The Devil is in the Details:
Sub-minimum wage provisions of municipal minimum wage laws

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Introduction –

Bernalillo / Albuquerque Minimum Wage Laws

About the ordinances:

- Implemented in 2013
- Increased the standard MW by ~13%
- Allow reduced minimum wages for tipped workers

Goal of this research:

To explore non-compliance with minimum wage law and the use of the sub-minimum wage provision covering tipped workers.

Preview of the findings:

- Subminimum wages became more prevalent after the MW increase
- Concentrated in (but not restricted to) food service occupations

Where does this paper fit in the literature?

- Compliance with minimum wage laws has largely been assumed in the literature (for an exception, see Clemens & Strain, 2020).
- Firms respond to higher costs through avenues of adjustment
  - Reductions in employment (Neumark & Wascher, 2006)
  - Increases in prices (Schmitt, 2015)
  - Improved internal efficiency (Hirsch, Kaufman & Zelenska, 2015)
  - Wage compression (Dube, Naidu & Reich, 2007)
- Tip credit provisions reduce wages (Cooper, 2017) and increase poverty for tipped workers (Allegretto, 2014)
- Reclassification of tipped workers has not been explored as an avenue of adjustment

What is the effect of the minimum wage ordinance on the payment of subminimum wages?

And: how much of this is non-compliance and how much can be explained by an increased reliance on the tip credit?

Relevant Minimum Wages:

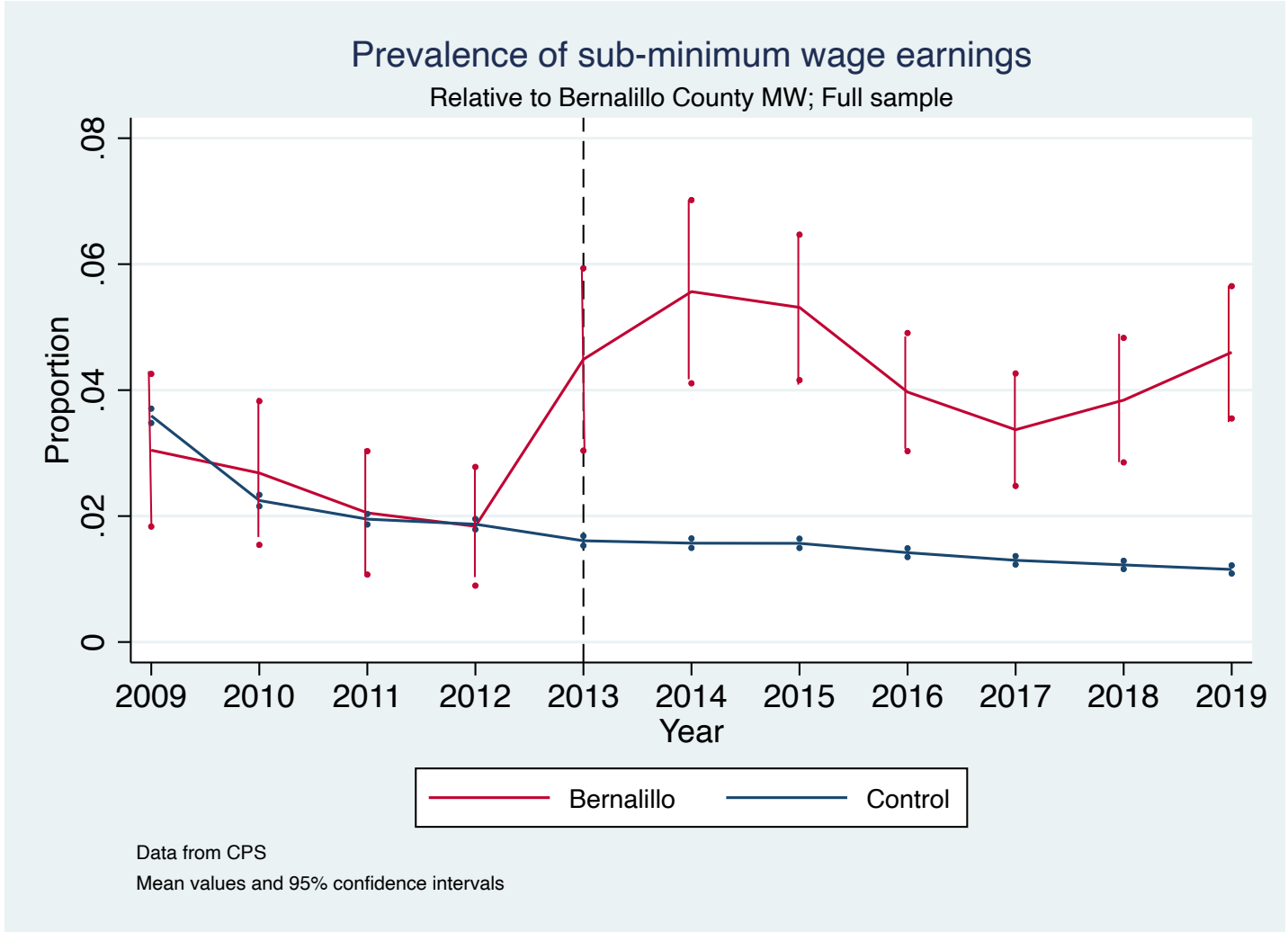
	USA		New Mexico		Albuquerque		Bernalillo County	
Year	Regular	Tipped	Regular	Tipped	Regular	Tipped	Regular	Tipped
2008	6.55	2.13	6.50	2.13	7.15	2.13	6.55	2.13
2009	**7.25**	2.13	**7.50**	2.13	**7.50**	2.13	**7.25**	2.13
2010	7.25	2.13	7.50	2.13	7.50	2.13	7.50	2.13
2011	7.25	2.13	7.50	2.13	7.50	2.13	7.50	2.13
2012	7.25	2.13	7.50	2.13	7.50	2.13	7.50	2.13
2013	7.25	2.13	7.50	2.13	**8.50**	**3.83**	**8.00**	2.13
2014	7.25	2.13	7.50	2.13	**8.60**	**5.16**	**8.50**	2.13
2015	7.25	2.13	7.50	2.13	**8.75**	**5.25**	**8.50**	2.13
2016	7.25	2.13	7.50	2.13	**8.75**	**5.25**	**8.65**	2.13
2017	7.25	2.13	7.50	2.13	**8.80**	**5.30**	**8.70**	2.13
2018	7.25	2.13	7.50	2.13	**8.95**	**5.35**	**8.85**	2.13
2019	7.25	2.13	**9.00**	2.35	**9.20**	**5.50**	**9.05**	2.13
2020	7.25	2.13	**9.00**	2.35	**9.35**	**5.50**	**9.20**	2.13
2021	7.25	2.13	**10.50**	2.55	**10.50**	6.30	**9.35**	2.13

Note: Tipped workers are those who "ordinarily and customarily" earn tips of at least $30 per week; Albuquerque tipped MW is set at 60% of the regular MW; this project defines MW at the Bernalillo rate

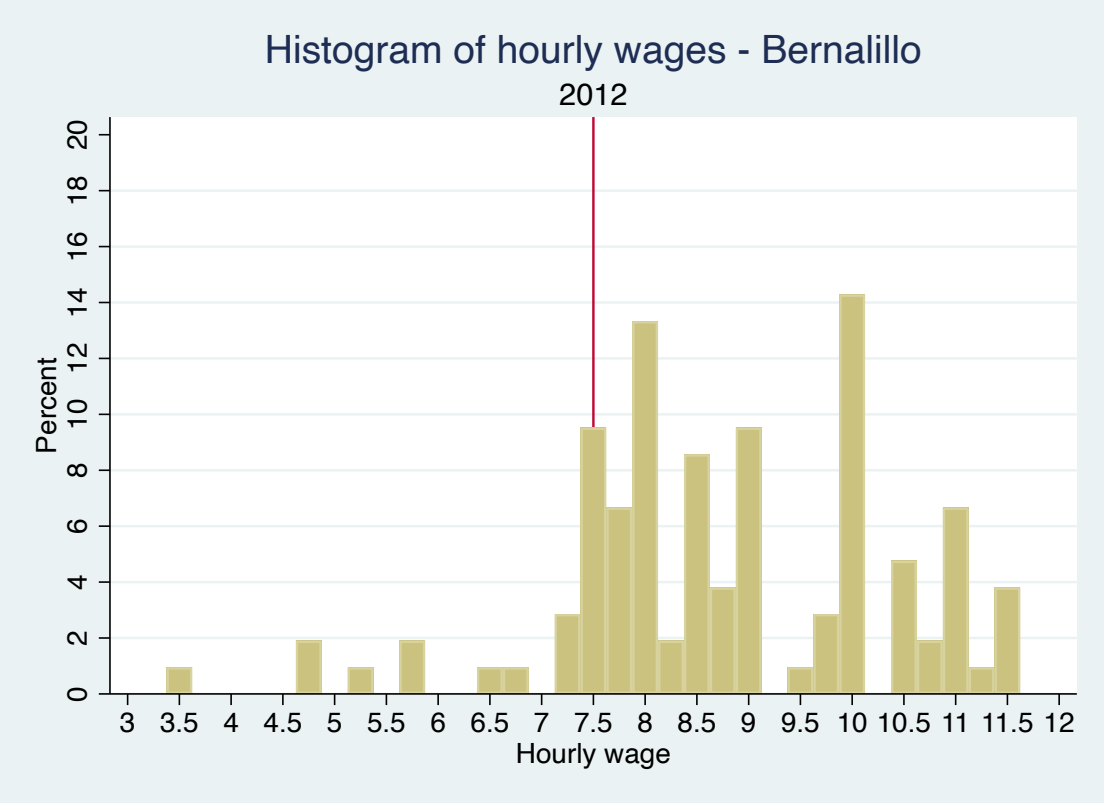
Preview of findings:

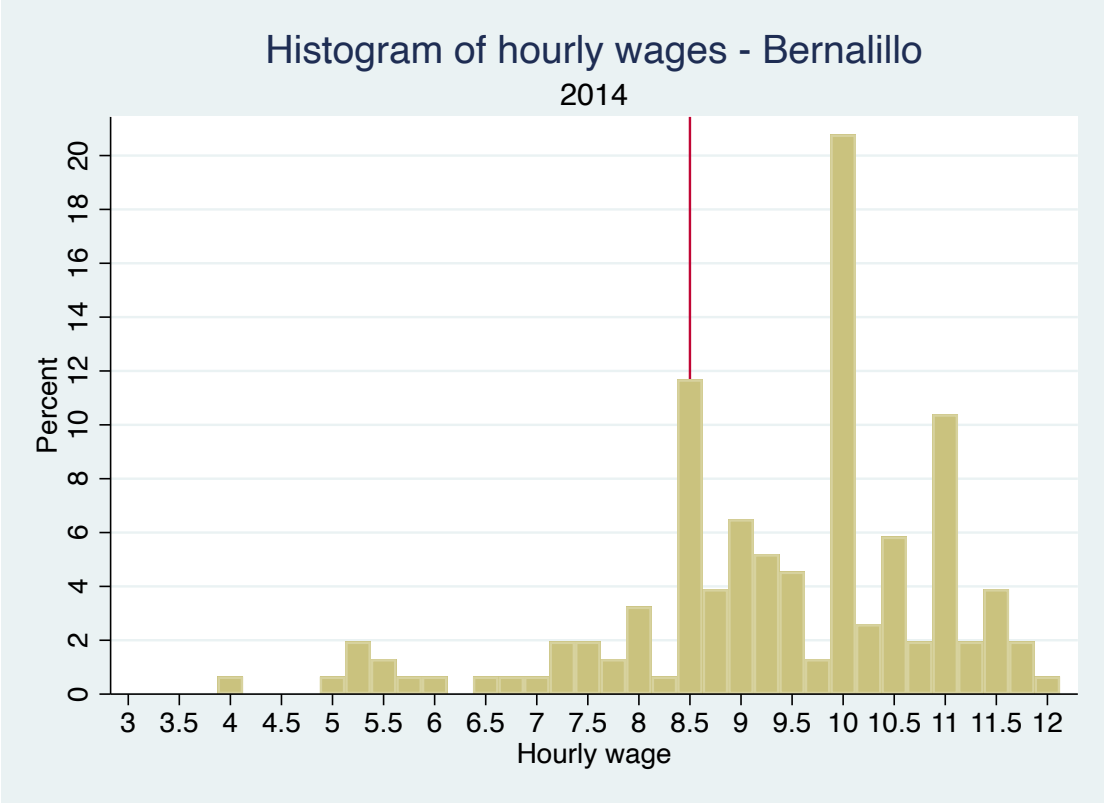
- Payment of subminimum wages increased following the implementation of the higher minimum wage
- This increase was concentrated in food service occupations where tipping is prevalent
- Non-compliance is also likely

Note: Wage variable used is HOURWAGE from CPS ORG. It's the hourly wage before taxes, tips and commission; MW defined as the Bernalillo rate



A visual representation of changes in wages:





Note: Authors' calculations; data from CPS outgoing rotation group; hourly wage excludes tips

Identification Strategy (1) – Linear Regression

I estimate the treatment effect using two models.

$$(1)\ Y_{it} = \alpha + \beta Treat_{it} + \delta X_{it} + \varepsilon_{it}$$

$$(2)\ lnY_{it} = \alpha + \beta lnMW_{it} + \delta X_{it} + \varepsilon_{it}$$

- Data organized as a county/year panel; control group includes all US counties that were not subject to a minimum wage increase between 2009 and 2019
- Robustness checks include county and year fixed effects, and/or county specific linear time trends.
- Estimates will be downward biased because 82.5% of Bernalillo County residents live in the city of Albuquerque

Results (1) | Minimum wage effects on the prevalence of subminimum wage earnings for the full sample of earners

	(1)	(2)	(3)	(4)
Full Sample				
Treatment effect	0.006***	0.006***	0.006***	0.005***
Standard error	0	0	0	0
P-value	0	0	0	0
95% CI	(0.005 - 0.006)	(0.005 - 0.006)	(0.005 - 0.006)	(0.004 - 0.006)
Observations	1,543	1,543	1,543	1,543
R-squared	0.097	0.363	0.372	0.5
Elasticity	4.366***	4.814***	5.331***	4.991***
Standard error	-0.454	-0.934	-0.755	-1.178
P-value	0	0	0	0
95% CI	(3.469 - 5.262)	(2.971 - 6.656)	(3.840 - 6.822)	(2.665 - 7.316)
Observations	1,364	1,364	1,364	1,364
R-squared	0.114	0.376	0.384	0.48
Model Controls:				
County & year fixed effects	N	Y	Y	Y
Demographic controls	N	N	Y	Y
County specific time trends	N	N	N	Y
Standard errors clustered by county				
*** p<0.01, ** p<0.05, * p<0.1				

Results (2) | Minimum wage effects on the prevalence of subminimum wage earnings for food service occupations

	(1)	(2)	(3)	(4)
Food Service Workers				
Treatment effect	0.038***	0.035***	0.036***	0.060***
Standard error	(0.00)	(0.00)	(0.00)	-(0.01)
P-value	0.000	0.000	0.000	0.000
95% CI	(0.032 - 0.044)	(0.028 - 0.043)	(0.028 - 0.044)	(0.047 - 0.074)
Elasticity	3.205	4.204***	4.265***	8.682***
Standard error	(2.08)	(0.37)	(0.43)	(0.47)
P-value	0.125	0.000	0.000	0.000
95% CI	(-0.895 - 7.305)	(3.470 - 4.938)	(3.425 - 5.105)	(7.746 - 9.618)
Observations	717	717	717	717
Model Controls:				
County & year fixed effects	N	Y	Y	Y
Demographic controls	N	N	Y	Y
County specific time trends	N	N	N	Y

Standard errors clustered by county

*** p<0.01, ** p<0.05, * p<0.1

Note: Treatment effect (levels) uses a binary treatment variable = 1 if the county was treated in year t. The Elasticity is the coefficient on the natural log of minimum wage when regressed against the log of the dependent variable.

Results (3) | Minimum wage effects on the prevalence of subminimum wage earnings for non-tipped workers

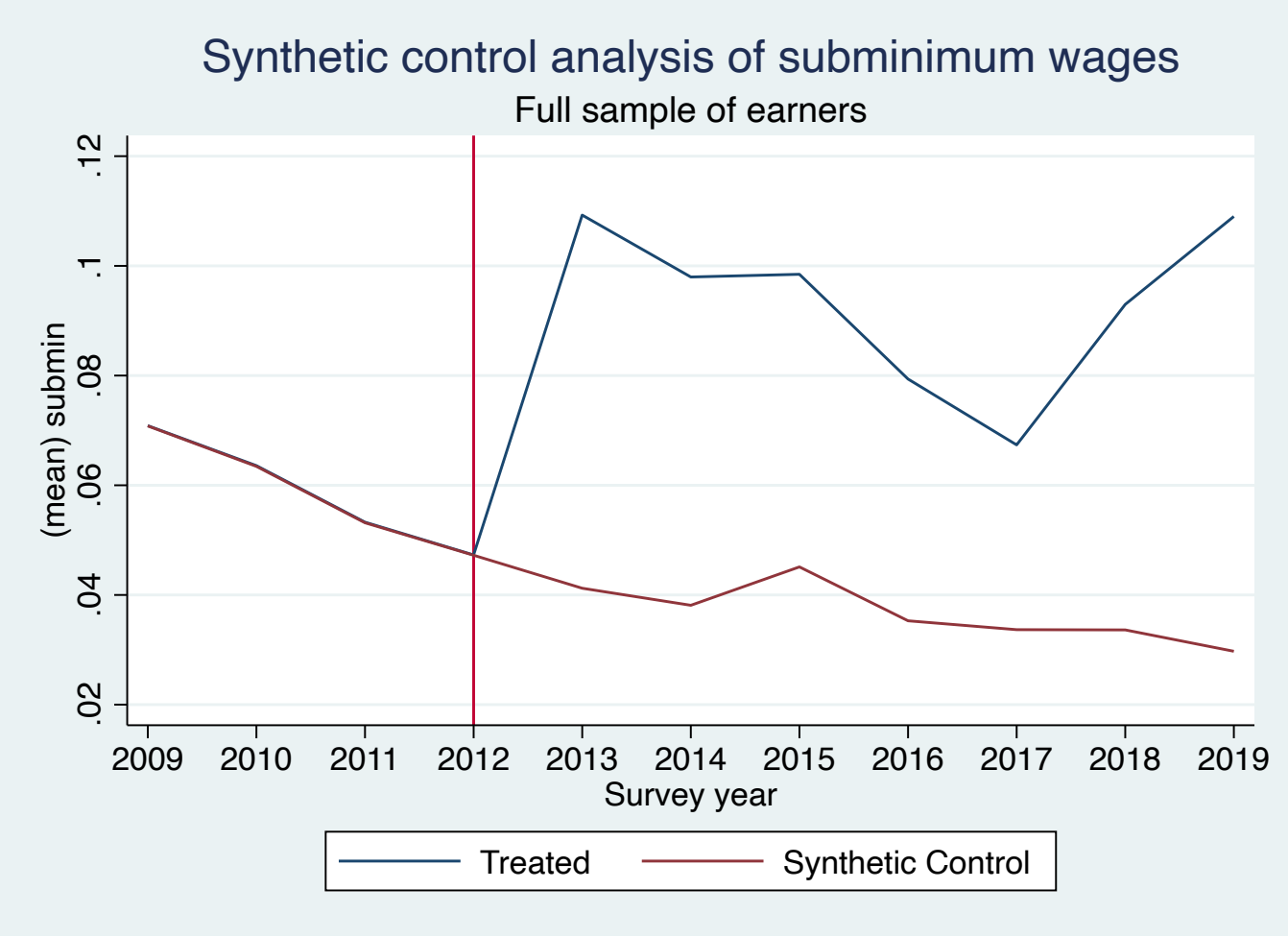
	(1)	(2)	(3)	(4)
Non-tipped workers				
Treatment effect	0.005***	0.005***	0.005***	0.005***
Standard error	0	0	0	0
P-value	0	0	0	0
95% CI	(0.005 - 0.005)	(0.005 - 0.005)	(0.004 - 0.005)	(0.004 - 0.006)
Observations	1,543	1,543	1,543	1,543
R-squared	0.095	0.368	0.375	0.508
Elasticity	5.662***	6.147***	6.534***	7.138***
Standard error	-0.318	-0.711	-0.624	-1.071
P-value	0	0	0	0
95% CI	(5.034 - 6.289)	(4.744 - 7.550)	(5.303 - 7.765)	(5.024 - 9.252)
Observations	1,208	1,208	1,208	1,208
R-squared	0.125	0.467	0.475	0.55
Model Controls:				
County & year fixed effects	N	Y	Y	Y
Demographic controls	N	N	Y	Y
County specific time trends	N	N	N	Y
Standard errors clustered by county				
*** p<0.01, ** p<0.05, * p<0.1				

Identification Strategy (2) – Synthetic Control

$$(3)\ Y_{it} = \sum_{t=1}^{T} \alpha_{it} D_{it} + Y_{it}^{N}$$

- Impact and significance assessed by year
- Donor pool includes counties with no minimum wage changes
- Synthetic control chosen to minimize dependent and demographic variables in pre-treatment period

Results (4) | Synthetic Control Estimates (Full Sample)

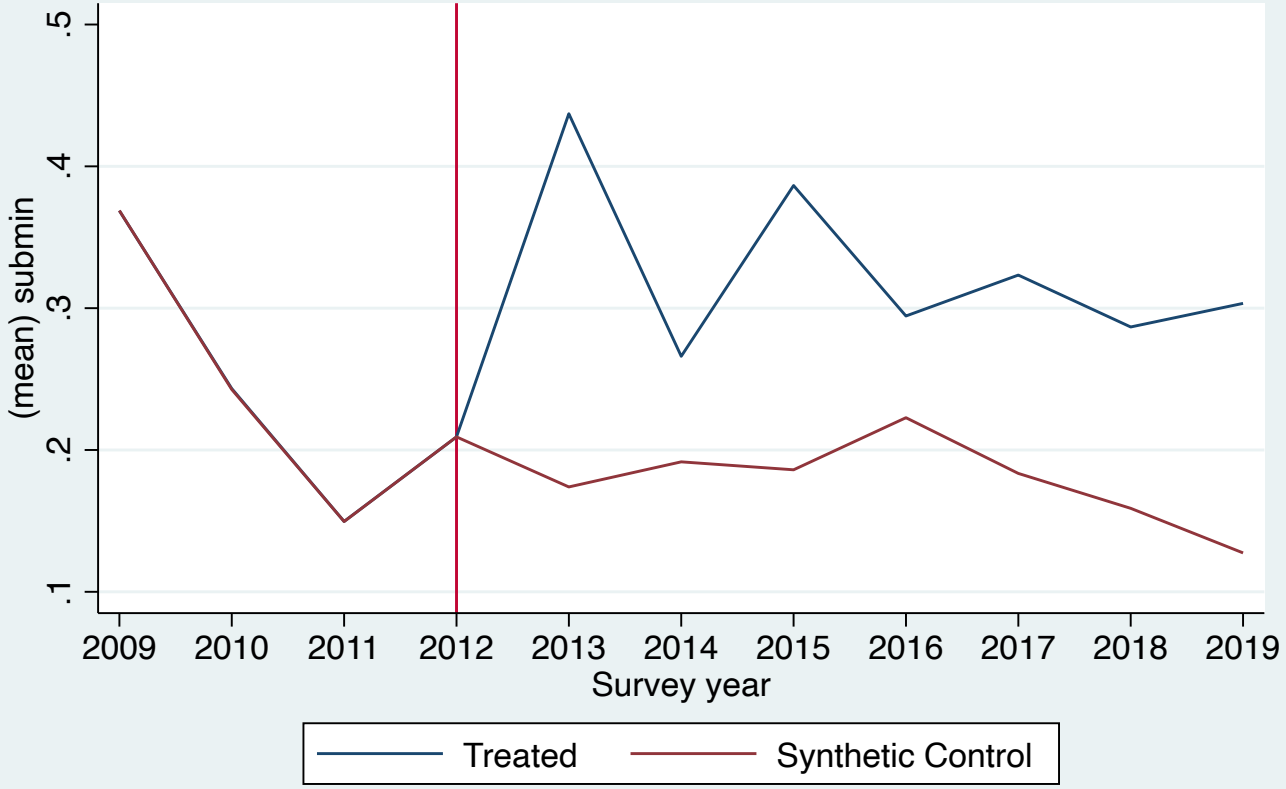


Change in the Proportion of Sub-minimum wage earners

	Full Sample
2013	0.068***
	(0.000)
2014	0.060***
	(0.000)
2015	0.053***
	(0.000)
2016	0.044***
	(0.000)
2017	0.034**
	(0.011)
2018	0.059***
	(0.000)
2019	0.079**
	(0.011)
Average	0.047**
Std pval	(0.011)
Pre RMSPE	0.926
# of donor counties	94

Note: standardized p-values in parenthesis.

Results (5) | Synthetic Control Estimates (Food Service)

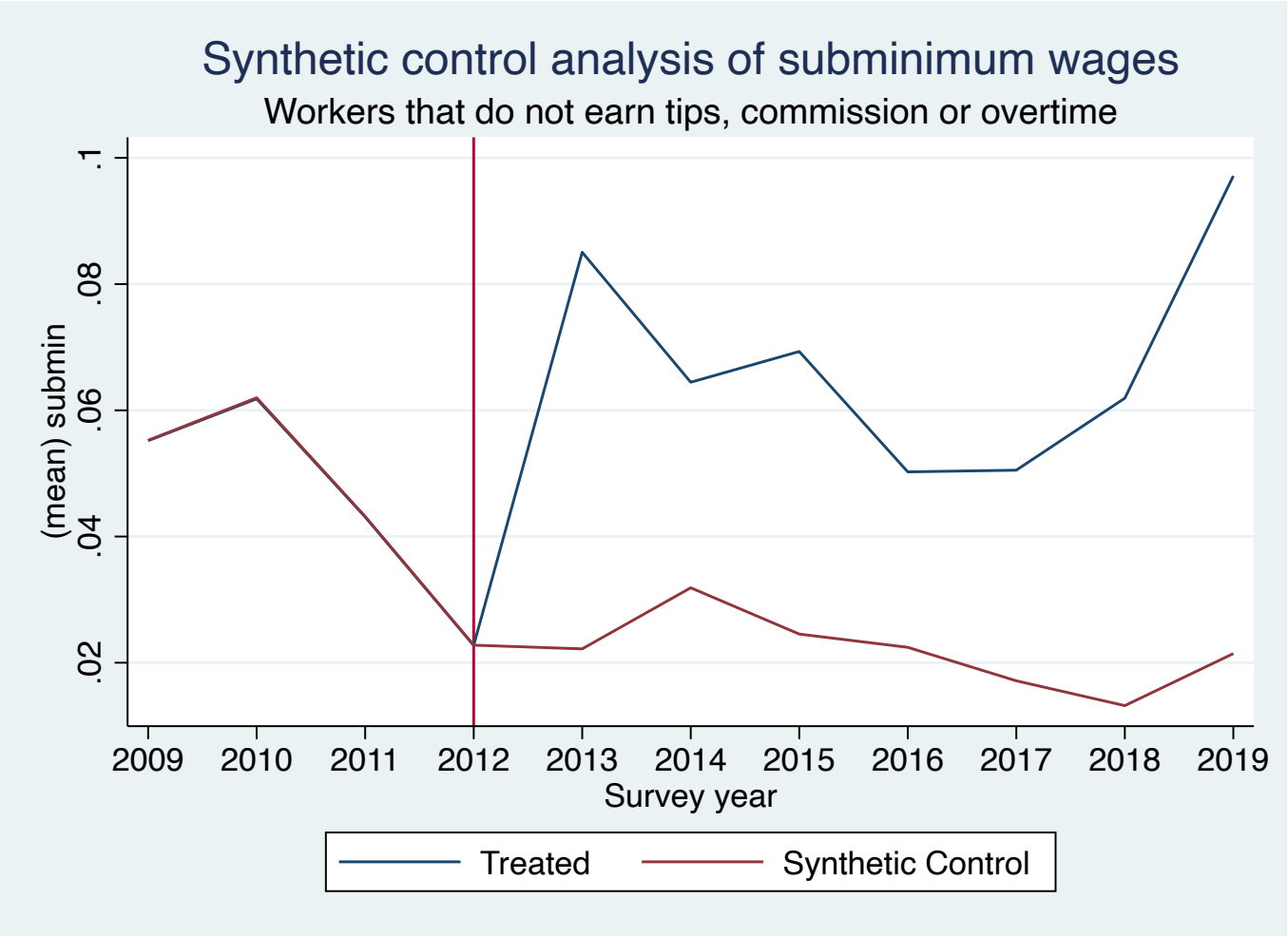


Change in the Proportion of Sub-minimum wage earners

	Food Service
2013	0.263*
	(0.051)
2014	0.074
	(0.128)
2015	0.200*
	(0.064)
2016	0.072
	(0.167)
2017	0.140*
	(0.077)
2018	0.128*
	(0.077)
2019	0.175**
	(0.038)
Average	0.150*
Std pval	(0.077)
Pre RMSPE	0.821
# of donor counties	78

Note: standardized p-values in parenthesis.

Results (6) | Synthetic Control Estimates (Non-tipped)



Change in the Proportion of Sub-minimum wage earners

	Non-tipped
2013	0.063**
	(0.022)
2014	0.033**
	(0.011)
2015	0.045**
	(0.011)
2016	0.028**
	(0.011)
2017	0.033***
	(0.000)
2018	0.049**
	(0.011)
2019	0.076**
	(0.022)
Average	0.047**
Std pval	(0.022)
Pre RMSPE	0.935
# of donor counties	93

Note: standardized p-values in parenthesis.

What do sub-minimum wages cost workers?

$$Wage\ gap_{it} = wage_{it} - \ minimum\ wage_{it}$$

- For sub-minimum wage earners:
  - Food service workers: $-2.72
  - Non-tipped/commissioned workers: $-0.98

- Estimated annual earnings loss (full time workers working 50 wks/yr):
  - Food service: $5,440
  - Non-tipped/commissioned occupations: $1,960

Conclusion

- Bernalillo/Albuquerque ordinance resulted in an increase in subminimum wage earnings
- Concentrated (but not limited to) food service occupations
- The cost to workers of sub-minimum wage provisions may be substantial
- Coupled with non-compliance, the re-classification of workers as “tipped” places many workers at risk for earnings loss
- Municipalities looking to effectively limit the payment of very low wages should embrace “full coverage” minimum wage policies and focus on enforcement.