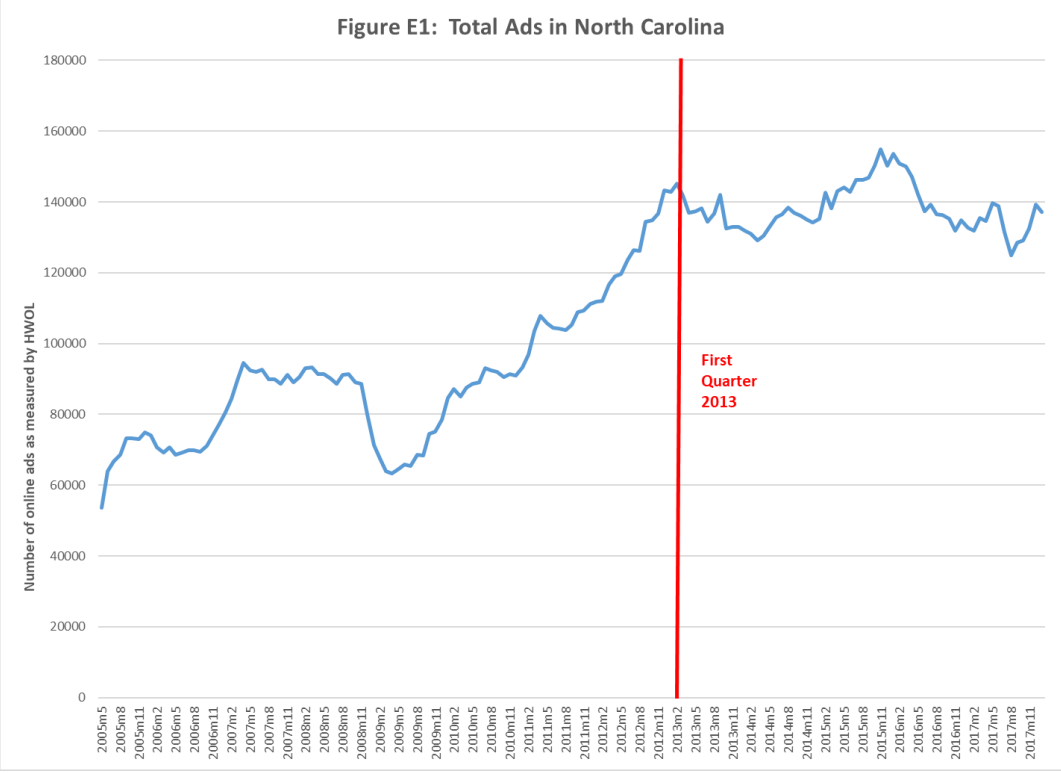
Online Appendix E: Was there a spike in hiring in North Carolina after UI reform?

The evidence from the Current Population Survey is persuasive, but it provides only an indirect measure of the responses of employers to the UI reform. If UI reform induces the unemployed to return to jobs sooner, then the jobs must be available and employers must have listed those jobs. There is economic logic to this response, since employers will view UI reform of the type observed in North Carolina as a reduction in the cost of employing a worker and can respond by increasing the number of desired workers.

The Conference Board created a summary count of job listings across the country through compilation of advertisements of jobs on online boards in a given month that it calls the Help Wanted Online Listing (HWOL). There are two series: all ads observed in a given month, and new ads observed.[1] If the UI reform in North Carolina led to a surge in job creation, then I anticipate that the ratio of ads observed in North Carolina relative to the rest of the US should rise. (If job creation was due to national growth trends, by contrast, then both North Carolina and Rest of US ads will rise proportionally and the ratio will be largely unchanged.)

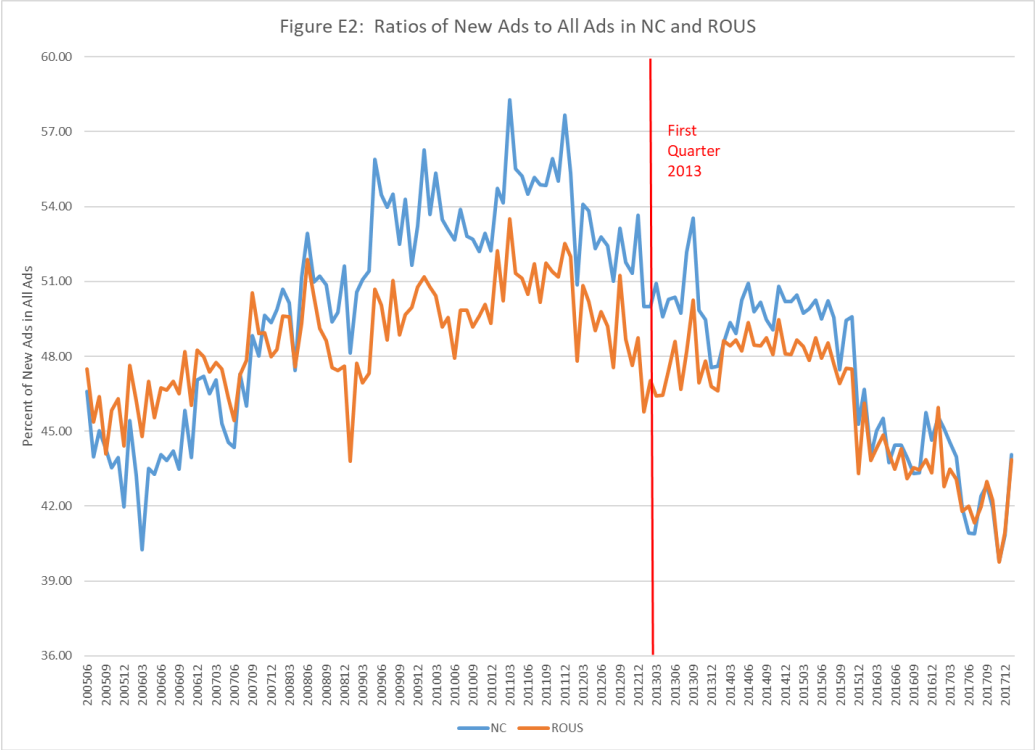
In Figure E1 I report the evolution of that ratio over time. The period between 2005 and 2010 is characterized by rapid growth in both ratios: I interpret this as an indication that firms in North Carolina were relatively slow to turn to online job listings. The peak in these ratios was in March 2013; they declined rapidly after that time. The vertical red line indicates June 2013 – the month before the UI reform became law. There is no evidence here that North Carolina firms expanded their job listings more rapidly than the rest of the US when the UI reform was enacted. (While it is not visible in this figure, it is true that job listings in North Carolina fell in absolute count in July 2013 while those in the rest of the US rose.)



Source: Help Wanted Online Database

[1] These series are reported on a monthly basis from May 2005 to the present; they are available for a fee through Haver Analytics. I use the seasonally adjusted series in what follows.

Figure E2 provides an alternative look at this job listing process by taking the ratio of new ads listed to all ads listed for North Carolina and for the rest of the US. If UI reform were to lead to new job creation, then these new jobs will need new ads and the ratio of new ads to all ads will rise in North Carolina while remaining stagnant in the rest of the US. This is not evident in the figure.



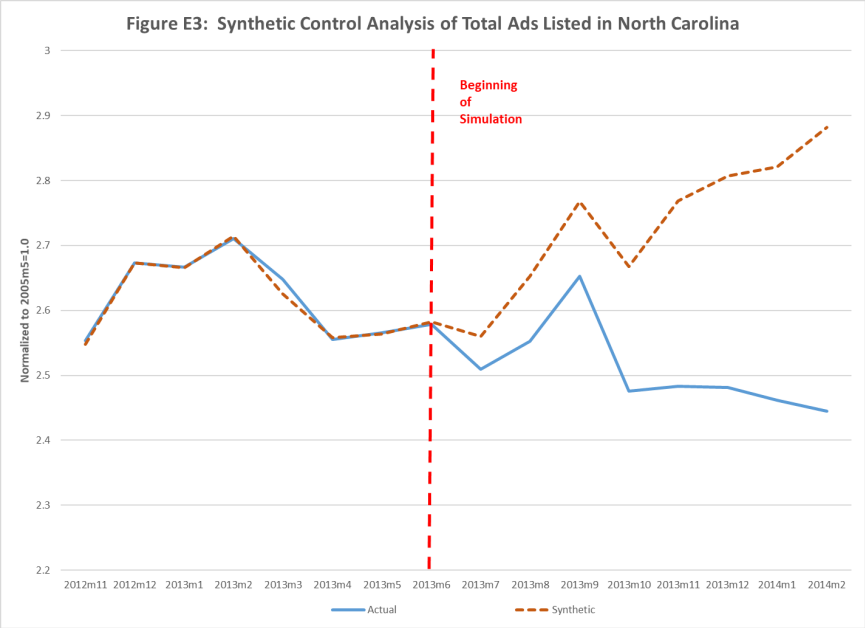
Source: Help Wanted Online Database

There is a spike in the ratio of new ads in September 2013 in North Carolina, but this spike is mirrored in the rest of the US. The ratio of new ads to all ads is declining both in North Carolina and in the rest of the US during this period.

I investigate this record more formally using the synthetic-control methodology of the previous section. I have the data on total number of online ads by month from HWOL over the period May 2005 to December 2017. I normalize these series by state to be equal to 1.0 in May 2005, and then create the optimal counterfactual for North Carolina's series by minimizing the mean squared prediction error for the period January 2011 to June 2013. Figure E3 illustrates the actual normalized number of ads and the counterfactual number of ads around UI reform introduction on 1 July 2013. The synthetic counterfactual fits very well in the periods leading up to July 2013 but diverges strongly thereafter. While the counterfactual suggests positive growth for the number of ads in North Carolina, the actual series exhibits negative growth.

To investigate the statistical significance of this result, I conduct a perturbation analysis by calculating the RMSPE for each state in the US for the evolution of total ads. Figure E4 summarizes this exercise. The value on the vertical axis is the RMSPE ratio, and the abbreviations to the right indicate the states with

values in that range.[2] The median value of the ratio when all states are considered is 4.89, and the value for North Carolina is 31.85.



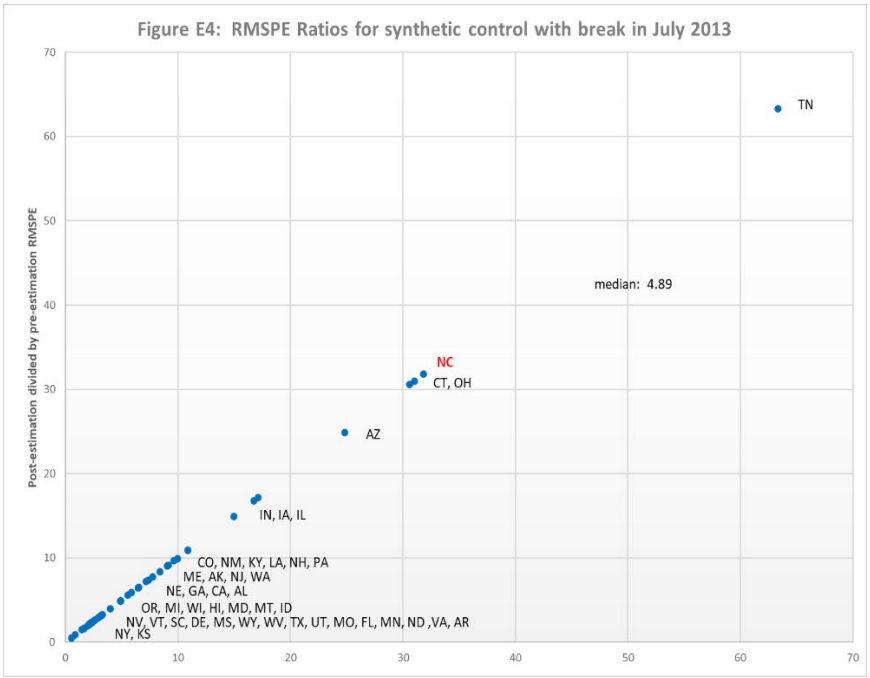


Figure E5 provides another look at North Carolina's position among US states. If the US states are sorted by size of out-of-sample root mean squared prediction error, the result is this histogram. The median value is 0.062. The abbreviations indicate the bin in which a selected set of states fall. Both Massachusetts and

[2] One state, Massachusetts, is excluded. Its mean squared error for in-sample estimation was so close to zero that the RMSPE ratio was over 200. The actual value of out-of-sample mean squared prediction error was not large in comparison to the other states, as shown in Figure 16.

Tennessee have much smaller values. North Carolina, with value 0.267, has an out-of-sample root mean squared prediction error over four times larger than the median.

This divergence in out-of-sample RMSPE could either be due to undershooting or overshooting (or both) of the synthetic counterfactual. Figure E3 illustrates that North Carolina falls short of the counterfactual. Utah and Maine are also outliers in Figure E4 but are states with total ads that exceed their counterfactuals; Maryland has actual total ads that fall short of the counterfactual, but less significantly than North Carolina. If Help Wanted ads provide an indicator of firms' intention to create jobs, then the historical record provides no evidence that employers in North Carolina had an increased desire to hire more workers at the time of UI reform. In fact, the number of total ads posted online fell in the eight months after the UI reform.