General Purpose Local Government Defaults: Type, Trend, and Impact

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Background

- High-profile municipal bankruptcy filings, such as Jefferson County, AL, City of Detroit, MI, and Puerto Rico
- Rating agencies reported municipal defaults remain rare
  - Examine only rated bonds
  - Examine only monetary defaults
- Studies providing default statistics lack clear definition of defaults:
  - Appleson et al. (2012): 2,521 defaults from 1970 to 2011
  - Gao et al. (2017): 2,063 bond deals from 1999 and 2010
- Unclear implication of defaults on issuer:
  - Platte County, MO budgeted for and then reversed bailout of an industry development authority revenue bond

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Default types; magnitude, trend, and bond characteristics; default implication

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Limited to general purpose local governments.

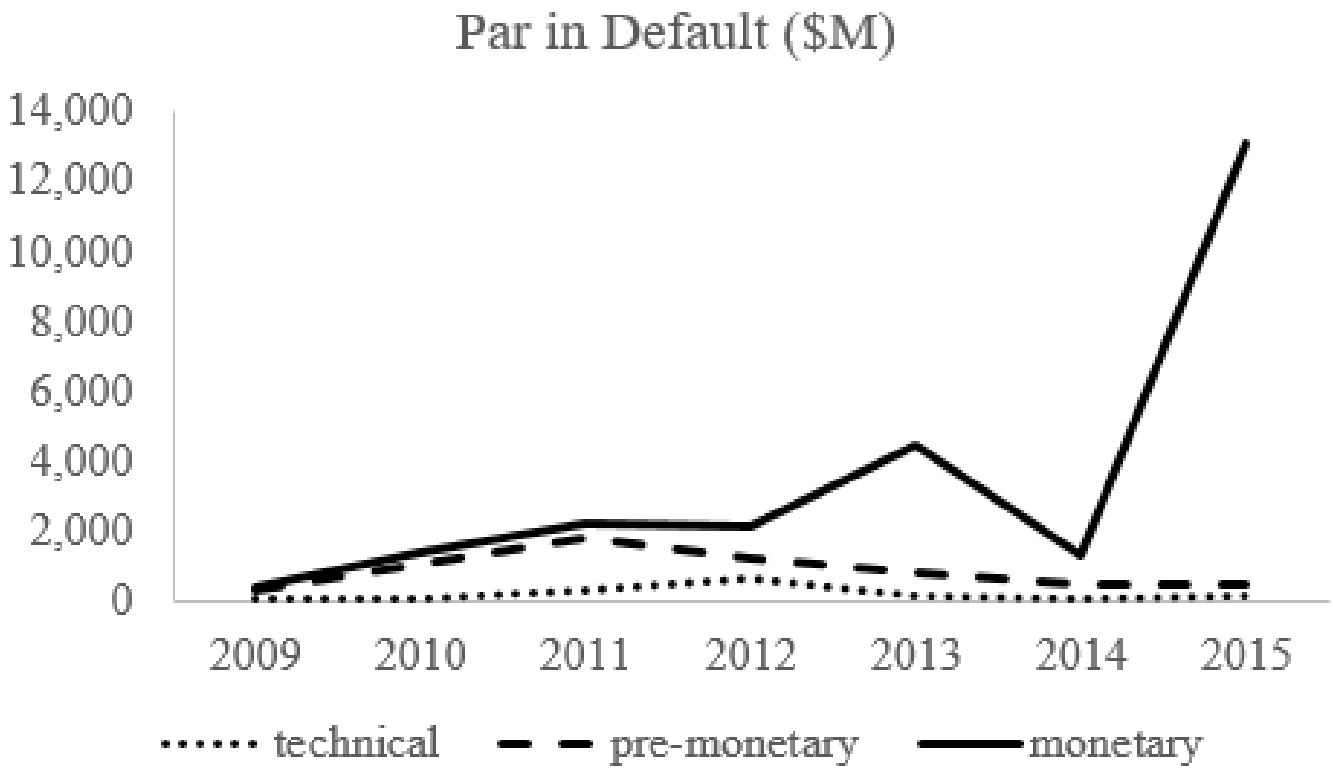
Default Spectrum based on SEC Rule 15c2-12

Table: Default Type by Implication on Repayment Prospect

Significant Event	**Type of Default**
Non-payment related defaults Modifications to rights of security holders	technical
Unscheduled draws on debt service reserves Unscheduled draws on credit enhancement Credit or liquidity provider failure to perform	pre-monetary
Principal and interest delinquencies	monetary
Release, substitution, or sale of property Merger, acquisition or sale of assets Bankruptcy, insolvency or receivership	organizational

Other significant events by SEC rule: adverse tax events, bond calls and tender offers, defeasances, and rating changes.

Trend in Default



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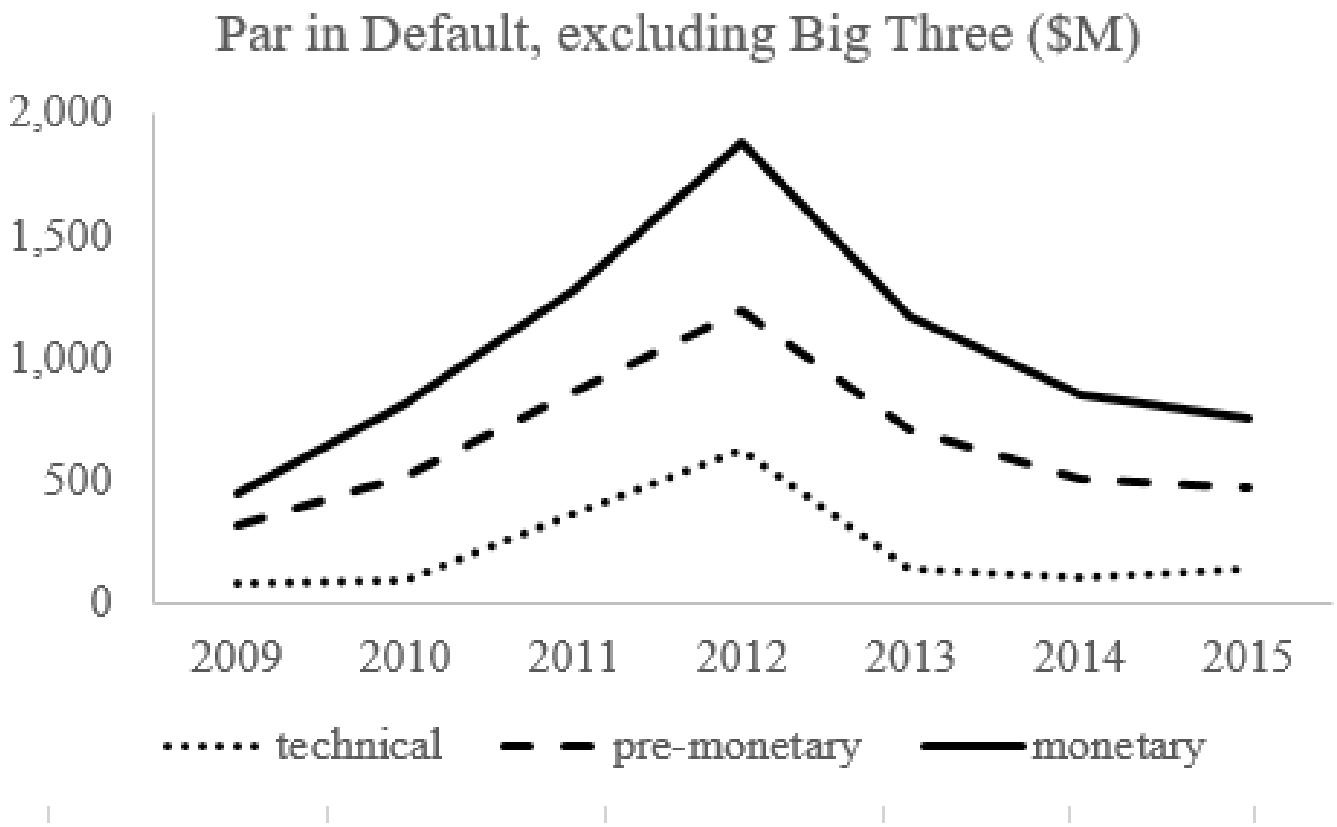

Big three defaulters include: Jefferson County, AL; Detroit, MI; Puerto Rico

Trend in Default

Table: All Types of Default

	All Defaulter		Excluding Big Three	
	CUSIP	Par ($M)	CUSIP	Par ($M)
2009	205	453	205	453
2010	254	1,383	239	823
2011	378	2,210	359	1,280
2012	451	2,142	421	1,881
2013	473	4,513	322	1,172
2014	357	1,304	262	857
2015	445	13,071	241	754

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General purpose local government bond outstanding $\approx$ 2.1 trillion

$\rightarrow$ default in 2012 $\approx$ 0.1% of market, 0.04% monetary default

Moody's: 0.015%

Default Bond Characteristics

Table: By Whether Rated, Excluding Big Three

	Rated		Unrated	
	CUSIP	Par ($M)	CUSIP	Par ($M)
Technical	272	872	297	710
Pre-Monetary	306	1,300	671	1,710
Monetary	31	256	472	2,380

Default Bond Characteristics

Table: By Whether Insured, Excluding Big Three

	Insured		Uninsured	
	CUSIP	Par ($M)	CUSIP	Par ($M)
Technical	178	660	391	922
Pre-Monetary	274	703	671	2,090
Monetary	17	141	486	2,500

Default Bond Characteristics

Table: By Whether GO, Excluding Big Three

	GO		Non-GO	
	CUSIP	Par ($M)	CUSIP	Par ($M)
Technical	85	22	484	1,560
Pre-Monetary	90	427	887	2,570
Monetary	38	184	465	2,450

Almost all monetary GO defaulters filed for Chapter 9.

Default Impact

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- Credit segmentation hypothesis
  - A fundamental feature of muni market: a diversity of credits
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Default Impact

Impact of a non-GO default on future bond yield on a different credit of the same issuer

- Credit segmentation hypothesis
  - A fundamental feature of muni market: a diversity of credits
  - No legal obligation to commit general revenue to pay for a nonGO credit
- Issuer reputation hypothesis
  - Investor may be concerned about issuer "walking away from a bond"
  - Rooted in the incomplete information environment of the market $\rightarrow$ investors infer risk
  - Default provides a proxy for underlying economic strength, local political effectiveness, etc. common to all credits of the issuer

Method

Difference-in-differences regressions where defaulting issuers consist of the "treated" group; sample excludes GO defaulters and defaulting nonGO credits

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For bond i issued by local government g in month t:
$IOY_{igt} = \alpha_0 + \beta PostDefault_{ig} + \alpha_1 \mathbf{X_{igt}} + \mu_g + \tau_t + e_{it}$

- $\mathbf{X_{igt}}$: bond characteristics (maturity, size, tax treatment, rating, etc.)
- Issuer and month fixed effects
- $PostDefault_{ig}$ equal to one after first default annoucement, thus β identify impact
- Estimate alternative regression focusing on monetary defaults only

Results

Table: Baseline Results

	Full Sample
	All Default
	(1)
PostDefault	0.0316
	(0.0380)
Covariates	Yes
Month FE	Yes
Issuer FE	Yes
N	563,453

Standard errors are clustered at the issuer level and reported in parentheses
***p<1%, **p<5%, *p<10%

Results

Table: Baseline Results

	Full Sample	
	All Default	Monetary
	(1)	(2)
PostDefault	0.0316	0.0203
	(0.0380)	(0.0525)
Covariates	Yes	Yes
Month FE	Yes	Yes
Issuer FE	Yes	Yes
N	563,453	548,012

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Results

Table: Baseline Results

	Full Sample		GO Sample	
	All Default	Monetary	All Default	Monetary
	(1)	(2)	(3)	(4)
PostDefault	0.0316	0.0203	0.0214	0.0333
	(0.0380)	(0.0525)	(0.0558)	(0.0747)
Covariates	Yes	Yes	Yes	Yes
Month FE	Yes	Yes	Yes	Yes
Issuer FE	Yes	Yes	Yes	Yes
N	563,453	548,012	434,554	425,129

Standard errors are clustered at the issuer level and reported in parentheses
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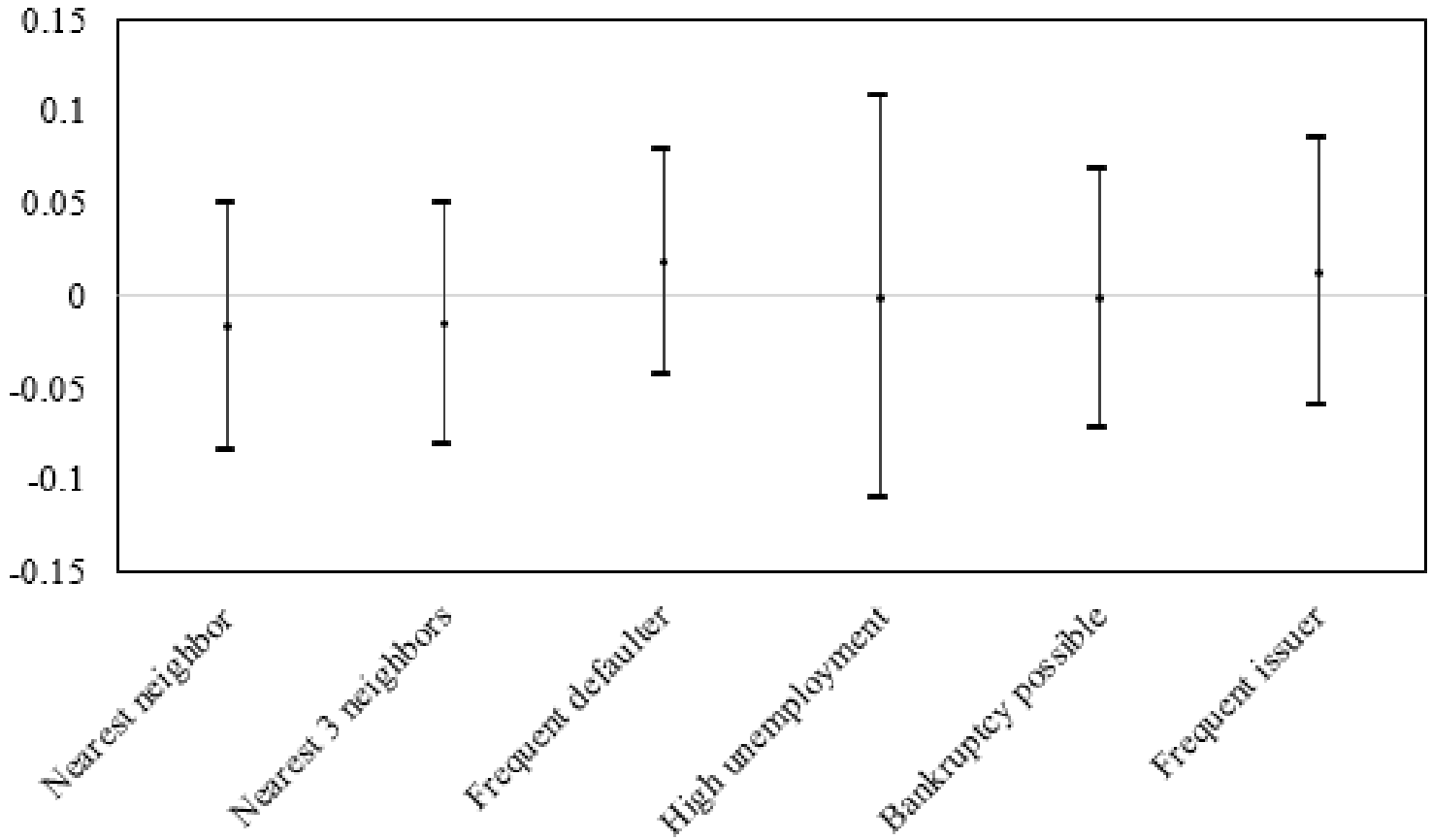
Robustness


0.15
0.1
0.05
0
-0.05
-0.1
-0.15
Nearest neighbor
Nearest 3 neighbors
Frequent defaulter
High unemployment
Bankruptcy possible
Frequent issuer

Conclusion

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- More defaults than reported by rating agencies but still a small share of market
- No increasing trends over 2009-2015
- GO monetary defaults highly undesired and rare; majority nonGO, unrated, and uninsured
- Support for credit segmentation hypothesis
  - Empirical explanation for the relative prevalence of non-GO default
  - Concern over spillover unsupported

Comments and suggestions appreciated.

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