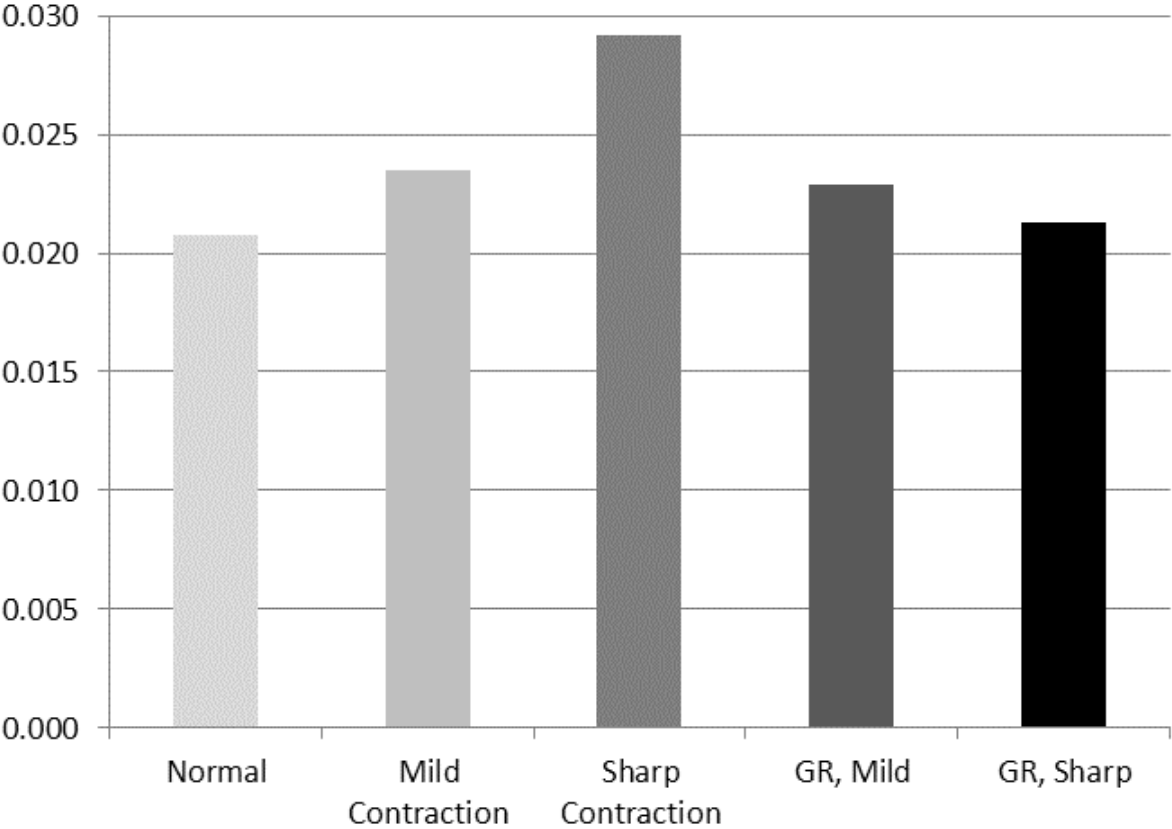


- Collard-Wexler, Alan and Jan De Loecker. 2013. Reallocation and Technology: Evidence from the U.S. Steel Industry. Working Paper no. 18739, National Bureau of Economic Research, Cambridge, MA.
- Cooper, Russell, John Haltiwanger and Jonathan Willis. 2007. Search Frictions: Matching Aggregate and Establishment Observations. *Journal of Monetary Economics* 54, Supplement 1: 56-78.
- Davis, Steven, R. Jason Faberman, and John Haltiwanger. 2006. The Flow Approach to Labor Markets: New Data Sources and Micro-Macro Links. *Journal of Economic Perspectives* 20, no. 3:3-26.
- Davis, Steven, R. Jason Faberman, and John Haltiwanger. 2012. Labor Market Flows in the Cross Section and Over Time. *Journal of Monetary Economics* 59, no. 1: 1-18.
- Davis, Steven J. and John Haltiwanger. 1990. Gross Job Creation and Destruction: Microeconomic Evidence and Macroeconomic Implications. In *NBER Macroeconomics Annual 1990*, ed. Olivier Jean Blanchard and Stanley Fischer. Cambridge, MA: MIT Press.
- Davis, Steven J. and John Haltiwanger. 1992. Gross Job Creation, Gross Job Destruction, and Employment Reallocation. *The Quarterly Journal of Economics* 107, no. 3: 819-63.
- Davis, Steven J. and John Haltiwanger. 1999. On the Driving Forces Behind Cyclical Movements in Employment and Job Reallocation. *American Economic Review* 89, no. 5: 1234-58.
- Davis, Steven J. and John Haltiwanger. 2014. Labor Market Fluidity and Economic Performance. Paper presented at Federal Reserve Bank of Kansas City Jackson Hole Conference in August 2014.
- Davis, Steven J., John C. Haltiwanger, and Scott Schuh. 1996. *Job Creation and Destruction*. Cambridge MA: MIT Press.
- Davis Steven J., John Haltiwanger, Ron Jarmin and Javier Miranda, 2007. Volatility and Dispersion in Business Growth Rates: Publicly Traded versus Privately Held Firms. In *NBER Macroeconomics Annual 2006*, ed. Daron Acemoglu, Kenneth Rogoff, and Michael Woodford. Cambridge, MA: MIT Press.
- Decker, Ryan, John Haltiwanger, Ron S. Jarmin and Javier Miranda. 2014a. The Role of Entrepreneurship in US Job Creation and Economic Dynamism. *Journal of Economic Perspectives* 28, no. 3: 3-24.
- Decker, Ryan, John Haltiwanger, Ron S. Jarmin and Javier Miranda. 2014b. The Secular Decline of Business Dynamism in the United States. Working paper, University of Maryland (June).
- Ericson, Richard and Ariel Pakes. 1995. Markov-Perfect Industry Dynamics: A Framework for Empirical Work. *The Review of Economic Studies* 62, no. 1: 53-82.
- Eslava, Marcela, Arturo Galindo, Marc Hofstetter, Alejandro Izquierdo. 2010. Scarring Recessions and Credit Constraints: Evidence from Colombian Firm Dynamics. ISSN 1657-5334, Documentos CEDE.
- Fort, Teresa, John Haltiwanger, Ron S. Jarmin, and Javier Miranda. 2013. How Firms Respond to Business Cycles: The Role of Firm Age and Firm Size. *IMF Economic Review*, 1-40.
- Foster, Lucia, John Haltiwanger, and Chad Syverson. 2008. Reallocation, Firm Turnover, and

Figure 6. Predicted Contribution of Reallocation to Aggregate (Industry-Level) Productivity



Source: Authors' calculations from estimated models.

Table 1. Descriptive Statistics, ASM/CM/LBD Matched Sample

	Mean	Standard Deviation
Overall Growth Rate (Continuers + Exit)	-0.17	0.65
Young	-0.26	0.85
Mature	-0.15	0.59
Establishment Exit	0.08	0.27
Young	0.15	0.35
Mature	0.07	0.25
Conditional Growth Rate (Continuers Only)	-0.01	0.38
Young	0.04	0.49
Mature	-0.02	0.35
Establishment Entry	0.07	0.25
TFP	0.000	0.360
Young	-0.011	0.353
Mature	0.003	0.362
Cycle	0.0004	0.0107
Young	0.19	0.39
GR	0.09	0.28
Years	1981-2010	
N (millions)	2.2	

Source: Authors' calculations on the ASM, CM and LBD.

Notes:

1. Statistics use propensity score weights to make the sample representative of the LBD. Statistics are not activity weighted.
2. Employment growth and exit are measured from period t to period $t+1$. Rates are in fractions (not percents).
3. TFP is the deviation of establishment-level log TFP from its' industry-year mean in year t so the mean is, by construction, equal to zero.
4. Cycle is the state-year change in the unemployment rate from t to $t+1$. Rates are in fractions (not percents).
5. Young is a dummy variable equal to one for establishments that belong to firms less than 5 years old.
6. GR is a dummy variable equal to one for years from 2007 to 2009.

Table 2. Share of Change in Net Employment Growth Due to Change in Job Creation in Periods of Net Contraction

Period	National		State
	BDS (Annual)	BED (Quarterly)	BDS (Annual)
Pre-Great Recession	0.21	0.28	0.39
Post-2007	0.61	0.59	0.65

Source: Authors' calculations on the BDS and BED.

Notes:

1. The calculations take advantage of the identity that Net = Job Creation – Job Destruction. For periods of net contraction lasting one or more periods, the cumulative change in net employment growth and cumulative change in job creation are calculated over the entire consecutive period of net contraction. In turn, these cumulative changes are cumulated further within the periods in the table. The share is the fraction of the overall cumulative change in net employment growth over the specified period accounted for by the overall change in job creation over the specified period.
2. For BDS, Pre-Great Recession is 1981-2007, Post-2007 is 2008-2011. For the BED, Pre-Great Recession is 1990:2-2007:3, Post-2007 is 2007:4-2012:1. As noted, these statistics are only calculated for periods with net employment growth less than zero. For example, this is 2007:4-2010:1 for the BED.
3. For the BDS National annual there are only 6 years of net contraction with only 2 years in the post 2007 period. For the BED quarterly, there are 22 quarters of net contraction with 9 quarters in the post-2008 period. For the BDS State Annual there are 393 state-year observations with net contraction with 112 state-year observations with net contractions in the post-2007 period.

Table 3. Job Flows and Change in the Unemployment Rate at the State-Level (Annual), 1981-2011

	Job Creation Rate	Job Destruction Rate	Reallocation Rate
Cycle	-0.631 ^{***} (0.046)	1.194 ^{***} (0.053)	0.563 ^{***} (0.068)
GR*Cycle	-0.371 ^{***} (0.079)	-0.421 ^{***} (0.079)	-0.793 ^{***} (0.128)
Trend	-0.168 ^{***} (0.010)	-0.136 ^{***} (0.011)	-0.304 ^{***} (0.020)
N	1,581	1,581	1,581

* p < 0.10, ** p < 0.05, *** p < 0.01

Source: Authors' calculations on the BDS.

Notes:

1. GR is a dummy variable equal to one for years from 2008 to 2010 (job flows from March 2007 to March 2010).
2. Cycle is the *state*-year change in the unemployment rate.
3. All specifications include state fixed effects.
4. Standard errors in parentheses are clustered at the state level.

Table 4. Reallocation and Productivity over the Business Cycle

	Overall Growth Rate (Continuers + Exiters)		Exit		Conditional Growth Rate (Continuers Only)	
	(1)	(2)	(3)	(4)	(5)	(6)
TFP	0.157*** (0.006)	0.159*** (0.006)	-0.060*** (0.003)	-0.060*** (0.003)	0.041*** (0.003)	0.042*** (0.003)
Cycle	-3.307*** (0.459)	-2.961*** (0.483)	0.671*** (0.176)	0.497*** (0.179)	-2.143*** (0.247)	-2.128*** (0.286)
TFP*Cycle	1.542** (0.643)	2.182** (0.862)	-0.655*** (0.226)	-0.927*** (0.265)	0.494 (0.412)	0.534 (0.567)
GR*TFP		0.030 (0.023)		-0.018* (0.011)		-0.005 (0.011)
GR*Cycle		-3.116** (1.349)		1.581*** (0.523)		-0.126 (0.770)
GR*TFP*Cycle		-2.961* (1.619)		1.466** (0.684)		0.066 (0.764)
Year FE	yes	yes	yes	yes	yes	yes
State FE	yes	yes	yes	yes	yes	yes
Firm Size Class FE	yes	yes	yes	yes	yes	yes
N (millions)	2.2	2.2	2.2	2.2	2.1	2.1

* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Source: Authors' calculations on the ASM, CM and LBD.

Notes:

1. Regressions are weighted by propensity score weights. Weight calculation is described in the Appendix.
2. Standard errors (in parentheses) are clustered at the state level.
3. Employment growth and exit are measured from period t to period $t+1$. Regression for exit is a linear probability model where $\text{exit}=1$ if the establishment has positive activity in period t but no activity in period $t+1$.
4. TFP is the deviation of establishment-level log TFP from its' industry-year mean in year t .
5. GR is a dummy variable equal to one for years from 2007 to 2009 (reflecting outcomes from March 2007 to March 2010).
6. Cycle is the state-year change in the unemployment rate from t to $t+1$.
7. Establishment size (log employment in t) is included as a control.

Table 5. Reallocation and Productivity over the Business Cycle By Firm Age

	Overall Growth Rate (Continuers + Exiters)		Exit		Conditional Growth Rate (Continuers Only)	
	(1)	(2)	(3)	(4)	(5)	(6)
Young	-0.059*** (0.005)	-0.054*** (0.005)	0.050*** (0.002)	0.049*** (0.002)	0.047*** (0.003)	0.050*** (0.003)
TFP*Mature	0.138*** (0.007)	0.139*** (0.007)	-0.054*** (0.003)	-0.055*** (0.003)	0.034*** (0.003)	0.033*** (0.003)
TFP*Young	0.237*** (0.013)	0.236*** (0.015)	-0.085*** (0.006)	-0.083*** (0.006)	0.075*** (0.006)	0.077*** (0.007)
Cycle*Mature	-2.590*** (0.401)	-2.487*** (0.402)	0.345** (0.143)	0.230 (0.141)	-2.047*** (0.232)	-2.183*** (0.270)
Cycle*Young	-6.626*** (0.988)	-5.274*** (1.152)	2.196** (0.407)	1.775*** (0.463)	-2.578** (0.412)	-1.878** (0.455)
TFP*Cycle*Mature	0.674 (0.620)	1.112 (0.733)	-0.429* (0.234)	-0.720*** (0.235)	-0.031 (0.354)	-0.193 (0.538)
TFP*Cycle*Young	3.886** (1.568)	4.336** (2.016)	-1.147* (0.649)	-1.088 (0.759)	2.476** (1.030)	2.811** (1.110)
GR*TFP*Mature		0.015 (0.029)		-0.010 (0.014)		-0.005 (0.007)
GR*TFP*Young		0.046 (0.076)		-0.030 (0.034)		-0.004 (0.042)
GR*Cycle*Mature		-1.685 (1.268)		1.234** (0.505)		0.769 (0.758)
GR*Cycle*Young		-8.627*** (2.318)		2.940*** (0.934)		-4.152*** (0.907)
GR*TFP*Cycle*Mature		-1.708 (1.691)		1.162 (0.759)		0.686 (0.657)
GR*TFP*Cycle*Young		-3.566 (4.585)		0.965 (1.934)		-0.999 (2.115)
Year FE	yes	yes	yes	yes	yes	yes
State FE	yes	yes	yes	yes	yes	yes
Firm Size Class FE	yes	yes	yes	yes	yes	yes
N (millions)	2.2	2.2	2.2	2.2	2.1	2.1

* p < 0.10, ** p < 0.05, *** p < 0.01

Source: Authors' calculations on the ASM, CM and LBD.

Notes: See notes to Table 4. Young (Mature) is establishments that belong to firms less than (greater than or equal to) 5 years old.

Table 6. Entry and Productivity over the Business Cycle

	Establishment Entry	
	(1)	(2)
TFP	-0.006 ^{***} (0.002)	-0.006 ^{***} (0.002)
Cycle	-0.388 ^{***} (0.136)	-0.376 ^{***} (0.142)
TFP*Cycle	0.274 ^{***} (0.075)	0.239 ^{**} (0.103)
GR*TFP		0.006 [*] (0.004)
GR*Cycle		-0.176 (0.504)
GR*TFP*Cycle		-0.088 (0.199)
Year FE	yes	yes
State FE	yes	yes
Firm Size Class FE	yes	yes
N (millions)	2.2	2.2

* p < 0.10, ** p < 0.05, *** p < 0.01

Source: Authors' calculations on the ASM, CM and LBD.

Notes:

1. Regressions are weighted by propensity score weights. Weight calculation is described in the Appendix.
2. Standard errors (in parentheses) are clustered at the state level.
3. Entry is measured from $t-1$ to t . Regression is linear probability model with entry=1 if this is first year of operation of establishment.
4. TFP is the deviation of establishment-level log TFP from its' industry-year mean in year t .
5. GR is a dummy variable equal to one for years from 2008 to 2010 (given $t-1$ to t).
6. Cycle is the state-year change in the unemployment rate from $t-1$ to t .
7. Establishment size (log employment in t) is included as a control.

