Consumer Confidence and the Labor Market in New York State

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ABSTRACT

The paper utilizes a unique New York State consumer sentiment data set collected by Siena Research Institute (SRI) to explore its relationship with New York State labor market. We have explored their relationship both at the state level and selected Metropolitan Statistical Areas of New York State. The study found that the consumer sentiments causally correlated with the unemployment rate in New York State but not vice versa. However, there are lags in the direction of this causal relationship.

INTRODUCTION

The purpose of this study is to explore the relationship between New York State (NYS) consumer sentiment Indices (CSI) and the state's labor market performance. The paper utilizes unique data collected by Siena College Research Institute documenting the quarterly NYS consumer confidence. The labor market variables we have considered in this study are unemployment rate, job creation, job destruction, accession, recalls and separations. Consumer sentiment is a more psychological aspect of wellbeing measured by asking respondents series of subjective questions. Both consumer sentiments and labor markets are affected by the overall state of the economy. Therefore factors that affect the labor market, may also affect consumer sentiments, hence establishing a causal relationship among these variables may not be always possible. Deciphering the nature of the relationship between consumer sentiment and labor market indicators can be tricky because of the lack of definite direction of causality. Also, the usefulness of the consumer sentiment index to forecast or explain the economy in general and consumer behavior in particular is often been challenged. In the second half of the 1950s, the Federal Reserve Board of Governors appointed a committee to evaluate the usefulness of consumer survey in anticipating consumer behavior. The broad outcome of the committee report negated the usefulness of the consumer survey (Fed, 1955). The subsequent work by Tobin (1959) and Juster (1964) strengthened the conclusion of the Board of Governor's report. From a theoretical point of view, given the rational expectations hypothesis, it can be surmised that consumer sentiment index are not supposed to have additional information if it is based on the expected macroeconomic variables. However, subsequent empirical researches have shown results which are mixed. In some cases it was shown that these indices could maintain an autonomous role in forecasting and as explanatory variables in the consumption function (see Mueller, 1963; Suits and Sparks, 1965; Fair, 1971a and 1971b; Adams and Klein, 1972); in

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others, that they could be seen as nothing more than a synthesis of macroeconomic indicators (see Friend and Adams, 1964; Adams and Green, 1965; Hymans, 1970; Juster and Wachtel, 1972a and 1972b; Shapiro, 1972; McNeil, 1974; Lovell, 1975). The prevailing opinion now seems to be that it may help predict the evolution of economic activity (see Garner, 1991; Fuhrer, 1993; Carrol *et al.*, 1994; Kumar *et al.*, 1995; Matsusaka and Sbordone, 1995; Eppright *et al*., 1998, Bram and Ludvigson, 1998).

In this paper, our aim is to explore the relationships between consumer sentiment of New York State and the unemployment rate. In section 2, we will explore the possible theoretical justification between consumer sentiment and the labor market. Section 3 discusses the data we have used in this study. Descriptive statistics is provided in section 4 and the regression results are presented in section 5 and finally we conclude in section 6.

CONSUMER SENTIMENT AND UNEMPLOYMENT RATE

If we talk about labor market conditions, perhaps unemployment rate is one of the most reliable indicators of the conditions of the economy in general and labor market in particular. Consumer sentiment – the psychological measure of wellbeing of consumers – is affected by the general feeling of optimism or pessimism as perceived by an individual. Therefore periods of positive economic outcomes are typically expected to have positive effect on consumer sentiment. Similarly the labor market is also intimately linked to the general economic conditions. Therefore it may not be inappropriate to assume an intrinsic link between the unemployment rate and the consumer sentiment, but the direction of causation between these two variables may not be that obvious. Mueller (1966) found convincing evidence that awareness about unsatisfactory employment conditions may adversely affect the consumer confidence, but the causation may run other way too. Given the fact that unemployment rate is a lagging variable in business cycles, any optimistic economic news may translate into lower unemployment, only with a time lag. On the other hand it is debatable whether consumer sentiment index is a leading, lagging or coincidental variable. The debate stems from the fact that Consumer Sentiment Index measures two things – first the willingness of the consumers to make major purchases in the very near term and it is measured by Index of Current Economic Conditions and second is the Index of Consumer Expectations measures how well-off consumers personally expect to be in the future and whether they believe national business and economic conditions will improve. Since consumer confidence index includes questionnaires that measure consumer sentiment based on consumer's perception about their current state of wellbeing and also their expectation about wellbeing in near term future. Given the nature of questions asked in consumer confidence surveys, it is highly improbable if the consumer sentiment index is a lagging variable. On the other hand consumers are unlikely to be optimistic about the future, unless and until consumers feel confident about the present. Given that unemployment rate is a lagging variable; we expect a lag relationship between unemployment rate and the consumer sentiment, where consumer sentiment can explain the nature of unemployment in future. This hypothesis is also supported by the fact

that researchers have found persistent relationship between consumption and consumer sentiment (see Katona (1975), Cote & Johnson (1998) and Eppright et.al. (1998) among others, for a summary).

Researchers have also concluded that consumer sentiment is sensitive to changes in future income and uncertainty. Given that consumption and future income are variables highly correlated with the state of the economy and hence these variables also explain unemployment rate. Since unemployment rate is a lagging variable in business cycle literature, we expect that consumer sentiment should be explaining unemployment rate and not vice versa.

DATA DESCRIPTION

The period under study is 2002-2010. We make use of quarterly data. We have data aggregated at the New York State level and also disaggregated at the Metropolitan Statistical Areas (MSAs) level. The MSAs considered in this study are Albany, Binghamton, New York City (NYC), Rochester and Syracuse. We look at the consumer confidence index (Index of Consumer Sentiment, Index of Consumer Expectations and Index of Current Economic Conditions), as well as of labor market variables (unemployment, job creation, job destruction, accession, new hires, recall and separation). The extent of study and the frequency of data are primarily guided by the availability of the data. At MSA level, consumer confidence index data for New York State is only available at a quarterly frequency.

Each month, the Siena Research Institute (SRI) survey establishes a Consumer Confidence index number for the New York State consumers. The survey is comparable with the similar national level survey conducted by the University of Michigan's Consumer Sentiment index. The SRI survey measures current and future consumer confidence, which combined provides the overall consumer confidence. The current consumer confidence is measured by the Index of Current Economic Conditions, whereas the future consumer confidence is measured by the Index of Consumer Expectations. These two indices are combined to calculate the Index of Consumer Sentiments. SRI also produces a quarterly consumer confidence index that looks at six regions (MSAs) of New York State: Albany, Binghamton, New York City, Rochester and Syracuse. The quarterly Consumer Confidence index provides regional measures of the state's economic health.

The Index of Consumer Sentiment (ICS) is derived from the following five questions:

1. "We are interested in how people are getting along financially these days. Would you say that you (and your family living there) are better off or worse off financially than you were a year ago?"
2. "Now looking ahead--do you think that a year from now you (and your family living there) will be better off financially, or worse off, or just about the same as now?"
3. "Now turning to business conditions in the state as a whole--do you think that during the next twelve months we'll have good times financially, or bad times, or what?"
4. "Looking ahead, which would you say is more likely--that in the state as a whole we'll have continuous good times during the next five years or so, or that we will have periods of widespread unemployment or depression, or what?"

5. "About the big things people buy for their homes--such as furniture, a refrigerator, stove, television, and things like that. Generally speaking, do you think now is a good or bad time for people to buy major household items?"

Time series for unemployed and employed is obtained from the Local Area Unemployment Statistics survey conducted monthly by the U.S. Bureau of Labor Statistics. The monthly data is converted into quarterly data using simple average.

DESCRIPTIVE STATISTICS

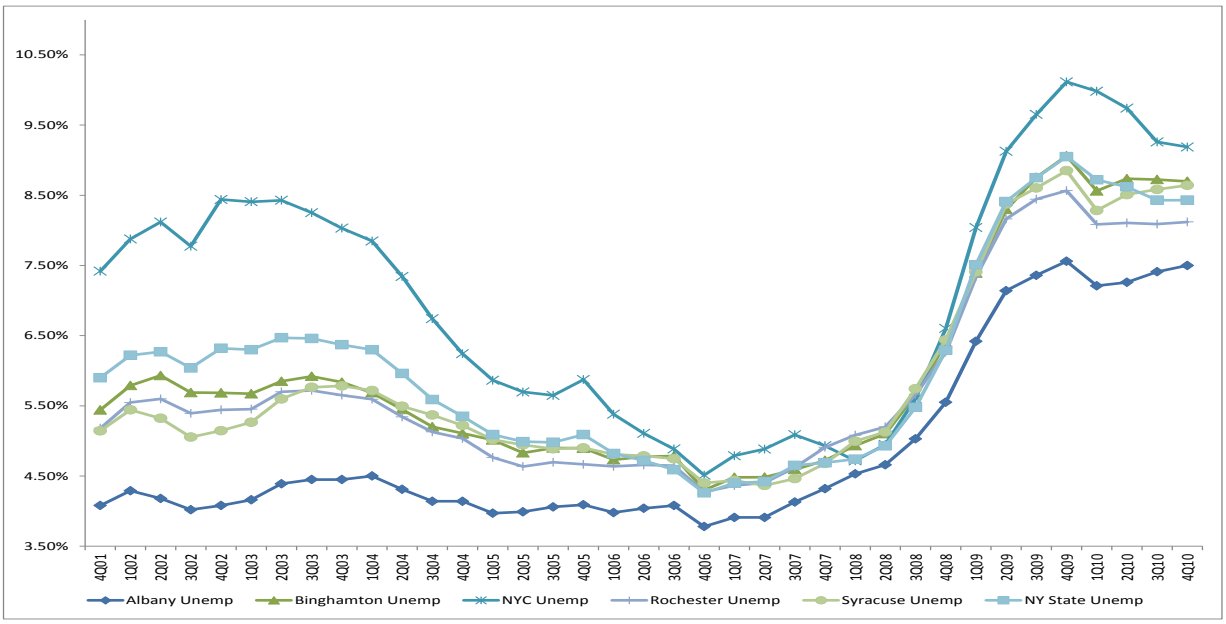
The sample periods are 2001:IV – 2010:IV for both the New York State and the Metropolitan Statistical Areas. Sample periods are primarily determined by the availability of Consumer Confidence Index surveys from SRI. Data is deseasonalized using the Census Bureau's X-12-ARIMA seasonal adjustment procedure.

Table 1: Descriptive Statistics – New York State

	Index of Consumer Sentiments (ICS)	Index of Current Economic Conditions (ICC)	Index of Consumer Expectations (ICE)	Unemployment Rate
Mean	73.11	77.05	70.57	6.09%
Median	77.00	80.00	72.00	5.77%
Maximum	87.00	91.00	88.00	9.38%
Minimum	54.00	54.00	53.00	4.09%
Std. Dev.	9.2580	11.2841	8.4838	0.0146
Skewness	-0.5311	-0.5742	-0.2803	0.7114
Kurtosis	2.1715	1.9595	2.4868	2.3544
Jarque-Bera	2.7975	3.7021	0.8905	3.7631
Observations	37	37	37	37

The data shows substantial variation in the unemployment rate ranging from 4.09% to 9.38%. Some of these variations are due to change in demographic factors and not necessarily because of business cycle fluctuations. The distribution of the unemployment rate does vary from area to area in the state. Fig 1shows the unemployment rate in New York State and the Metropolitan Statistical Areas under study. New York City has both relatively higher unemployment rate and volatility in unemployment rate compared to rest of the state. On the other hand Albany has typically lower unemployment rate compared to the rest of the state. The unemployment rate in rest of the state follows each other closely.

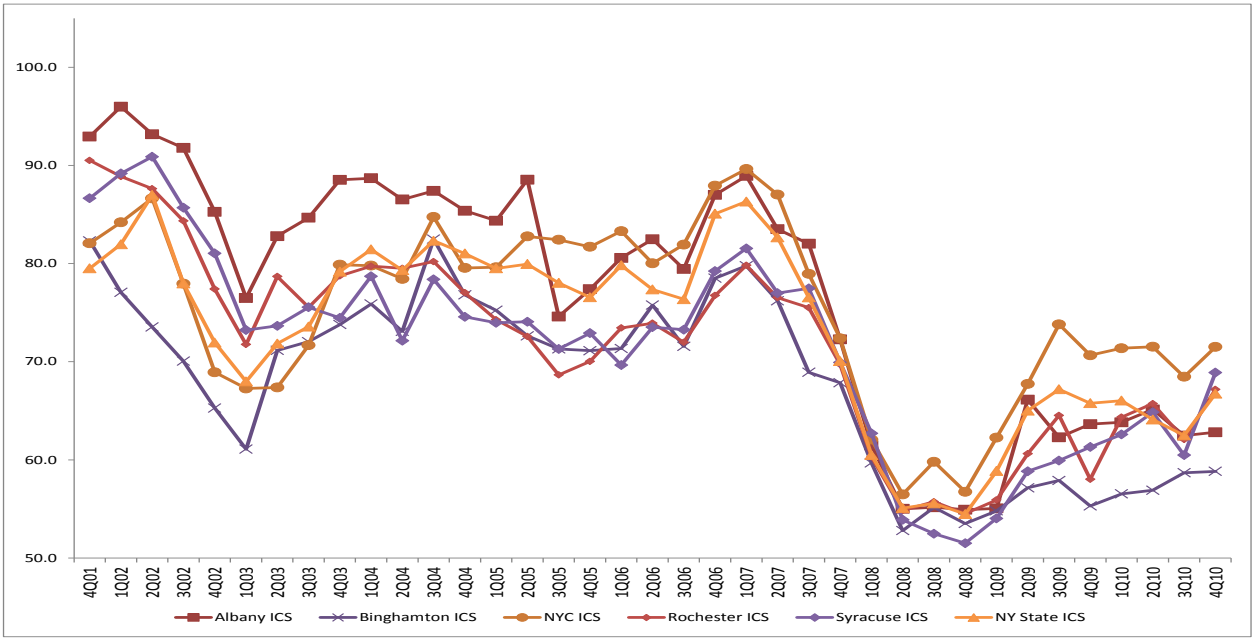
Figure 1: Unemployment Rate



Source: Local Area Unemployment Statistics

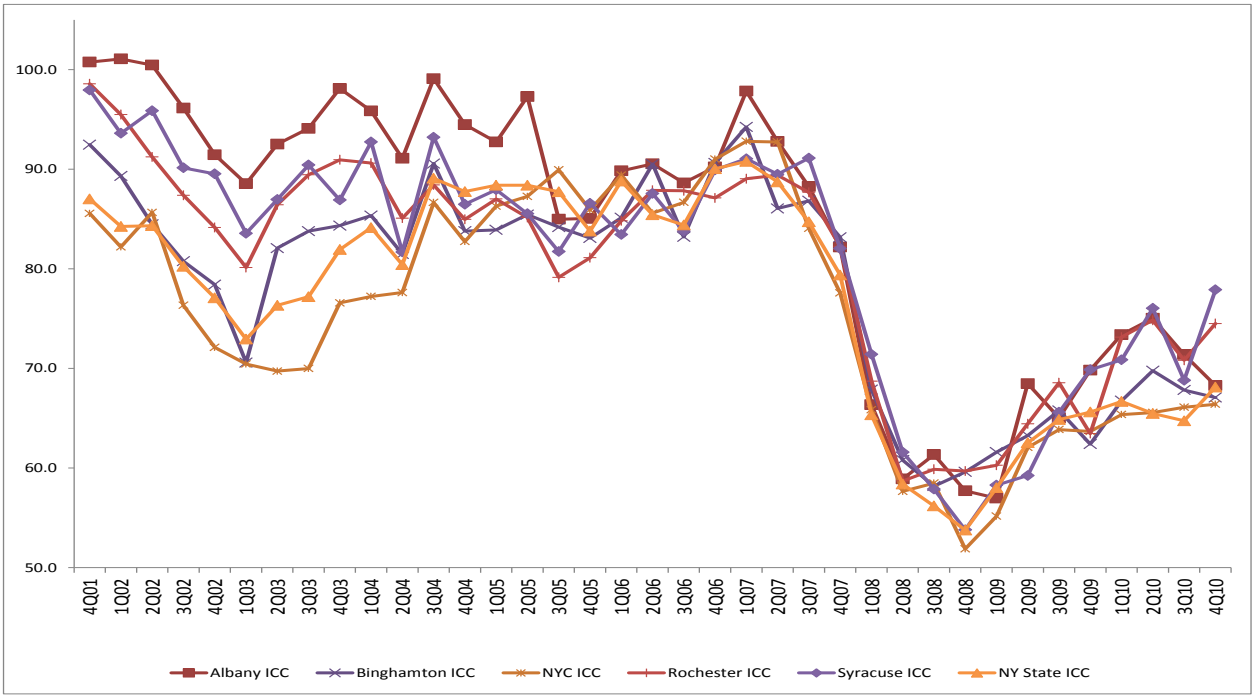
The sentiment indices also vary substantially cross time and geographic area. Figures 2, 3 and 4 show the behavior of the consumer sentiment indices.

Figure 2: Index of Consumer Sentiment (ICS)



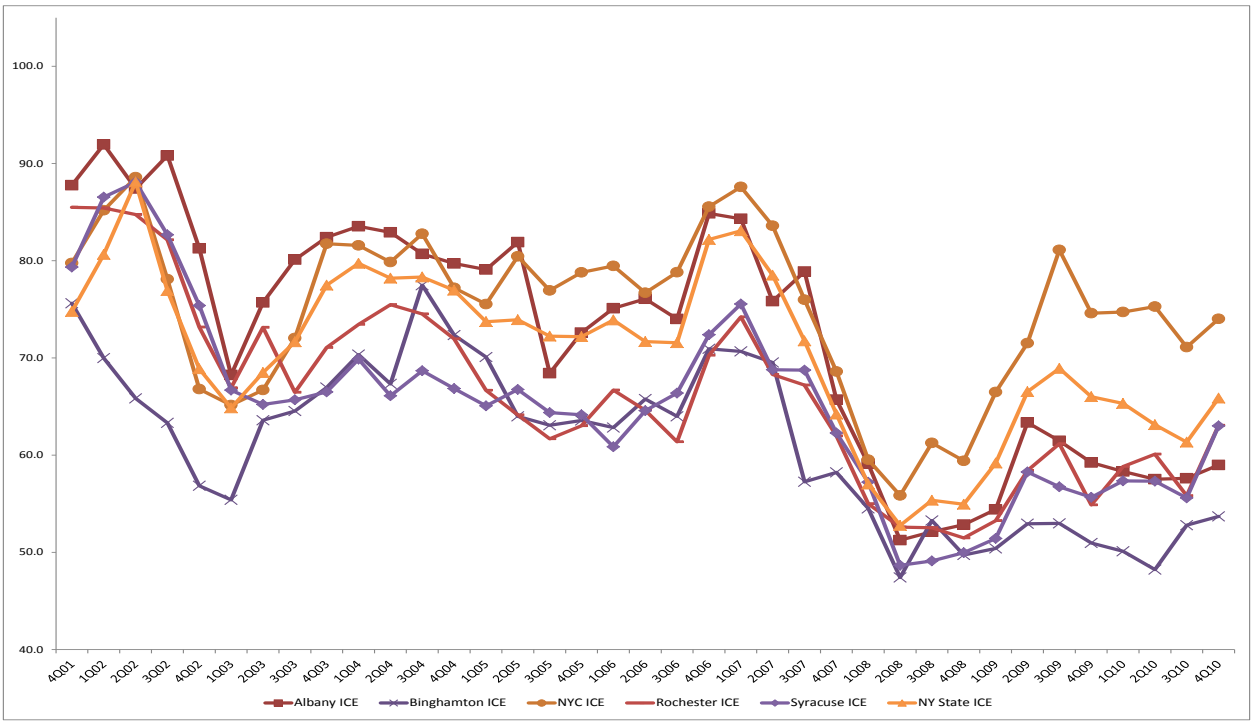
Source: Siena Research Institute

Figure 3: Index of Current Economic Conditions (ICC)



Source: Siena Research Institute

Figure 4: Index of Consumer Expectations (ICE)



Source: Siena Research Institute

Among the MSAs, Albany has consistently lowest unemployment rate and highest consumer sentiments. Though unemployment rate in Binghamton following the average trend in New York State, however, it has the lowest consumer sentiments as measured by all the three indices.

REGRESSION RESULTS

For regression, we have converted all the series into respective logarithmic values. The Augmented Dickey-Fuller Test and Phillips-Perron test for stationarity for unemployment rate and consumer confidence indices are shown in Table 2 and 3. All the series under study are non-stationary at level. In first difference, though all the series turned out to be stationary. Since all the series are non-stationary, first difference of log values represents percentage change.

Table 2: Stationarity Test Results for ICS, ICC and ICE

	Stationarity Test for Index of Consumer Sentiments (ICS)				Stationarity Test for Index of Current Economic Conditions (ICC)				Stationarity Test for Index of Consumer Expectations (ICE)			
	Levels		First Difference		Levels		First Difference		Levels		First Difference	
	Augmented Dickey-Fuller test statistic	Phillips-Perron test statistic	Augmented Dickey-Fuller test statistic	Phillips-Perron test statistic	Augmented Dickey-Fuller test statistic	Phillips-Perron test statistic	Augmented Dickey-Fuller test statistic	Phillips-Perron test statistic	Augmented Dickey-Fuller test statistic	Phillips-Perron test statistic	Augmented Dickey-Fuller test statistic	Phillips-Perron test statistic
NYS	-2.3246	-0.4673	-3.7426	-3.7426	-0.3692	-0.5820	-3.8954	-3.9752	-0.1510	-0.3147	-4.4249	-3.6477
Albany	-0.9666	-0.9433	-5.3818	-5.3957	-0.9958	-0.8980	-5.1894	-5.2416	-0.8772	-0.8772	-5.8802	-5.8804
Binghamton	-0.9516	-0.9062	-5.6766	-5.6809	-0.8242	-0.7944	-5.8297	-5.8382	-0.8164	-0.8621	-6.6236	-6.6323
New York City	-0.3713	-0.3249	-4.1389	-4.1450	-0.7279	-0.5790	-4.5067	-4.6130	-0.2272	-0.2118	-4.1777	-4.1777
Rochester	-0.9146	-0.8461	-4.2465	-5.1910	-0.8307	-0.7515	-4.7975	-4.7795	-0.8010	-0.8508	-5.6520	-5.6373
Syracuse	-0.6640	-0.6051	-2.6484	-5.1871	-0.6954	-0.5334	-4.0767	-6.4471	-1.7218	-0.5917	-4.5527	-4.6334

Table 3: Stationarity Test Results for Unemployment Rate

	Levels		First Difference	
	Augmented Dickey-Fuller test statistic	Phillips-Perron test statistic	Augmented Dickey-Fuller test statistic	Phillips-Perron test statistic
NYS	0.0634	0.5117	-2.5662	-2.6354
Albany	0.9720	1.4743	-3.1288	-3.1646
Binghamton	0.4015	0.8444	-3.0121	-3.0905
New York City	-0.3713	-0.3249	-4.1389	-4.1450
Rochester	0.3285	0.8747	-2.8918	-2.9688
Syracuse	0.4786	0.9748	-2.7852	-2.8611

The expected causal relationship between unemployment rate and consumer confidence is examined by regressing first difference of log unemployment rate on first difference of log of consumer sentiment indices. ICS, ICC and ICE are each tested separately. Below are regression models that we have tested

Table 4: Regression Estimates

State/MSA	Estimated Equation	α	β	AR(1)/ AR(2)	R^2	Adj R^2	DW
New York State	$\Delta UR_t = \alpha + \beta \Delta ICS_{t-4} + \varepsilon_t$ [AR(1)]	0.00755 (0.328)	-0.2099 (-1.731)***	0.69239 (4.991)*	0.5878	0.55839	2.19313
	$\Delta UR_t = \alpha + \beta \Delta ICC_{t-4} + \varepsilon_t$ [AR(2)]	0.0051 (0.3356)	-0.4205 (-3.017)*	0.47154 (2.636)*	0.5023	0.46549	1.43745
	$\Delta UR_t = \alpha + \beta \Delta ICE_{t-4} + \varepsilon_t$ [AR(2)]	0.00340 (0.1430)	-0.1675 (-1.427)***	0.7008 (5.380)*	0.5618	0.5315	2.05449
Albany	$\Delta UR_t = \alpha + \beta \Delta ICS_{t-4} + \varepsilon_t$ [AR(2)]	0.0149 (1.2651)	-0.1911 (-1.906)***	0.3539 (1.9619)**	0.2789	0.2246	1.4785
	$\Delta UR_t = \alpha + \beta \Delta ICC_{t-3} + \varepsilon_t$ [AR(2)]	0.01415 (1.1744)	-0.2181 (-2.315)*	0.3825 (2.1608)**	0.3185	0.2679	1.5075
	$\Delta UR_t = \alpha + \beta \Delta ICE_{t-4} + \varepsilon_t$ [AR(2)]	0.01431 (1.1445)	-0.1838 (-2.329)*	0.4063 (2.3191)*	0.3207	0.2703	1.4232
Binghamton	$\Delta UR_t = \alpha + \beta \Delta ICS_{t-3} + \varepsilon_t$ [AR(2)]	0.0121 (0.7404)	-0.2583 (-2.185)**	0.5155 (3.1881)*	0.3758	0.3312	1.5656
	$\Delta UR_t = \alpha + \beta \Delta ICC_{t-3} + \varepsilon_t$ [AR(2)]	0.0126 (0.7811)	-0.2829 (-2.992)*	0.5329 (3.3157)*	0.4393	0.3993	1.7530
	$\Delta UR_t = \alpha + \beta \Delta ICE_{t-3} + \varepsilon_t$ [AR(2)]	**No significant causal relationship**					
Rochester	$\Delta UR_t = \alpha + \beta \Delta ICS_{t-3} + \varepsilon_t$ [AR(2)]	0.0098 (0.670)	-0.2683 (-2.206)**	0.4639 (2.7004)**	0.3280	0.2800	1.3203
	$\Delta UR_t = \alpha + \beta \Delta ICC_{t-4} + \varepsilon_t$ [AR(1)]	0.0089 (0.534)	-0.2431 (-1.936)*	0.5980 (3.6989)*	0.5079	0.4728	2.0867
	$\Delta UR_t = \alpha + \beta \Delta ICE_{t-4} + \varepsilon_t$ [AR(2)]	**No significant causal relationship**					
Syracuse	$\Delta UR_t = \alpha + \beta \Delta ICS_{t-3} + \varepsilon_t$ [AR(2)]	0.0102 (0.626)	-0.3948 (-3.397)*	0.5863 (3.8180)*	0.5175	0.4830	1.6119
	$\Delta UR_t = \alpha + \beta \Delta ICC_{t-3} + \varepsilon_t$ [AR(1)]	0.0145 (0.748)	-0.1671 (-2.089)**	0.6542 (4.4582)*	0.5239	0.4899	2.1742
	$\Delta UR_t = \alpha + \beta \Delta ICE_{t-3} + \varepsilon_t$ [AR(1)]	0.0121 (0.666)	-0.1970 (-1.945)***	0.6350 (4.4979)*	0.5103	0.4765	2.3975
New York City	$\Delta UR_t = \alpha + \beta \Delta ICS_{t-4} + \varepsilon_t$ [AR(1)]	**No significant causal relationship**					
	$\Delta UR_t = \alpha + \beta \Delta ICC_{t-4} + \varepsilon_t$ [AR(2)]	**No significant causal relationship**					
	$\Delta UR_t = \alpha + \beta \Delta ICE_{t-4} + \varepsilon_t$ [AR(2)]	**No significant causal relationship**					

t-statistic in parentheses. * significant at the 1% level , ** significant at the 5% level, *** significant at the 10% level.

The regression results show consistent negative relationship between unemployment rate and confidence indices. The causality runs from confidence indices to unemployment rate and not vice versa. This is evident from the fact that confidence indices explain the unemployment rate with a lag of three or four depending on the region. The negative relationship between confidence indices and the unemployment rate holds for New York State and all MSAs except for New York City. It seems that other

factors play an important role in determining the employment situation in New York City than consumer confidence.

CONCLUSION

To our knowledge, this is the first attempt to use Siena Research Institute's New York State Consumer sentiment indices to establish its linkage with New York State labor market. The paper finds that lag consumer sentiment indices causally correlate with the unemployment rate. This was expected because unemployment rate is a lag variable in business cycle literature. Therefore change in consumer sentiments has its impact on unemployment rate typically with three or four lag. In future, we would like to incorporate other labor market indicators such as job creation, job destruction, accession, separations, and recalls and explore the relationship between these variables and the consumer confidence index.

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