The Economic Impact of COVID-19-Related Closures of Restaurant and Accommodation Businesses in Watauga County, NC

– A Preliminary Examination

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I. Introduction

On March 27, Governor Roy Cooper announced a statewide "Stay At Home" order (Executive Order (EO) No. 121) that took place at 5pm on March 30. The Order included the closure of all restaurants and bars for dine-in service as well as most accommodation businesses across the state. At a local level, as a result of EO 121 and a determination of an imminent threat to Watauga County, the Chairman of the Board of Commissioners of Watauga County declared a State of Emergency, wherein all lodging, short-term rentals and other fee-based overnight accommodations for a period of less than thirty (30) days was prohibited for property within the county. This includes hotels, motels, campgrounds, vacation homes, etc.

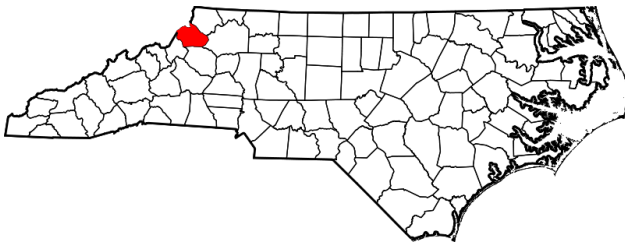
Closures of dine-in restaurant services/bars and accommodations will have a profound impact on the local economy via the direct effect of business closures, plus secondary impacts through the impacts on supply chains and employee spending on local goods and services.

The purpose of this study is to provide a preliminary examination of the total economic effects of restaurant/bar closures and operation changes, plus accommodation impacts due to EO 121 and the Watauga County State of Emergency. As no primary and secondary data are available at this moment, the analysis is based on assumptions relating to the direct effects of EO 121 on restaurant, bar, and accommodation business in the month of April.

i. Watauga County

Watauga County sits in northwest North Carolina with an estimated 2019 population of 56,1777. The county is home to Appalachian State University and over 19,000 students (full-time and part-time).

Figure 1 – Watauga County, NC



During the first quarter (Jan-Mar) of 2019 the county's average monthly employment was 18,119, and its average weekly wage of $632.51 was only 59.2% of North Carolina's average weekly wage, according to the Bureau of Labor Statistics Quarterly Census of Employment and Wages (QCEW). The presence of Appalachian State University in the county and its strong tourist base are reflected in the dominance of both the accommodation and food services sectors, with approximately 24% of county employment made up from these two sectors.

ii. Accommodation and Food Service Industries

The 181 restaurant/bar and accommodation establishments in the county employed an average of 4,337 people per month during the first quarter of 2019. These industries paid total wages of $16.65 million and an average weekly wage of $295.62 over this same time period.

As shown in Table 1, these industries represent a larger portion of the county's total economy than in either the state or nation. Restaurants/bars and accommodation businesses represent 11% of all establishments within the county, compared with 8% of establishments in North Carolina and 7.3% in the US. Perhaps more importantly, are these industries' larger share of total employment (23.9%) and wages (11.2%) within the county than within the state or nation. While these industries tend to pay lower than average wages compared to other industries, their average weekly wage in the county is 46.8% of the county's overall average weekly wage, compared with only 32.4% and 35.1% for NC and the US, respectively.

Table 1 – Geographic Comparison of Accommodation & Food Services Industries

Accommodation & Food Services Industries as a percent of all industries

	Watauga County	NC	US
Establishments	11.0%	8.0%	7.3%
Employment	23.9%	11.5%	11.0%
Average Weekly Wage	46.8%	32.4%	35.1%
Wages	11.2%	3.7%	3.9%

Data Source: Quarterly Census of Employment and Wages - Bureau of Labor Statistics

The importance and competitiveness of food service and accommodation businesses to this county's economy can be further evaluated using a concentration ratio such as a location quotient (LQ). Location quotients are often used to describe a local area's economic base and provide an indication of which industries have a comparative advantage within the local area versus a broader reference area such as North Carolina or the United States.

Table 2 – Accommodation & Food Services Industries

Accommodation & Food Services Industries Metrics for Jan-Mar 2019

	Establishments	Average Quarterly Employment	Total Quarterly Wages	LQ (US) Employment	LQ (US) Total Quarterly Wages
North Carolina	22,053	383,769	$1,914,780,817	1.04	0.96
Watauga County	181	4,337	$16,653,177	2.18	2.90

Data Source: Quarterly Census of Employment and Wages - Bureau of Labor Statistics

With an employment LQ of 2.18 and a total quarterly wages LQ of 2.9, as shown in Table 2, the county's restaurant/bar and accommodation businesses are much more significant drivers of the county's economy than in the national or state economy. These businesses are a significantly competitive source of both employment and wages for Watauga County and reflect the county's relative economic competitiveness in hospitality and tourism.

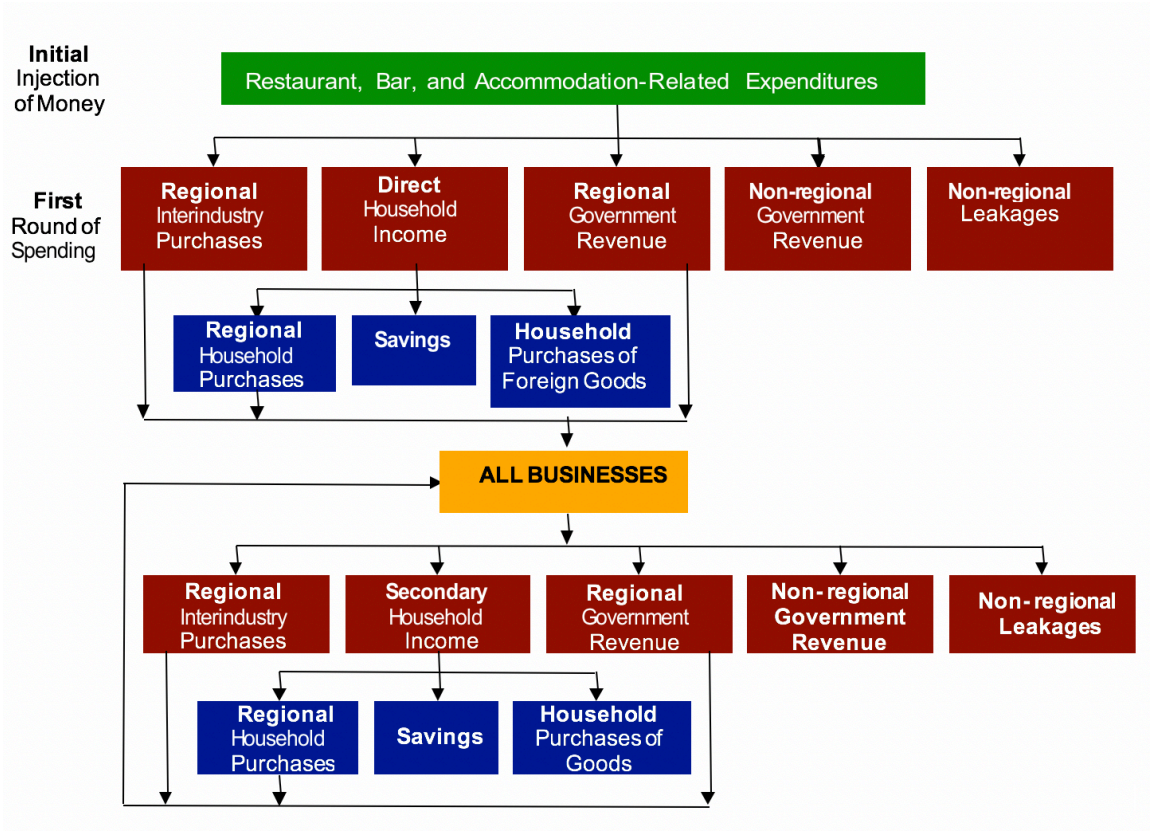
II. The Economic Impact Model

An input-output (IO) model provides a useful tool to measure the total economic impacts resulting from restaurant, bar, and accommodation closures as it captures both the downstream effects of these businesses no longer ordering materials and other inputs from suppliers (food supplies, beer and liquor, etc.), and the impacts of reduced income earnings associated with workers (and suppliers). Using an IO model is also a reasonable way of assessing short-run local economic impacts from industry shutdowns, changes in consumer spending, and changes in trade levels in recession-like conditions when there is excess capacity in most of the economy, particularly in circumstances like the present when primary and secondary economic data reports lag months behind rapidly changing events.

i. Model Design

This preliminary study captures total economic impacts through development of a geography-specific input-output model. The key component of the input-output model is that it provides a conceptual insight into the relationship between direct and secondary effects through the multiplier process. The schematic in Figure 2 is a graphical representation of the multiplier process as a result of the presence of restaurants, bars, hotels, rentals, etc. in the local economy.

Figure 2 – The Economic Multiplier Process



The presence and production-related revenues of these businesses equates with a certain level of economic activity. The associated flows are disbursed in five different ways. The three local recipients of the disbursement will continue to spend this money in the same five ways over successive rounds of spending. Money that flows to non-local governments and other non-local leakages (intermediate purchases from non-regional suppliers and non-regional employees) has no further impact in the local economy. Through the multiplier process, the initial revenues in the local economy have a ripple effect throughout the economy as successive rounds of spending magnify their impact.

The model of choice for this project is the IMPLAN model. IMPLAN is an input-output model that uses financial flow data generated from businesses' accounting data, and spending patterns for households of particular income levels, to describe the economic linkages that exist within a regional economy. These models begin with U.S. government-generated county-level data on business purchases and receipts in order to model the inputs that are used from across the many sectors of the economy in the production of particular goods and services. The level of geographic and commodity detail can vary from production of printing ink, to storage batteries, to banking services in a geographic area as small as a zip code or as large as the national economy. The most commonly reported and useful level of detail is county-level geography at either the 1, 2, or 3 North American Industry Classification System (NAICS) level of commodity detail.

ii. Model Methodology

The modeling methodology for estimating the economic impacts of COVID-19-related restaurant, bar, and accommodation business interruptions is to use with/without analysis. With/without analysis involves two simulations of the economic input-output model. The initial simulation of IMPLAN is undertaken under existing conditions. That is, what does the local economy look like with restaurants, bars, and accommodations services working at typical capacity. Results will provide the baseline level of economic activity, by sector for the local economy.

A second simulation of the model is performed after making assumptions regarding the direct impacts of interruptions to restaurant, bar, and accommodation functions as a result of Executive Order 121. Specifically, we assume that all dine-in, full-service restaurants are closed, with limited take-out service. Further, we assume a 50% reduction in limited-service restaurants that offer carry-out, and an 85% reduction in all other food and drinking establishments (including bars and catering). For accommodations, we assumed that all short-term rentals were shut down completely and 90% of hotel revenues were lost (with the remaining revenues relating to stays for essential workers in the county). Essentially, we remove these direct effects from our regional model and conduct a second run of the model. This will provide a forecast of the regional economy with the restaurant/bar and accommodation closures impacts included. The difference in results will be the economic impact of restaurant/bar and accommodation closures on the local economy.

Performing a with/without analysis of this nature uses the strength of the input-output model to identify and measure the total economic impact of the expenditure flows. By adding the direct effects to the economy, the model will highlight all the "secondary" impacts related to its presence. The model tracks all the inter-industry transactions, and the total economic impacts of the expenditure flows are then measured as the sum of all direct plus secondary effects. This methodology also allows the identification of those sectors most sensitive to the restaurant industry, and hence most connected to it. An ancillary benefit of this approach is that we can identify those sectors in the primary economy most connected to changes in the larger economy (those with the largest "multipliers") that can provide support for future policy actions.

Economic impacts can be measured in different ways. We propose to estimate and present impacts in three major ways to provide a complete picture of the impacts. The loss in business expenditure flows will decrease jobs. Thus, a job loss count is an appropriate way to measure impact. It is also an intuitive concept and provides a broad measure of lost economic opportunities for workers. However, it has the shortcoming that not all jobs are equal and differences in industry structure between regions and differences in pay for similar jobs due to other factors (e.g., quality of life) may mean that jobs in one region are different from jobs in another region.

Relying on lost jobs alone is not sufficient. Perhaps the most widely accepted measure of economic impact is the change in total industry output, or gross regional product (GRP). The change in output attributable to the foregone expenditure flows represents the change in the annual value of production, by industry. Essentially, the change in output can be thought of as the decrease in the value of sales plus or minus inventory. We will report the economic impacts in terms of lost output. Further, the decrease in employment and output will impact labor income in the region. Decreases in labor income will also be reported. As such, the analysis will quantify the impact of reduction in expenditure flows on the local economy in terms of decreases in employment, local output, and labor income. Finally, lost state and local taxes are also calculated.

III. Results

The total economic impacts from restaurant/bar and accommodation closures within the local economy are shown in Figure 3. The impacts are presented as lost gross regional product, fulltime equivalent employment, and labor income. Each impact is also broken out by the direct, indirect, and induced effects. For example, in terms of employment, the direct effects constitute lost employment directly related to business closures and reduced operations. The indirect effects represent employment losses as restaurants spend less on supplies of goods and services in their immediate supply chain. Finally, induced effects represent further employment losses as employees of these businesses and employees of suppliers to these businesses reduce spending as they no longer earn income (or income has fallen).

Figure 3 - Total Economic Impacts

Impact Type	GRP ($millions)	Employment (annual FTE)	Employment (one-month FTE)	Labor Income ($millions)
Direct	($20.5)	-283	-3391	($7.8)
Indirect	($6.1)	-43	-514	($1.6)
Induced	($4.5)	-34	-403	($1.3)
Total	($31.1)	-359	-4308	($10.8)

Results indicate that COVID-19-related closures and operation interruptions to Watauga County's restaurant/bar and accommodation businesses during the month of April decreased gross regional product by $31.1 million. This translates into the annual equivalent of losing 359 full-time jobs (annual FTE) or a reduction in full-time equivalent employment of 4308 (one-month FTE) during the month of April, and corresponding foregone labor income of $10.8 million. The reduction in GRP represents nearly $2.1 million in total foregone sales tax revenue, about $622,000 of which is distributed to county and other local governments in the region, and foregone labor income reduces state income tax revenues by about $378,525. Additionally, the lost revenue from the county's 6% room occupancy tax on hotels and short-term vacation rentals, worth over $4.9 million during the 2019 tax year, will reduce promotional and marketing funds available to the Watauga County Tourism Development Authority.

Again, it is worth noting that this is merely a preliminary analysis based on assumptions regarding COVID-19 impacts on the restaurant/bar and accommodation industries during a single month. Further, this is not a net impact analysis. For example, it is likely that households will transfer expenditures from restaurants to other industries, such as retail trade, which will mitigate the local economic impacts described above. An analysis of this nature will be available when more secondary (and potentially primary) data are available.