quotients (ratio of concentration of employment in the region to that of the state) should be greater than or equal to 1.25, relative average wage in the region compared to the state greater than 100 percent and differential employment growth rate greater than or equal to 20 percent.
3. The decomposition of the sources of employment growth (Table 1) is done for periods of three years, i.e., using more reliable averaged data, because the purpose of the decomposition is to detect possible trends over the observed period and to establish which of the three sources is the most important. The analysis of each of the three sources of employment growth is done annually because it helps establish a connection with changes occurring in the corresponding year.

REFERENCES

- Neumark, D., Junfu Z. and B. Wall (2008). "Do Small Businesses Create More Jobs? New Evidence from the National Establishment Time Series." *NBER Working Paper No. 13818*, Cambridge, Massachusetts.
- Neumark, D., Junfu Z. and B. Wall (2006). "Employment Dynamics and Business Relocation: New Evidence from the National Establishment Time Series." *NBER Working Paper No. 11647*, Cambridge, Massachusetts.
- Neumark, D., Junfu Z. and B. Wall (2005). "Business Establishment Dynamics and Employment Growth." *Public Policy Institute of California Working Paper*.
- Walls & Associates (2003). "NETS: National Establishment Time-Series Database," Oakland, California.