Hitler's Jobs Multipliers: Evidence from interwar work creation programs, 1933-1937

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Abstract

This paper employs an annual panel data set in order to estimate regional 'jobs multipliers' from German federal spending between 1933 and 1937. Potential endogeneity of the level and timing of stimulus funds that a state receives is instrumented for by shift-shares. Panel data IV results suggest that goverment spending yielded about 12 jobs per 10.000 Reichsmark (RM) spent, or 815 RM per job. The employment multiplier translates into a output multiplier of 2.5 RM gained per 1 RM spent.

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Keywords: Public Work Creation, Fiscal Policy, Great Depression, Interwar, Germany

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1 Description of the topic and objectives

This paper studies Adolf Hitler's "Battle for Work - an in size and scope unprecedented fiscal stimulus package to overcome the Great Depression in Germany and contrasts it to "what would have happened" without the increasing government spending of Nazi Germany. The role of fiscal policy in the German interwar period had been of great debate. In the 1980s Knut Borchardt put forward the argument that the excessive debts of the public households made an economic stimulus during the Great Depression in Germany impossible. He attacked the prevalent conception that the deflationary policy of Heinrich Brüning had to be blamed for the economic, social and political consequences by emphasizing the role of a generous wages and social policy during the 1920s. The Reichskanzler had been in a constraining situation and it was not a free choice to actively provoke a need to abolish the reparations by showing, that Germany was not able to sustain such amounts like they were thought of during the Treaty of Versailles or the Conference of London.[1] This view was attacked by Carl-Ludwig Holtfrerich who finds empirical evidence that social transfers and wages have not been too high in the sense that they could have been distortionary in an Macroeconomic sense[2] while Albrecht Ritschl (1990) sophisticates Borchardts argument by stating that Germany was since 1930 on in a balance of payments crisis which was caused due to the high foreign debt and the strengthening of the reparation regime during the Young-Plan. In regard of fiscal policy Ritschl (2012) estimates spending shock multipliers through a time-varying Vector autoregression (VAR) with output and central government deficits. This methodology implies that tax shocks are assumed to be equal to spending shocks. He finds only a limited role for fiscal policy both for the slump and the recovery (Ritschl, 2002). This paper contributes to the literature on Interwar German Fiscal Policy as well as the long strand of literature that estimates the effects of government spending on the economy. In this regard and for reasons of comparability a altered specification giving the local multiplier on income and employment will be provided in the full paper as the growth rate in income/employment from the previous year as a function of the change in government spending divided by lagged income/employment. This follows for example Nakamura and Steinsson (2014), Barro and Redlick (2011). The advantage at hand is in contrast to the one specified in section 2 a multiplier which gives a percentage change in the outcome variable as response to an increase in government spending by 1 percentage point of GDP. Another important contribution of the paper is the newly compiled dataset of the regional distribution of federal government spending in Nazi Germany.

[1] Borchardt's positions: Borchardt (1979), Borchardt (1983)

[2] Holtfrerich (1984) or Krohn (1982)

2 Empirical Strategy

The estimation of the job multiplier β in this paper employs panel data methods with the change in employment $(L_{it} - L_{it-1})$ scaled by 1933 population in state i and year t as the outcome variable as a function of the change in public work creation spending per capita in state i and time t $(G_{it} - G_{it-1})$.

$$L_{it} - L_{it-1} = \alpha_i + \gamma_t + \beta(G_{it} - G_{it-1}) + S * t + X_{it} + \varepsilon_{it} \tag{1}$$

To control for exogenous omitted variables that might have influenced both, the change in employment and the distribution of work creation grants, a set of covariates X_{it} is included. A vector of the appreciation of the Nazi government incorporated by voting shares is included as well as a vector of the regional share in national unemployment control for influences of these variables on the distribution of funds. A further vector is supposed to control for mismeasurement in the outcome variable due to hidden unemployment. In this regard we include a vector of the total working population. In the first differences specification the inclusion of state fixed effects denoted by α_i are equivalent to the inclusion of state specific time trends in employment and government spending. Adding state fixed effects to the model at hand the identifying variation of the multiplier β for public work creation outlays are deviations from state trend over time. A vector of time fixed effects γ_t controls for nationwide shocks affecting all states in the respective year like changes in distortionary taxation, monetary policy changes, changes in funding of the federal budget as well as the introduction and abolishing of public work creation schemes and military buildup. With only time fixed effects the variation across time within the same area after controlling for national shocks identifies the multiplier. Under the full model specification the multiplier uses deviations from the state trend over time while controlling for national shocks. The year-to-year first differences method leads to unbiased and consistent estimates of the multiplier in large samples but in the presence of serial correlation standard errors are estimated more efficiently (Wooldridge, 2008).

The geographic distribution of public work creation schemes seem to follow different criteria depending on scheme and funding institution mainly driven by sociopolitical objectives (Wolffsohn, 1977), which gives raise to the possibility of biases from simultaneity and endogeneity. The Hitler Administration was willing to give more funds to areas with declining employment. The tendency to follow sociopolitical aspects in the distribution of funds imposes a downward bias to the multiplier coefficient. An instrumental variable strategy is suited to eliminate the biases described.

This paper uses a shift-share logic proposed by Bartik (1991) and used for instance in Nakamura and Steinsson (2014) or Fishback and Kachanovskaya (2015) to create an instrument, which varies annually both across the time and space dimension while it correlates with the Reich government spending. The regional shares for the different types of overall government spending from an earlier period are multiplied by the yearly federal changes in government spending to develop an indicator of regional spending in each year purely driven by changes in Reichs spending.

3 Preliminary Results

A series of regression is shown in table 1 with the change in employment as a function federal spending in the regions. The spending variable is in 1925 RM while all variables are in per capita terms. The first four columns report least squares estimates, while column 5 to 7 report those from the Two stage least squares. Each cell contains both, the estimate and the t-statistic in parentheses. The estimates in the first row can be thought of as jobs created per additional 10.000 RM per capita spent. The least squares estimate without any controls suggests, that 9.19 jobs are created by an additional spending of 10.000 RM. Vice versa this sum divided by the additional jobs created gains the costs per job year in the last row. Adding state fixed effects, within a first difference specification interpreted as a state specific time trend, changes the results only slightly to 9.097 created jobs. Adding the set of controls including the Nazi vote share, the working population and the regional share in total unemployment increases the results to 10.043 jobs created by an additional 10.000 RM. The estimates of the controls are small and insignificant. Including time fixed effects controlling for aggregate shocks related to changes in monetary policy or the change from balanced budget policies to deficit spending in the 1930s increases the multiplier to 12.481. With an increase in the multiplier, the costs per Job Year decrease.

Due to concerns about simultaneity and endogeneity this paper makes use of an IV estimation with an shift-share instrument. The Kleibergen-Paap F-statistic are well above 10, the rule-of-thumb value commonly used Kleibergen and Paap (2006). Again the results suggest surprisingly similar results indicating that the potential endogeneity problem is not as strong as assumed. Unlike under the OLS specification, under the full 2SLS model specification the working population variable becomes significant at an 10 percent level indicating a role of potential window dressing of employment statistics. In general our Job costs per Year compare surprisingly well with estimates from the 1930s.

Table 1: Total Employment Baseline Results

	OLS				IV		
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Total federal payout (10.000 RM p.c.)	9.190***	9.097***	10.043***	12.481***	8.818***	10.394***	12.271***
	(7.013)	(6.805)	(4.628)	(7.375)	(6.890)	(5.409)	(7.119)
Vote share Nazis, share			0.005	-0.008		0.005	-0.008
			(1.329)	(-1.625)		(1.470)	(-1.607)
Working population, in Millions			-0.015	0.018		-0.014	0.018*
			(-0.957)	(1.690)		(-0.924)	(1.799)
Total unemployment, share			0.074	-0.006		0.075	-0.005
			(0.675)	(-0.118)		(0.688)	(-0.094)
State FE		✓	✓	✓	✓	✓	✓
Controls			✓	✓		✓	✓
Time FE				✓			✓
R^2	0.14	0.21	0.25	0.80	0.20	0.25	0.80
Instrument F-stat.					36.16	37.26	15.45
Costs per Job Year	1088.12	1099.27	995.70	801.19	1133.99	962.05	814.95

t statistics in parentheses

*** Significant at the 1 percent level.

** Significant at the 5 percent level.

* Significant at the 10 percent level.

References

Barro, R. J. and C. J. Redlick (2011): "Macroeconomic Effects From Government Purchases and Taxes," *The Quarterly Journal of Economics*, 126, 51–102.

Bartik, T. J. (1991): *Who Benefits from State and Local Economic Development Policies?*, Kalamazoo, Mich: W.E. Upjohn Institute for Employment Research.

Borchardt, K. (1979): *Zwangslagen Und Handlungsspielräume in Der Großen Wirtschaftskrise Der Frühen Dreißiger Jahre: Zur Revision Des Überlieferten Geschichtsbildes; Festvortrag*, Vandenhoeck & Ruprecht.

——— (1983): "Zum Scheitern Eines Produktiven Diskurses Über Das Scheitern Der Weimarer Republik: Replik Auf Claus-Dieter Krohns Diskussionsbemerkungen," *Geschichte und Gesellschaft*, 9, 124–137.

Fishback, P. and V. Kachanovskaya (2015): "The Multiplier for Federal Spending in the States During the Great Depression," *The Journal of Economic History*, 75, 125–162.

Holtfrerich, C.-L. (1984): "Zu Hohe Löhne in Der Weimarer Republik? Bemerkungen Zur Borchardt-These," *Geschichte und Gesellschaft*, 10, 122–141.

Kleibergen, F. and R. Paap (2006): "Generalized Reduced Rank Tests Using the Singular Value Decomposition," *Journal of Econometrics*, 133, 97–126.

Krohn, C.-D. (1982): ""̈ Ökonomische Zwangslagen" Und Das Scheitern Der Weimarer Republik. Zu Knut Borchardts Analyse Der Deutschen Wirtschaft in Den Zwanziger Jahren," *Geschichte und Gesellschaft*, 8, 415–426.

Nakamura, E. and J. Steinsson (2014): "Fiscal Stimulus in a Monetary Union: Evidence from US Regions," *American Economic Review*, 104, 753–792.

Ritschl, A. (1990): "Zu Hohe Löhne in Der Weimarer Republik? Eine Auseinandersetzung Mit Holtfrerichs Berechnungen Zur Lohnposition Der Arbeiterschaft 1925-1932," *Geschichte und Gesellschaft*, 16, 375–402.

——— (2002): *Deutschlands Krise Und Konjunktur 1924-1934: Binnenkonjunktur, Auslandsverschuldung Und Reparationsproblem Zwischen Dawes-Plan Und Transfersperre*, no. 2 in Jahrbuch Für Wirtschaftsgeschichte. Beihefte, Berlin: Akademie Verlag.

——— (2012): "Reparations, Deficits, and Debt Default: The Great Depression in Germany," *CEP Discussion Paper*.

Wolffsohn, M. (1977): *Industrie Und Handwerk Im Konflikt Mit Staatlicher Wirtschaftspolitik? Studien Zur Politik d. Arbeitsbeschaffung in Deutschland 1930-1934*, Schriften Zur Wirtschafts- Und Sozialgeschichte ; Bd. 30, Berlin: Duncker und Humblot, first ed.

Wooldridge, J. M. (2008): *Introductory Econometrics: A Modern Approach*, Mason, Ohio: South-Western, fourth ed.

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List of abbreviations

AA Arbeitsämter

ARRA American Recovery and Reinvestment Act

BEA Bureau of Economic Analysis

GDP Gross Domestic Product

HaFraBa Verein zur Vorbereitung der Autostraße Hansestädte–Frankfurt–Basel

IfK Institut für Konjunkturforschung

LAA Landesarbeitsamt

NSDAP National Socialist German Workers' Party

Oeffa Deutsche Gesellschaft für öffentliche Arbeiten AG

RAB Reichsautobahnen

RBC Real Business Cycle

RfAA Reichsanstalt für Arbeitsvermittlung und Arbeitslosenversicherung

RM Reichsmark

Rpf. Reichspfennige

SUTVA Stable Unit Treatment Value Assumption

VAR Vector autoregression