Insolvency and Recovery among UK Firms

Cynthia Balloch
Simeon Djankov
Juanita Gonzalez-Uribe
Dimitri Vayanos[1]

University of Nottingham Bank of England

CBI SME Policy Workshop
March 22, 2022

[1] All authors: London School of Economics.

Q: How does insolvency policy affect recovery?

Covid shock raised concerns regarding widespread bankruptcies

- In March 2020, UK SMEs reported $<$ two months working capital
- By Jan 2021, ONS surveys indicate 15% at risk of permanent closure
- UK government provided generous assistance: furlough, loans

In this paper:

1. Build an insolvency model with firms, creditors, and suppliers
2. Analyse changes to insolvency law, effects of government assistance
3. Interpret patterns in UK insolvency through the lens of the model

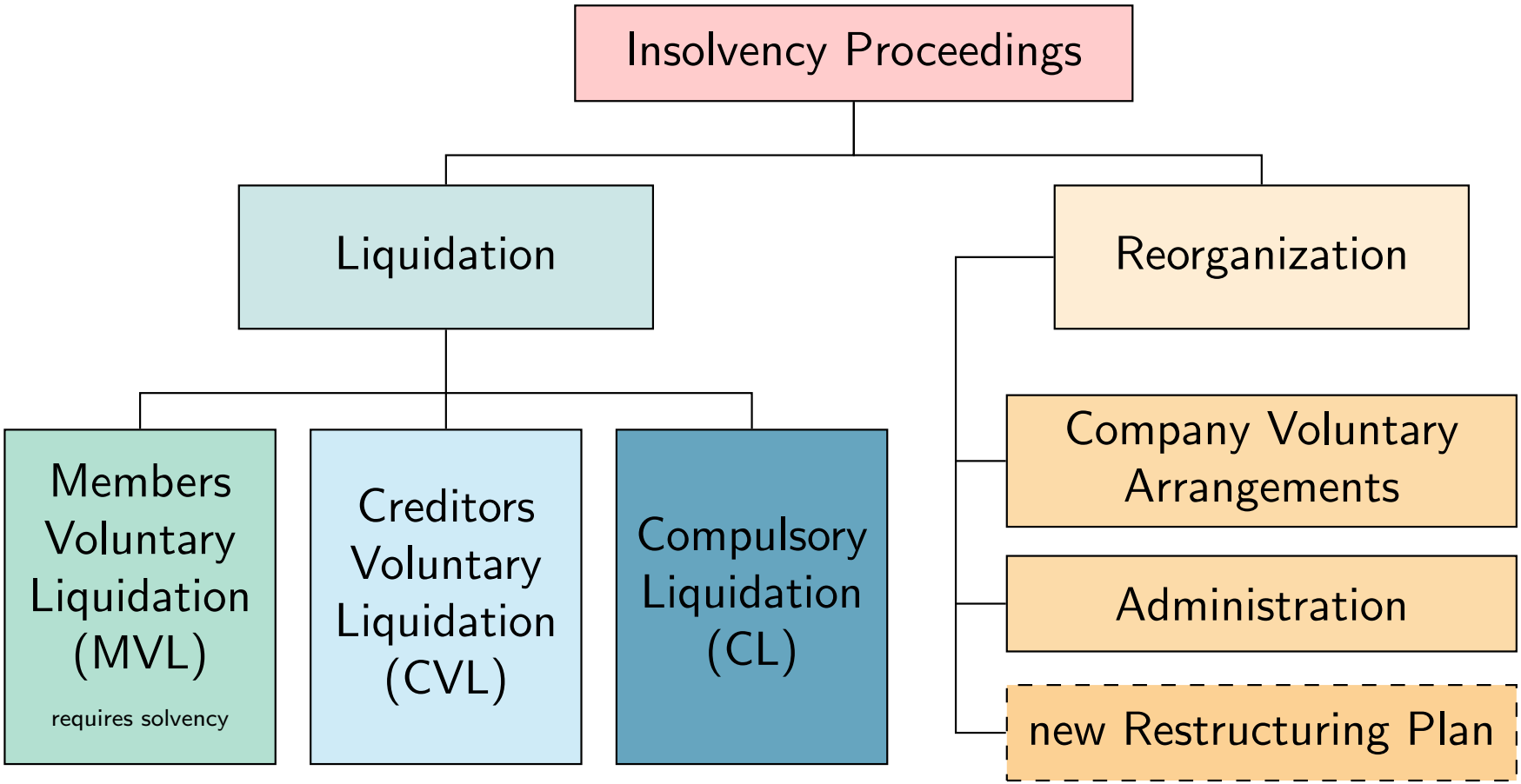
What we find

1. Insolvencies in the UK have shifted towards less costly modes
   - Bankruptcies fell during the pandemic, and are now rising
   - Administration and court liquidation fell, voluntary liquidations rose

2. Analysis reveals strong patterns across regions and industries
   - Assistance associated with lower insolvency: good (e.g. supply chain)
   - Insolvencies shift to less costly modes, saving organisational capital

3. Findings raise potential concerns
   - Sectoral imbalances worth noting, debt overhang affects effort
   - Insolvencies are typically observed with a lag (around 2 years)

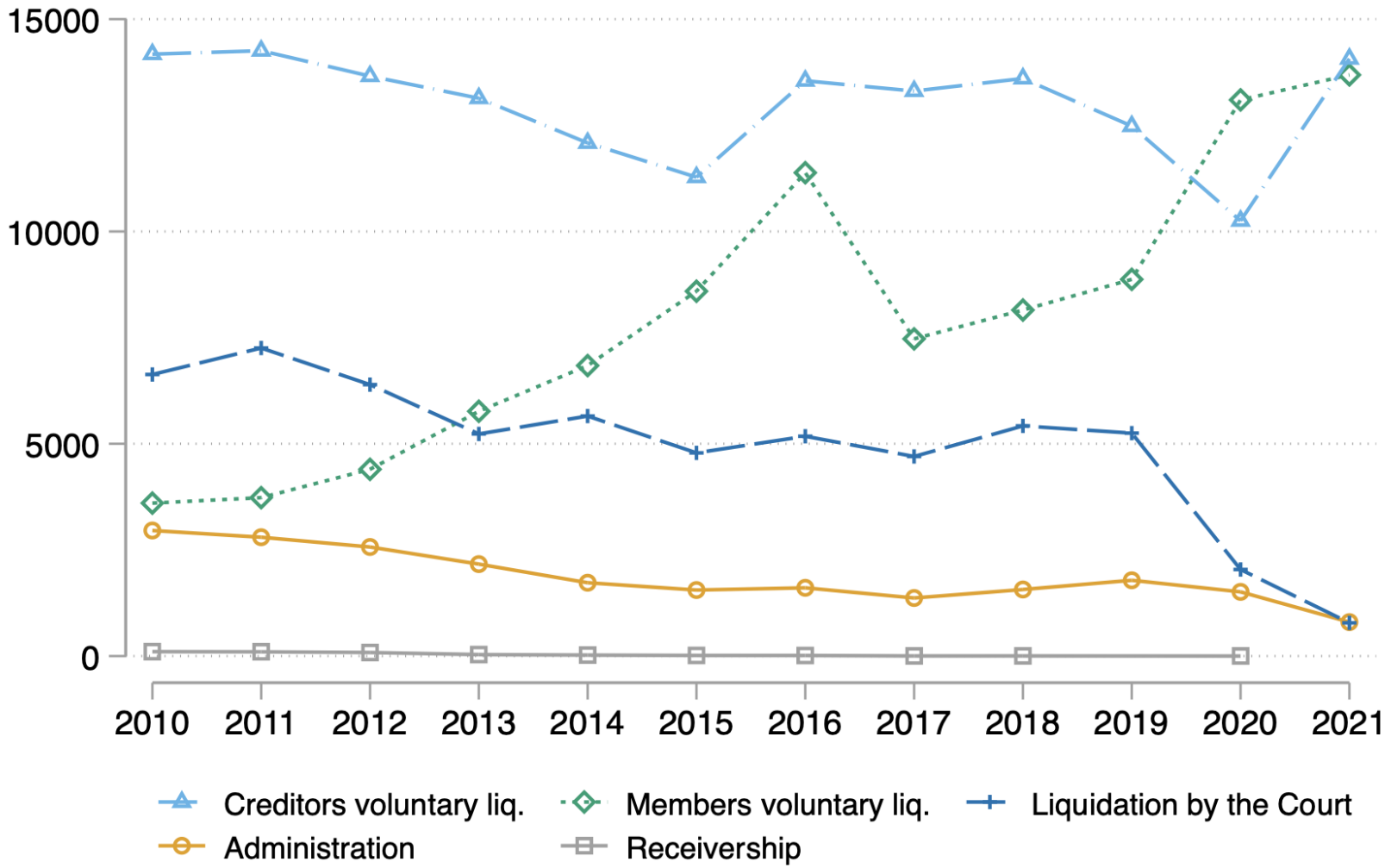
Background: types of firm insolvency in the UK



Planned changes were accelerated in 2020:

1. Corporate Insolvency and Governance Act introduced new plans
2. Temporary measures included for businesses during pandemic

UK firm insolvency notices by type and year



Overview of UK business assistance programs

1. Changes to insolvency regime in 2020 ⏩ Details
   - Permanent changes planned before Covid: more debtor friendly
   - Temporary measures: preventing forced insolvency, debt moratoria

2. **Coronavirus Job Retention Scheme**
   - Subsidies for furloughed workers up to set %, nominal caps
   - Related support schemes for self-employed workers

3. **Guaranteed loan schemes** ⏩ Thresholds
   - Bounce Back Loan Scheme (BBLS), 25% sales from 2-50k
   - Coronavirus Business Interruption Loan Scheme (CBILS): up to 200m
   - BBLS are 100% guaranteed, CBILS are 80% guaranteed

4. Others
   - Corporate bond and commercial paper purchases
   - Business rates (tax) relief in affected sectors
   - Loans and grants for early stage firms

Model

Model: three periods with firms, creditors, suppliers

$t = 0$: Entrepreneur invests I using funds from investors

- Contract specifies repayments D_1, D_2
- Entrepreneur has limited liability

$t = 1$: Cash flows are $R_1 \in [0, \infty)$ with joint density $f(R_1, R_2)$

- Entrepreneur pays D_1, and to continue or liquidate, for λI

  or

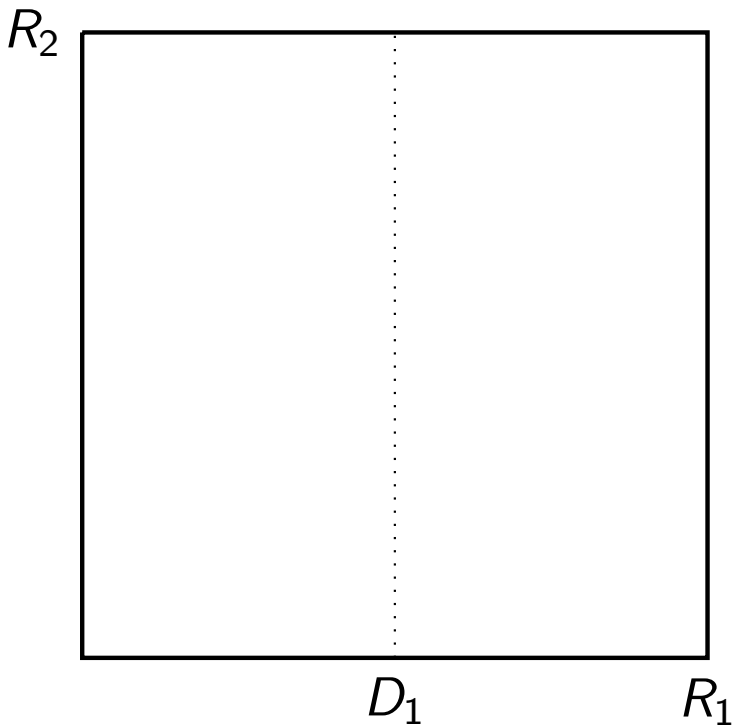
- $R_1 < D_1$, and investor decides to:
  - Liquidation for price λI, with $\lambda < 1$
  - Administration: restructure debt D_2 to D_2'
  - Entrepreneur has bargaining power σ

⏩ What's λ?

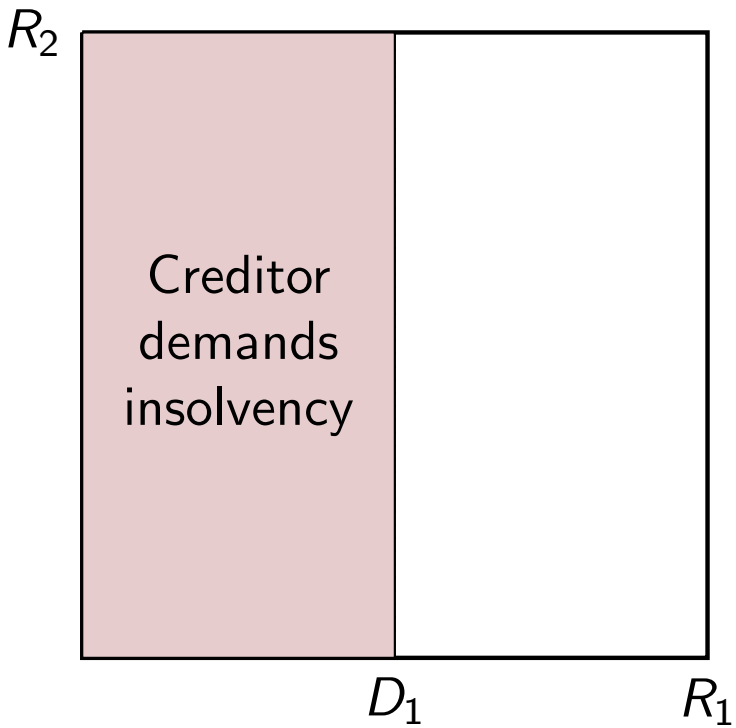
$t = 2$: If not terminated, cash flows are R_2 with probability $p < 1$

- Effort cost e increases probability from p to 1 (certain)
- Entrepreneurs and suppliers also earn private benefits Δ_e, Δ_s
- If terminated, entrepreneurs earn outside option wage ω

Outcomes depend on current and future productivity

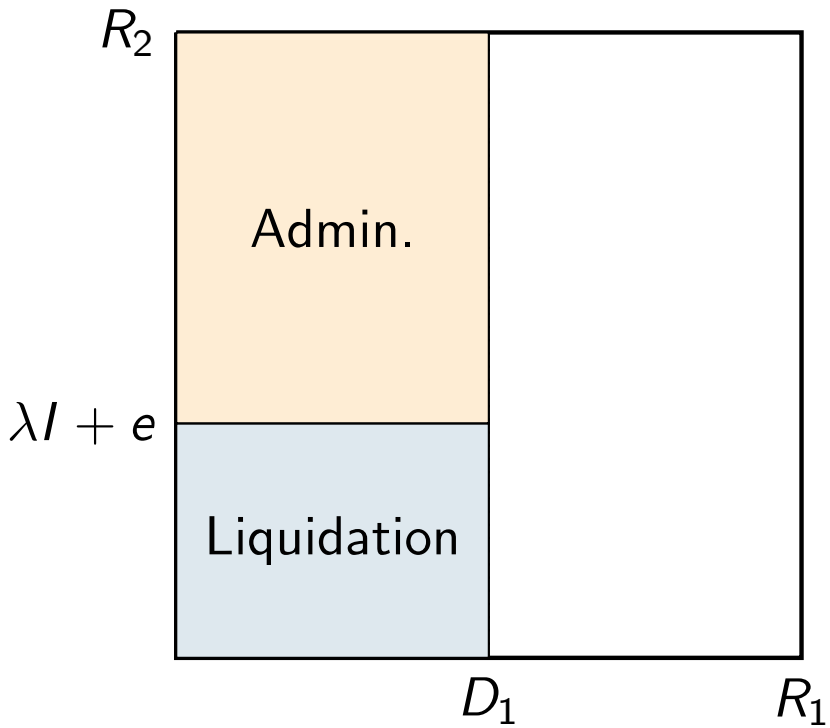


Outcomes depend on current and future productivity



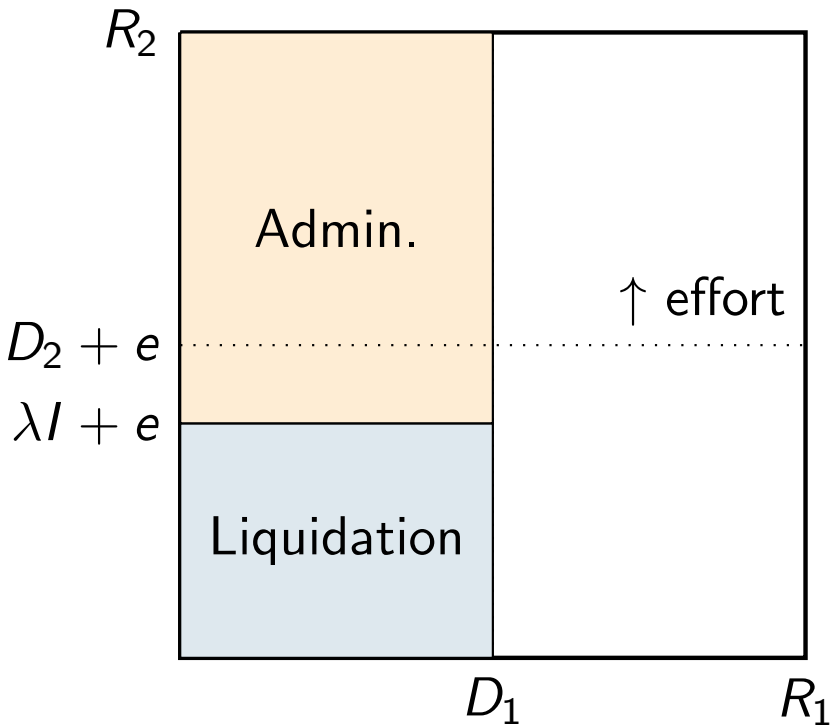
1. Creditor invokes insolvency if $R_1 < D_1$

Outcomes depend on current and future productivity



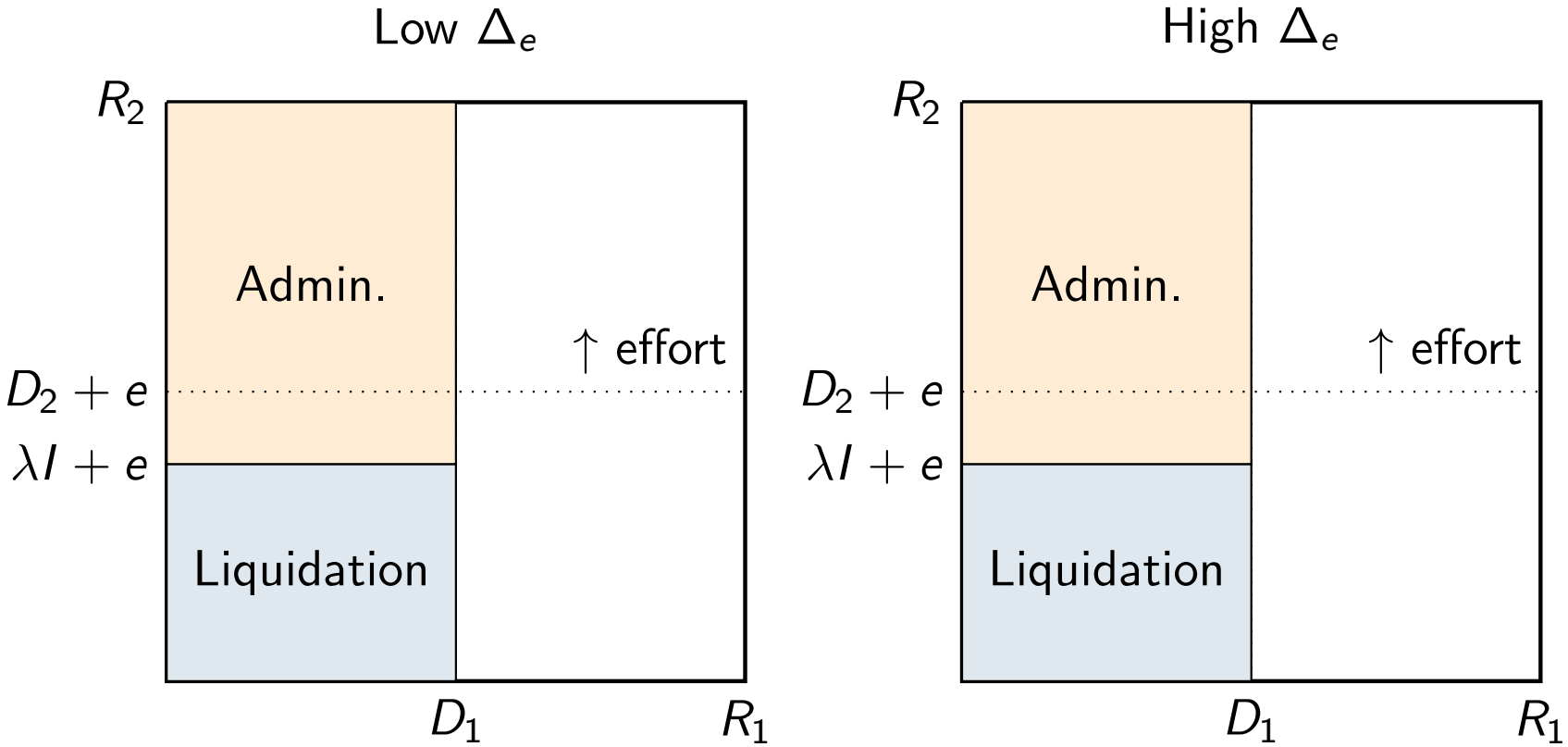
1. Creditor invokes insolvency if $R_1 < D_1$
   - Liquidates if $R_2 \leq \lambda I + e$, otherwise administration

Outcomes depend on current and future productivity



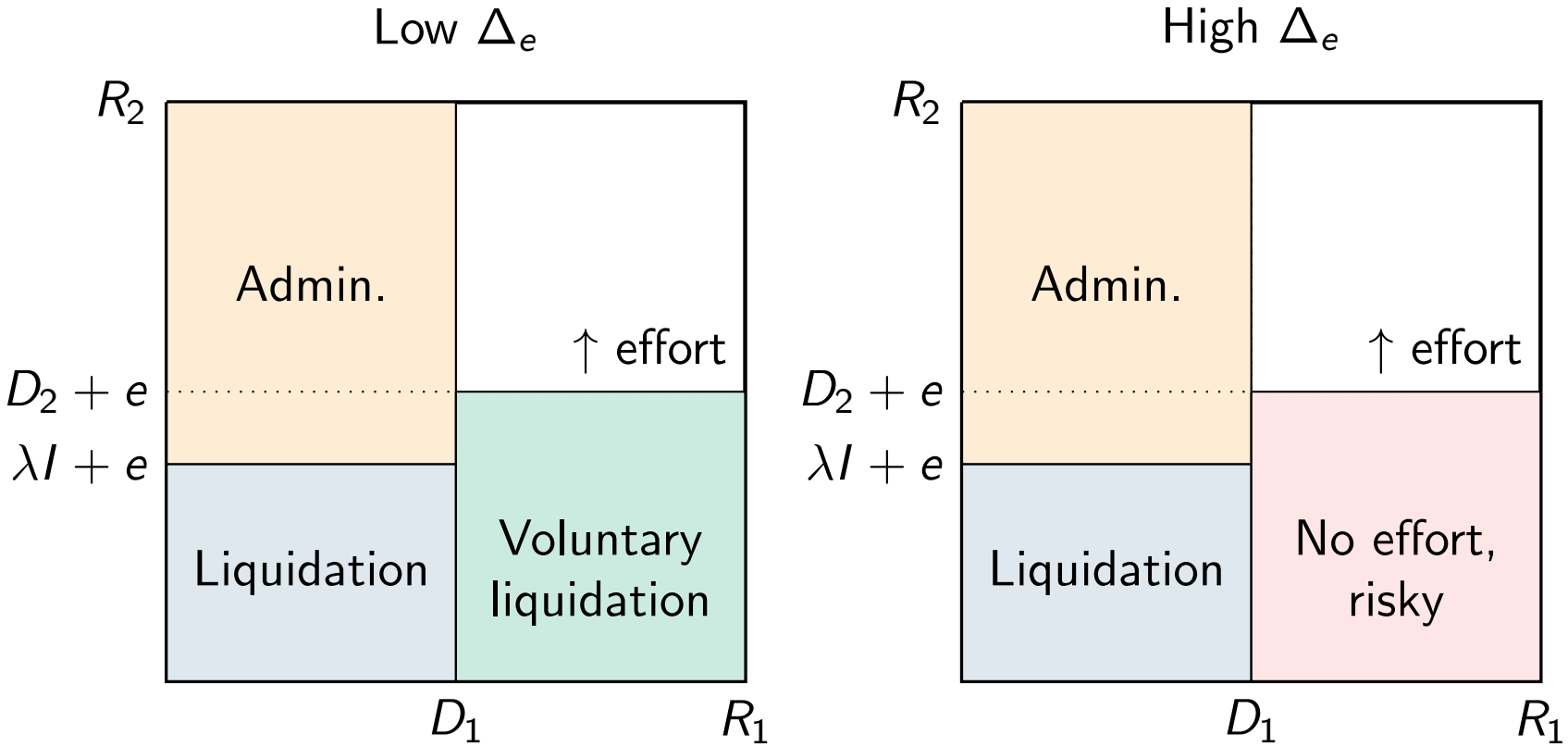
1. Creditor invokes insolvency if $R_1 < D_1$
   - Liquidates if $R_2 \leq \lambda I + e$, otherwise administration
2. Entrepreneur exerts effort if $R_2 \geq D_2 + e$, two firm types (Δ_e) IC

Outcomes depend on current and future productivity



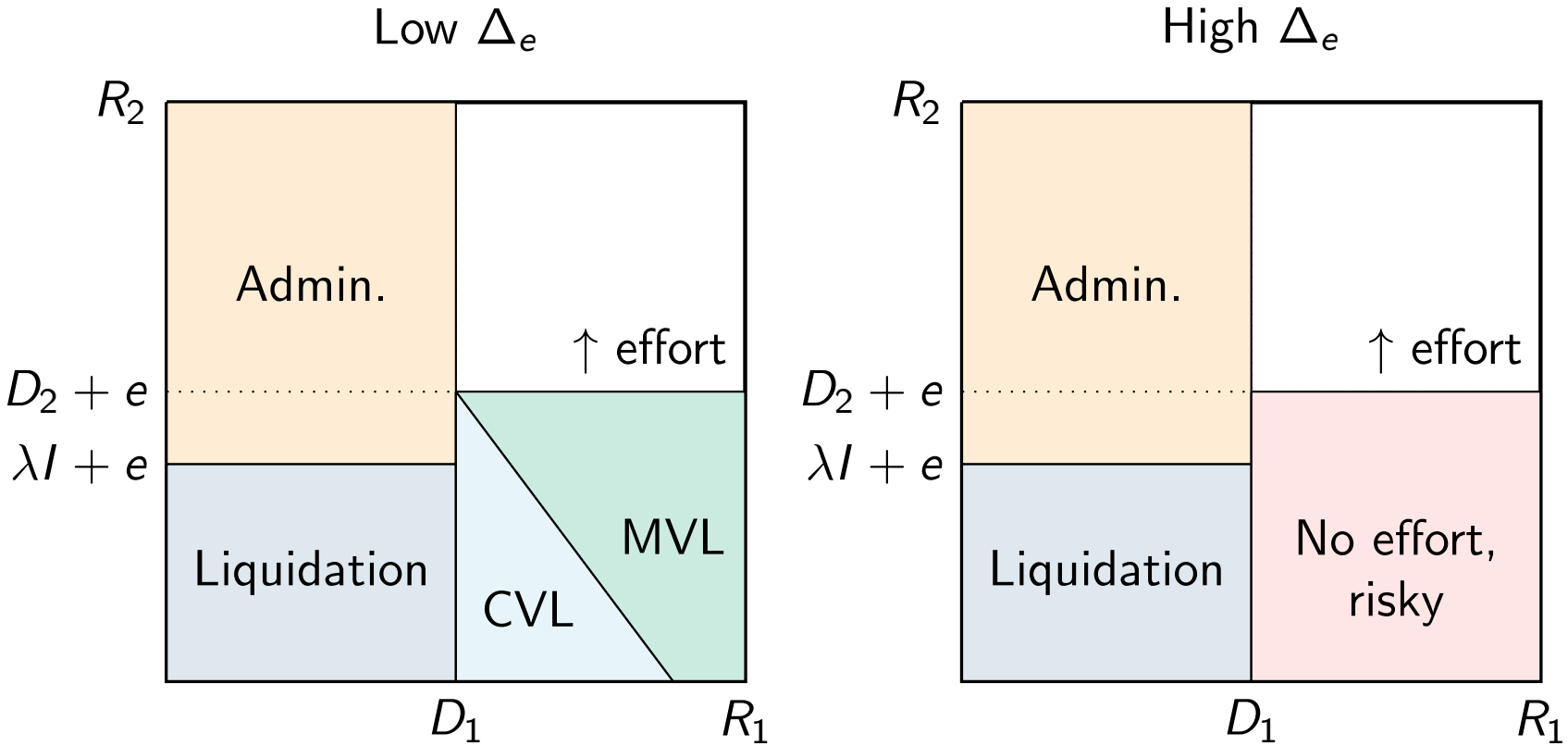
1. Creditor invokes insolvency if $R_1 < D_1$
   - Liquidates if $R_2 \leq \lambda I + e$, otherwise administration
2. Entrepreneur exerts effort if $R_2 \geq D_2 + e$, two firm types (Δ_e) IC
   - Liquidates if $\Delta_e < \lambda I - pR_2$ or risks it

Outcomes depend on current and future productivity



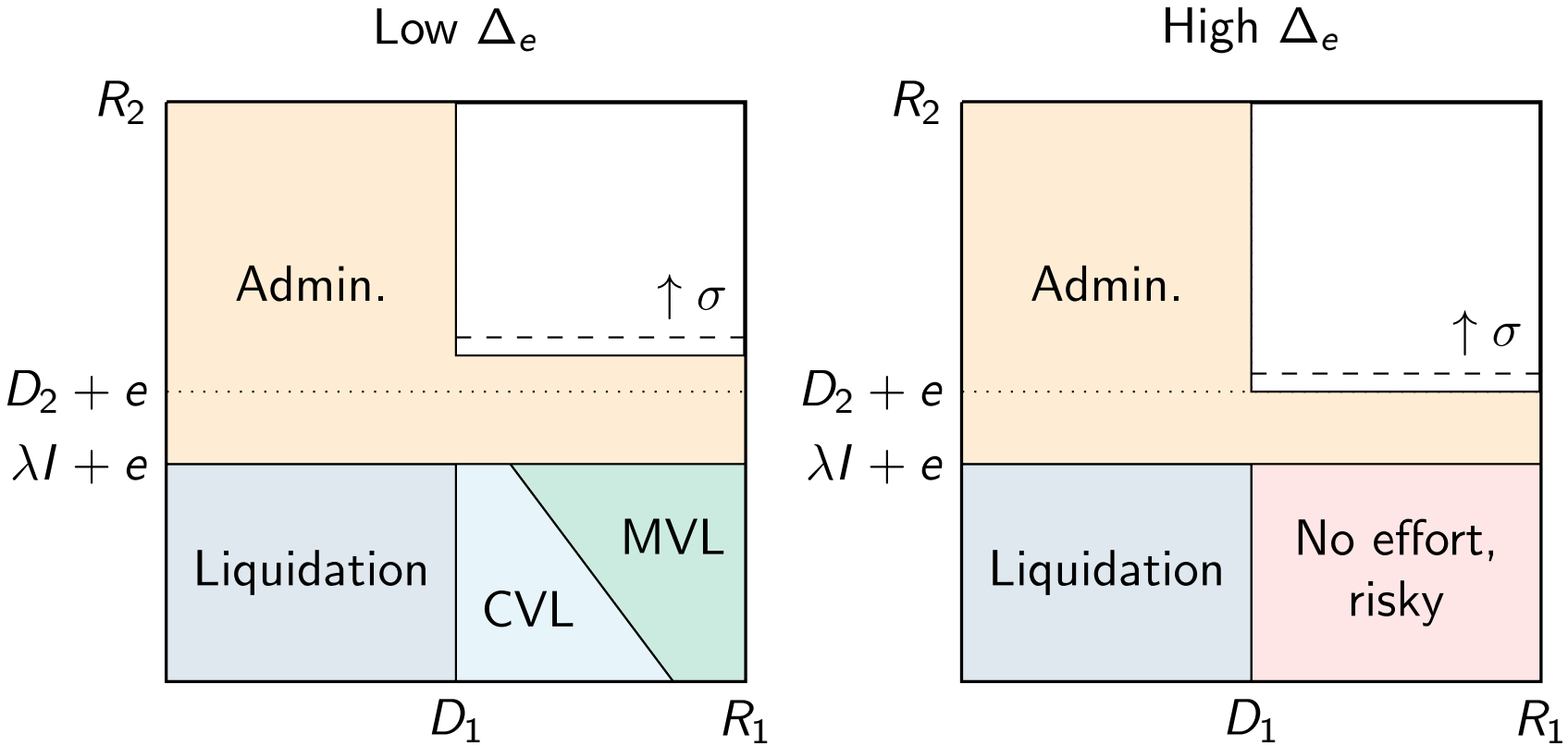
1. Creditor invokes insolvency if $R_1 < D_1$
   - Liquidates if $R_2 \leq \lambda I + e$, otherwise administration
2. Entrepreneur exerts effort if $R_2 \geq D_2 + e$, two firm types (Δ_e) IC
   - Liquidates if $\Delta_e < \lambda I - pR_2$ or risks it
   - If debt is repaid: Members Voluntary Liq. (MVL), otherwise Creditors Voluntary Liq (CVL)

Outcomes depend on current and future productivity



1. Creditor invokes insolvency if $R_1 < D_1$
   - Liquidates if $R_2 \leq \lambda I + e$, otherwise administration
2. Entrepreneur exerts effort if $R_2 \geq D_2 + e$, two firm types (Δ_e) IC
   - Liquidates if $\Delta_e < \lambda I - pR_2$ or risks it
   - If debt is repaid: Members Voluntary Liq. (MVL), otherwise Creditors Voluntary Liq (CVL)
   - Voluntary restructuring increases in bargaining power σ

Outcomes depend on current and future productivity

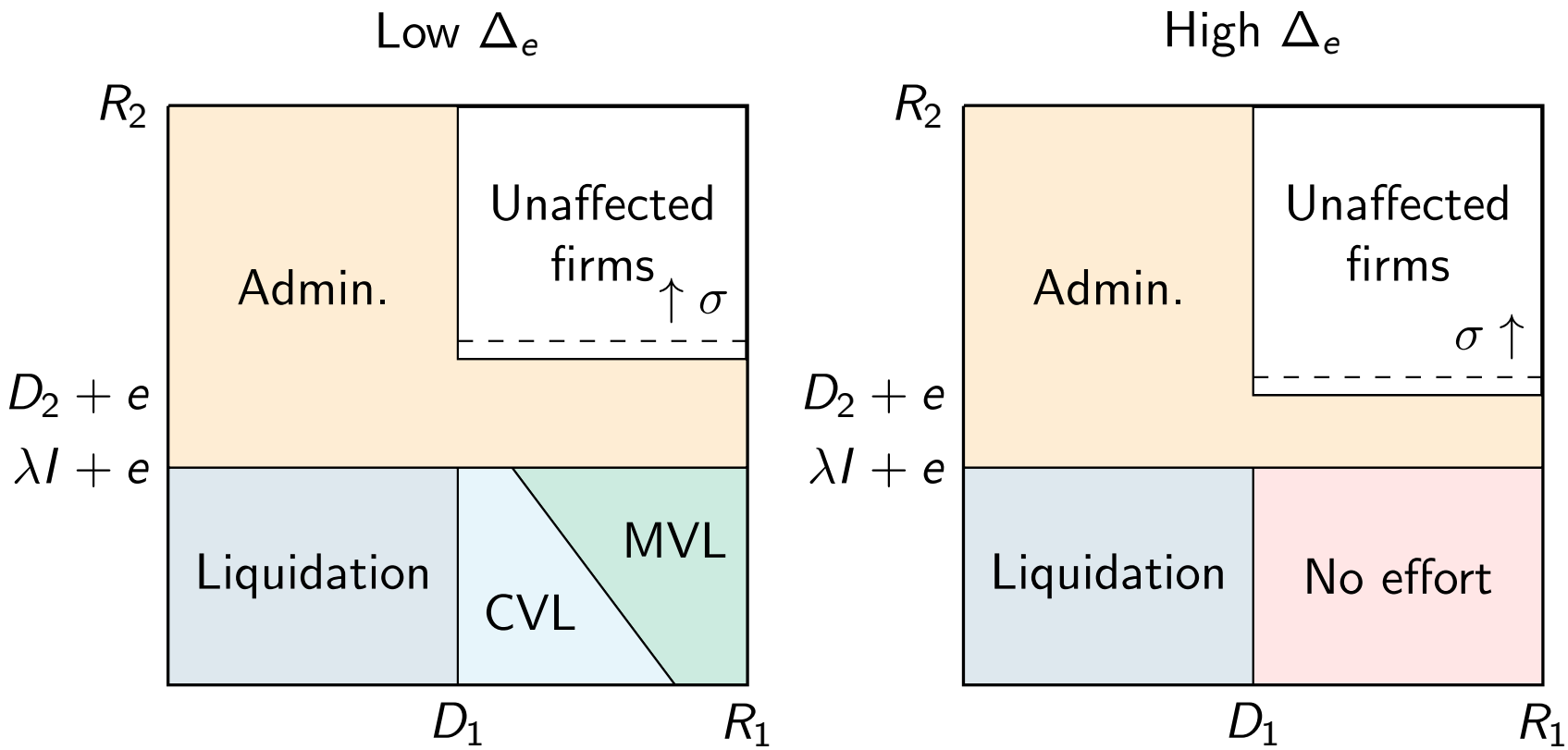


1. Creditor invokes insolvency if $R_1 < D_1$
   - Liquidates if $R_2 \leq \lambda I + e$, otherwise administration
2. Entrepreneur exerts effort if $R_2 \geq D_2 + e$, two firm types (Δ_e) IC
   - Liquidates if $\Delta_e < \lambda I - pR_2$ or risks it
   - If debt is repaid: Members Voluntary Liq. (MVL), otherwise Creditors Voluntary Liq (CVL)
   - Voluntary restructuring increases in bargaining power σ

Changes to insolvency regime in 2020

Implementation: creditors cannot force insolvency

Prediction 1: Administration declines, forced liquidations decline.



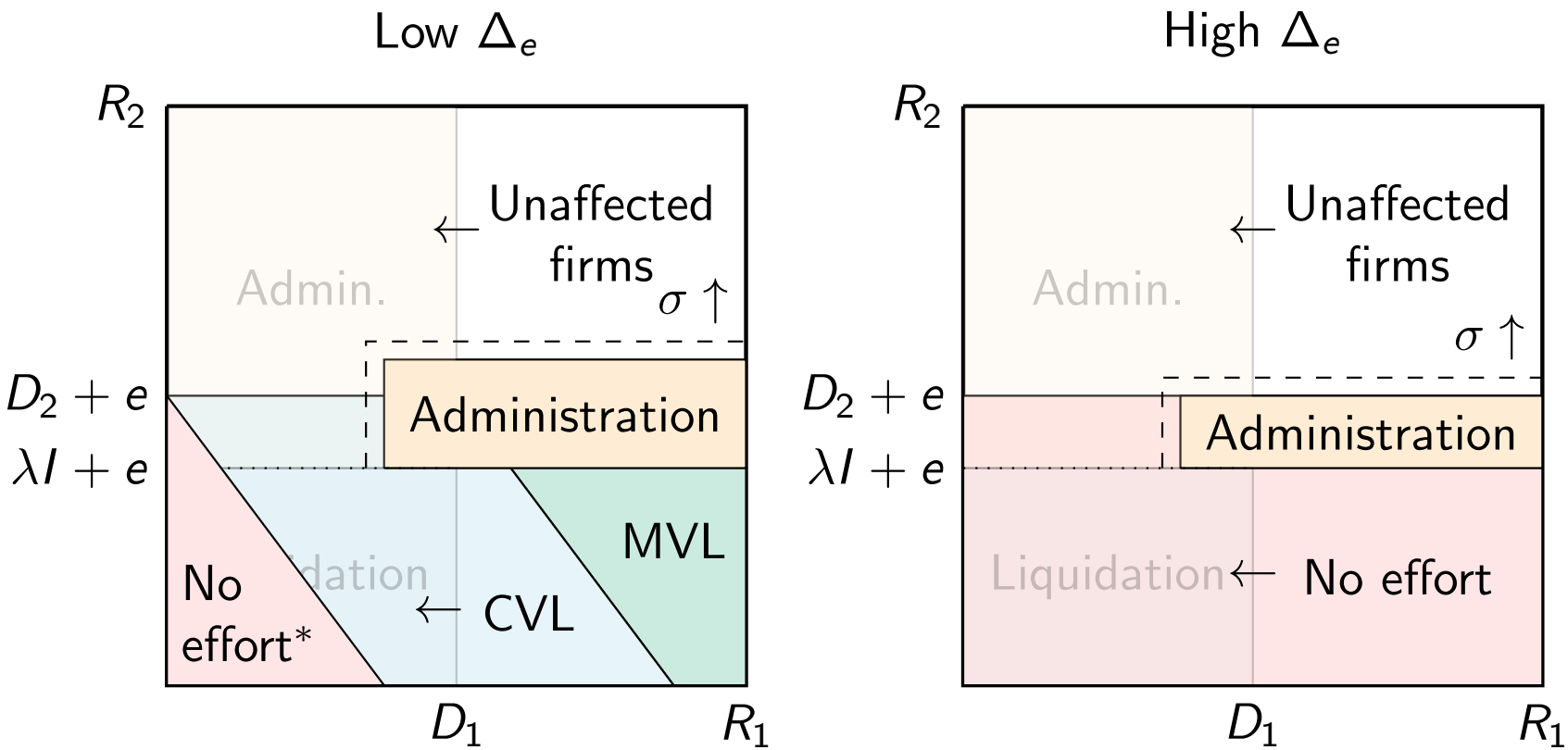
MVL = Members Voluntary Liquidation, CVL = Creditors Voluntary Liquidation.

*No effort because liquidation payoff plus outside option wage $< \Delta_e$.

Changes to insolvency regime in 2020

Implementation: creditors cannot force insolvency

Prediction 1: Administration declines, forced liquidations decline.



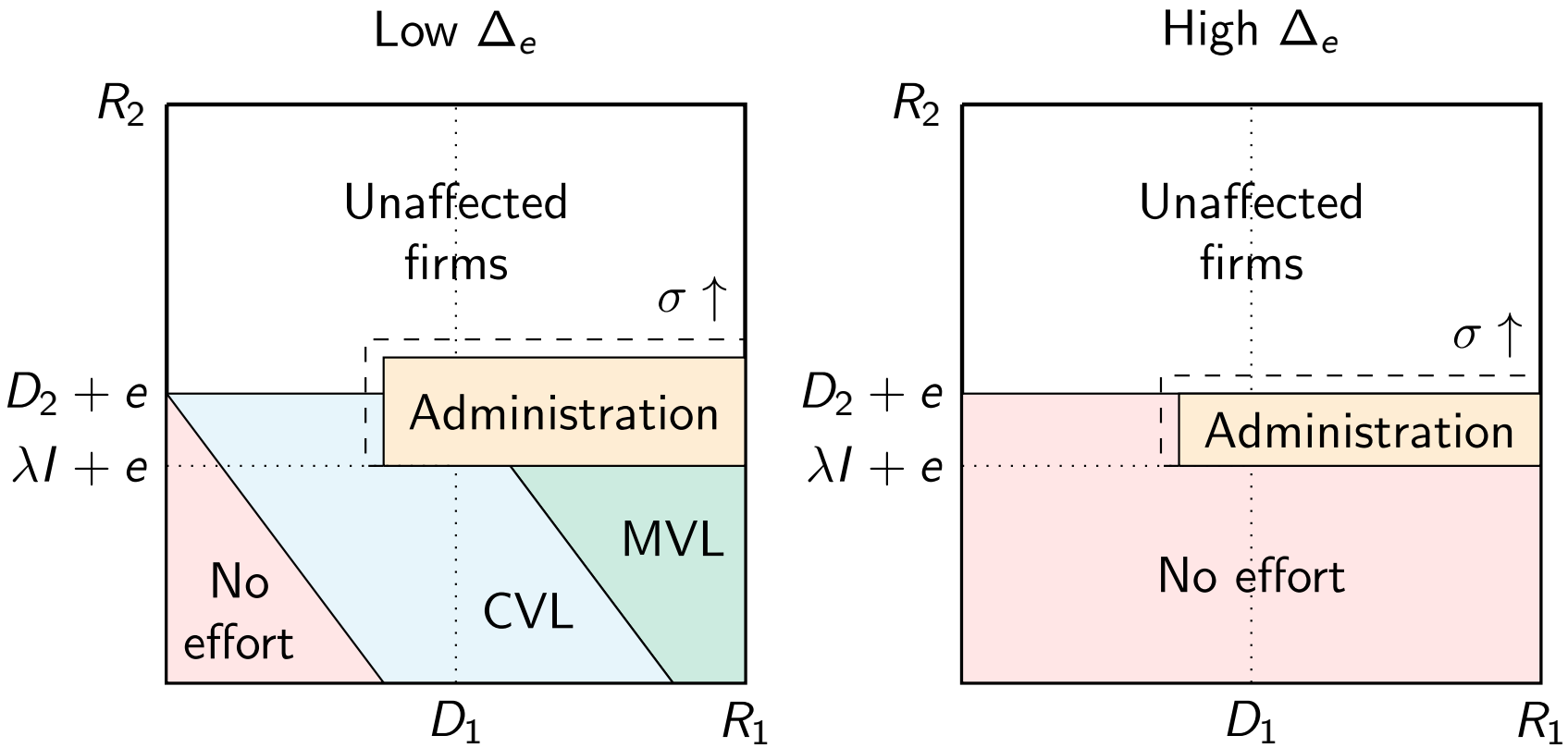
MVL = Members Voluntary Liquidation, CVL = Creditors Voluntary Liquidation.

*No effort because liquidation payoff plus outside option wage $< \Delta_e$.

Guaranteed loans and government assistance

Implementation: transfer G to the firm in $t = 1$

Prediction 2: Members Voluntary Liquidation rises.

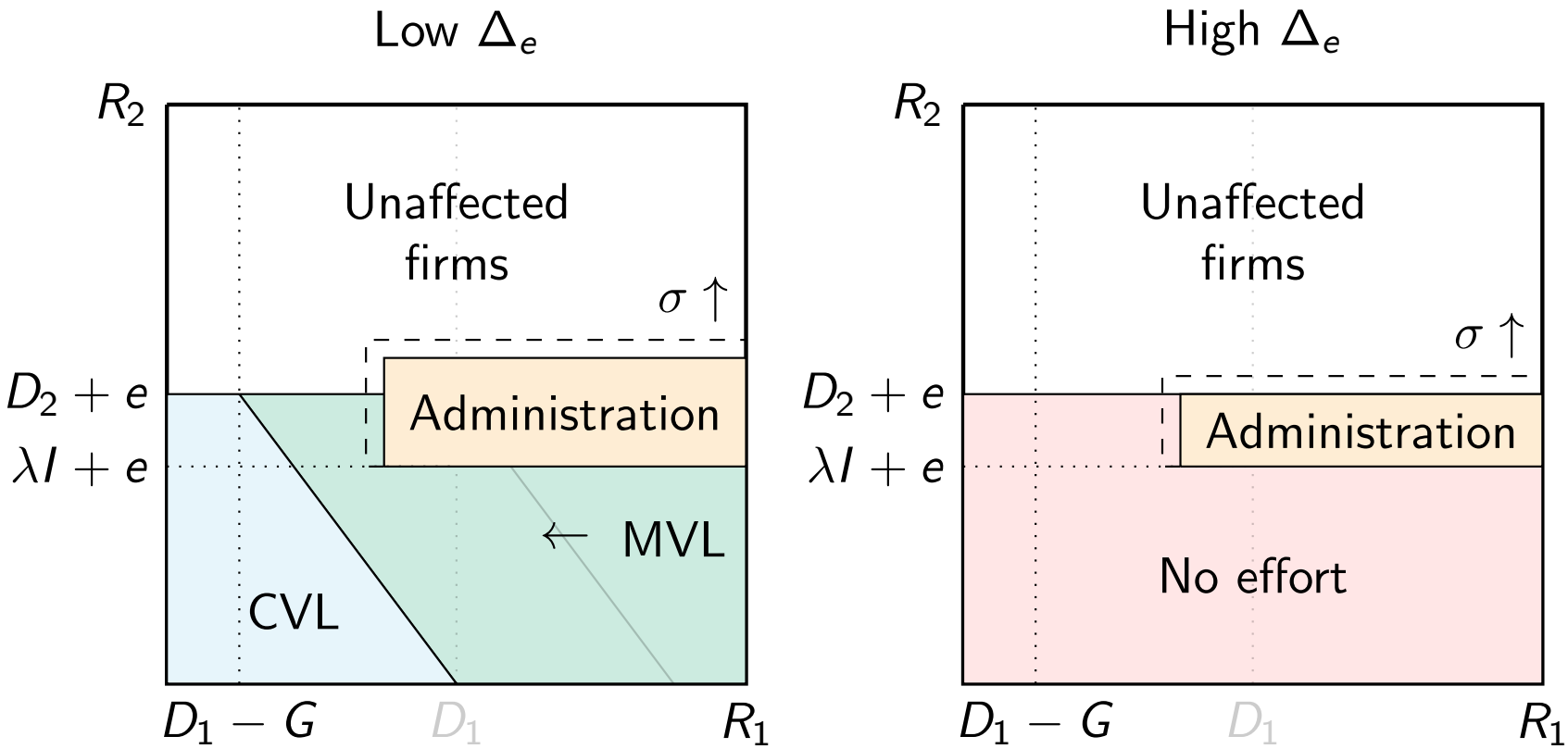


⏩ Details on loan schemes

Guaranteed loans and government assistance

Implementation: transfer G to the firm in $t = 1$

Prediction 2: Members Voluntary Liquidation rises.

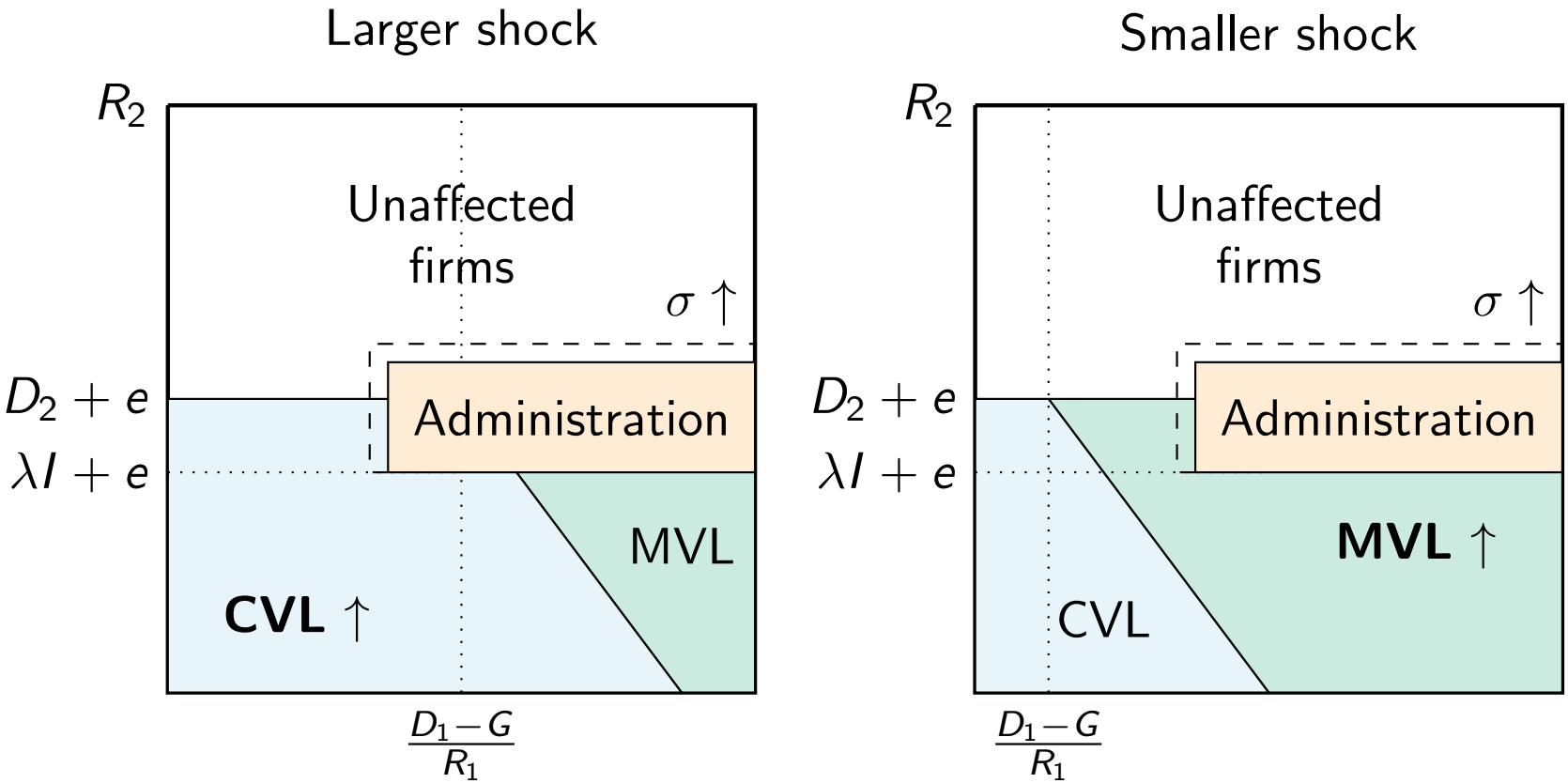


⏩ Details on loan schemes

Shock size relative to assistance affects liquidation mode

Implementation: vary relative size of R_1 and G.

Prediction 3: Larger shock implies more CVL, less MVL (among low Δ_e).



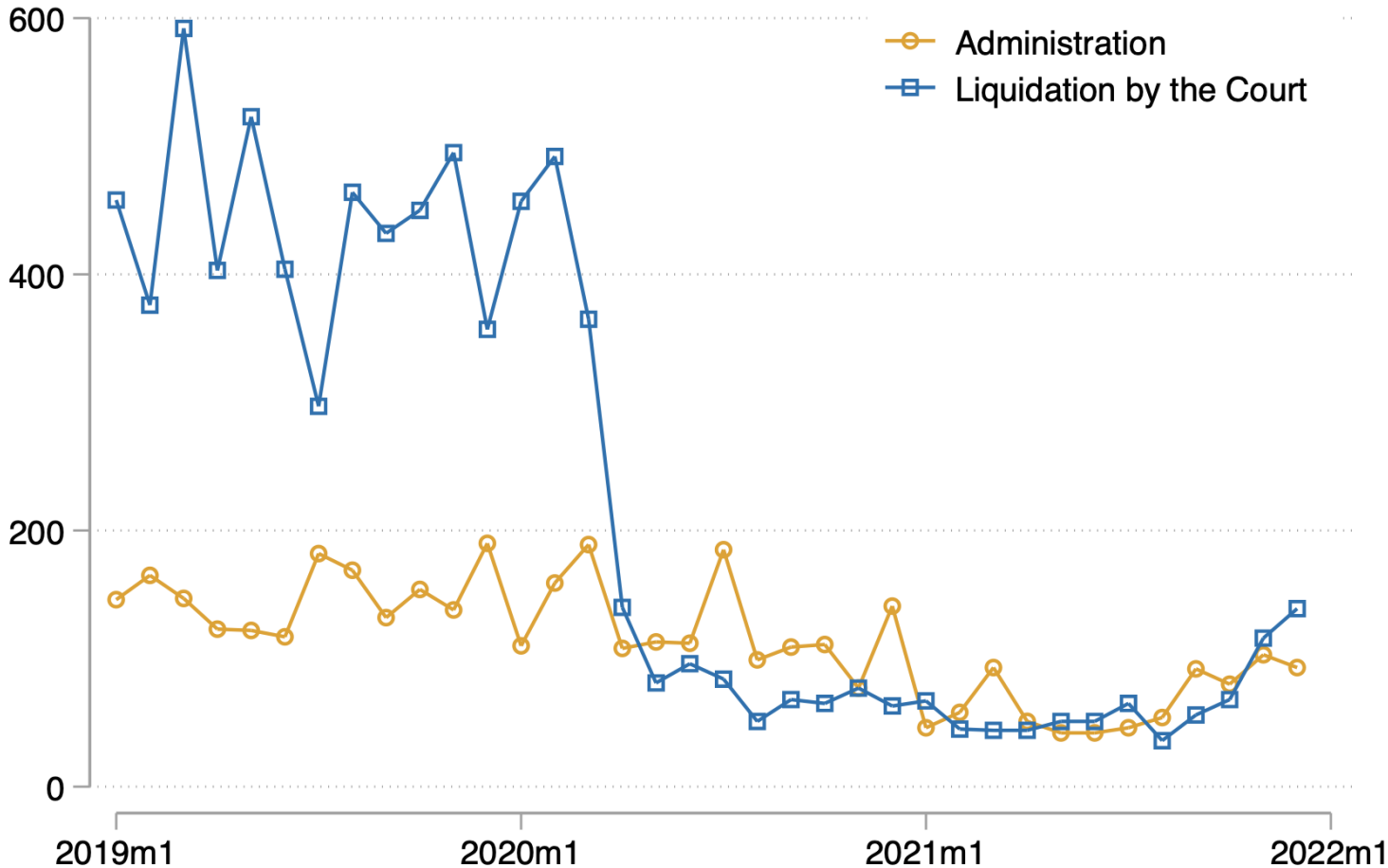
⏩ Industry patterns ⏩ Regional patterns ⏩ Conclusion

Empirical results

Changes to insolvency regime in 2020

Implementation: creditors cannot force insolvency

Prediction 1: Administration declines, forced liquidations decline.



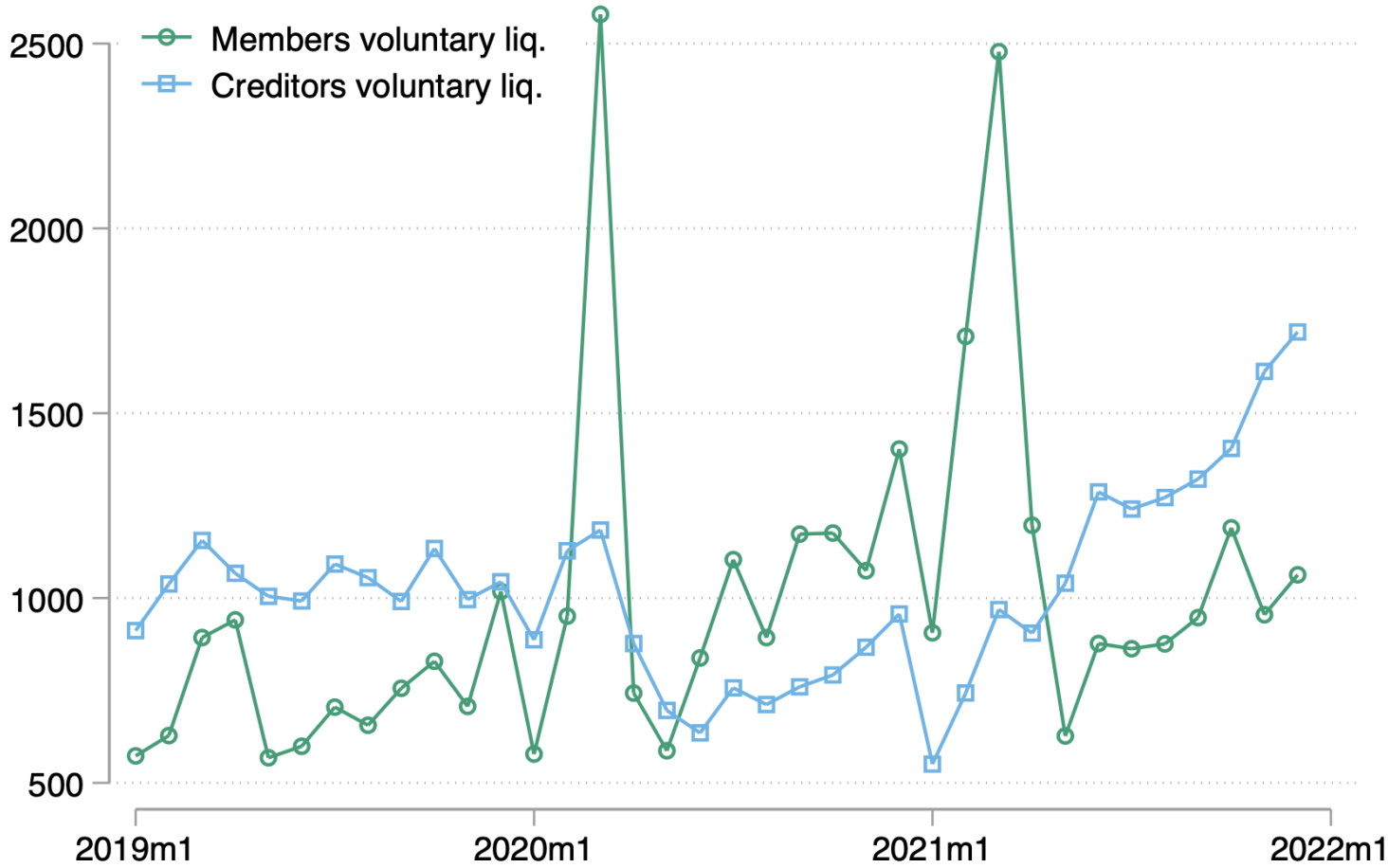
Source: The Gazette. Notes: multiple notices by same firm counted as one.

⏩ Regional patterns (not very informative)

Guaranteed loans and government assistance

Implementation: transfer G to the firm in $t = 1$

Prediction 2: Members Voluntary Liquidation rises.



Source: The Gazette.

Corollary: Larger shock (less G) implies CVL ↑, MVL ↓.

Model

Three empirical tests

1. **Coronavirus Job Retention Scheme** (CJRS, aka "furlough"):
   Insolvency filings (relative to 2019) in industry i, county c:

$$\Delta Insolvencies_{i,c} = \alpha + \beta Furlough_{i,c} + \gamma_c + \delta_i + \varepsilon \quad (1)$$

   where:
   - Furlough is measured in 1000s of employees, averaged over time
   - γ_c is a county fixed effect, δ_i is an industry fixed effect

2. **Guaranteed loan schemes** (BBLS and CBILS):
   Insolvency filings (relative to 2019) in county c:

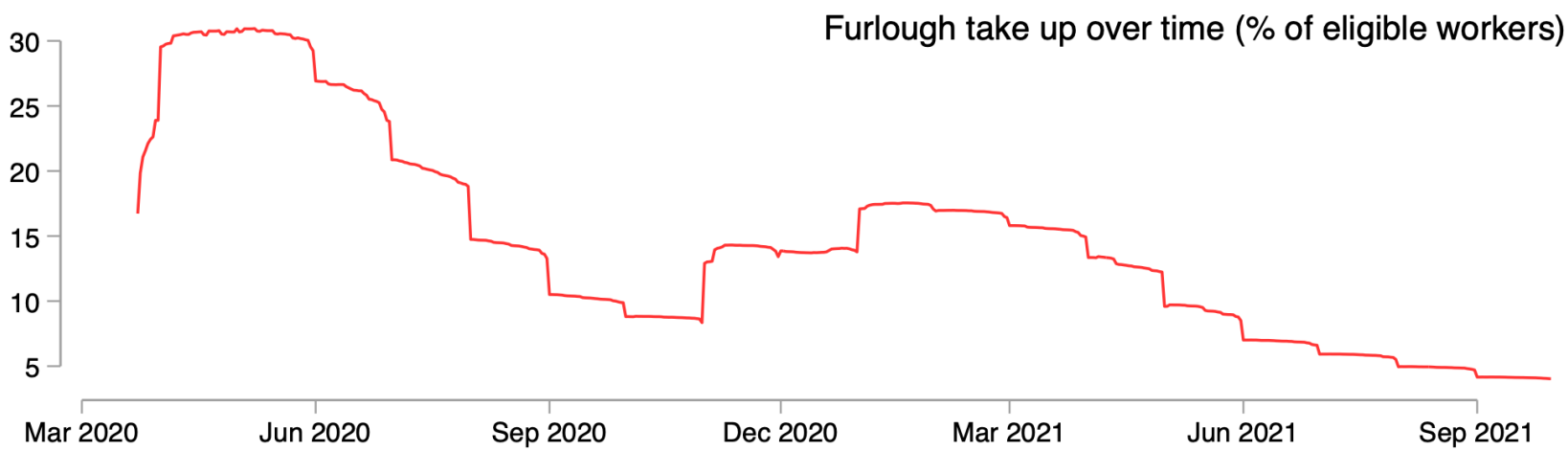
$$\Delta Insolvencies_{i,c} = \alpha + \beta Loans_{i,c} + GDP_{2019} + \varepsilon \quad (2)$$

   where loans are measured as a % of regional GDP in 2019

3. **Explore differences across regions and industries**
   - In modes of insolvency (e.g. MVL, CVL, etc.)
   - In rates of insolvency relative to historical levels

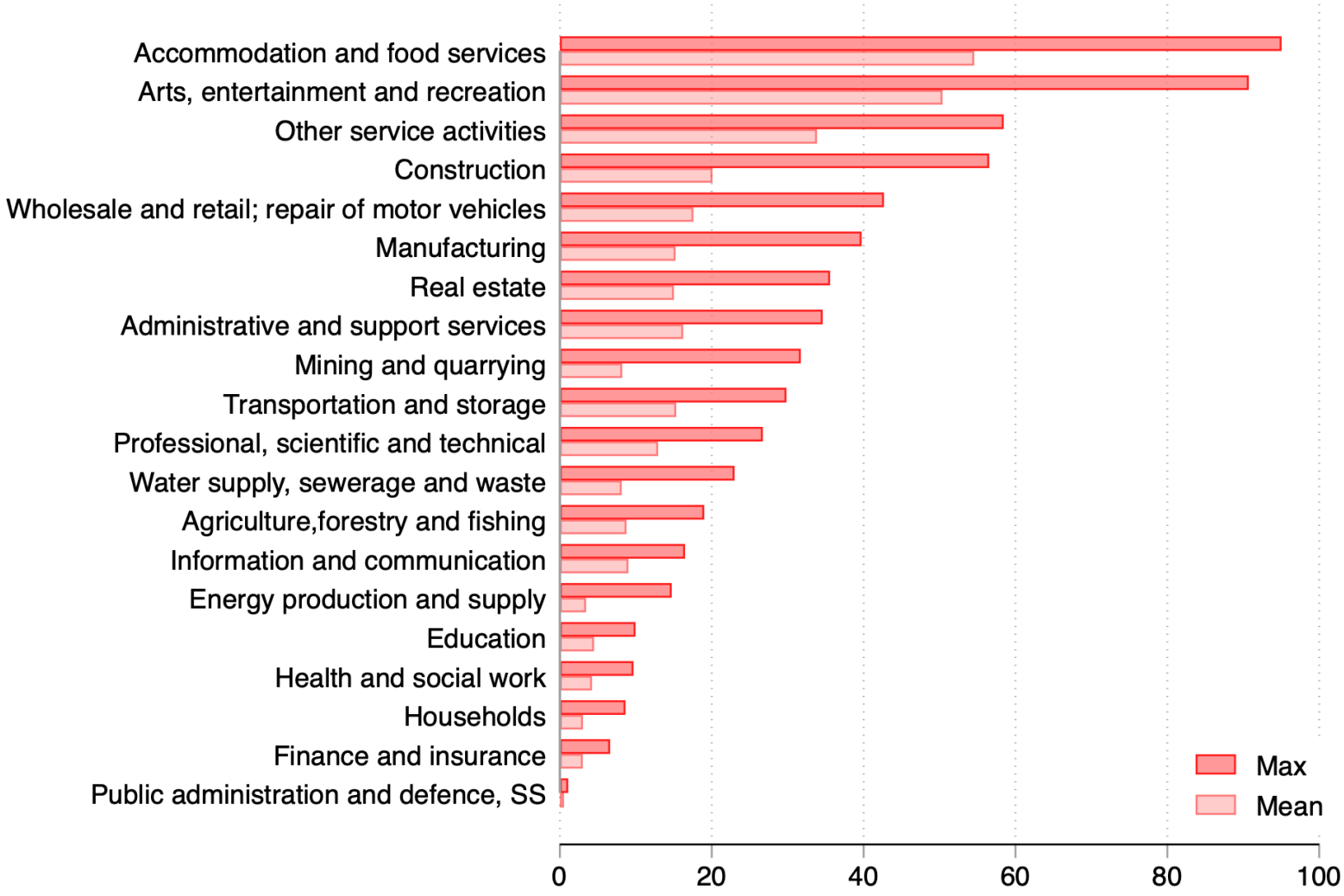
Coronavirus Job Retention Scheme

1. Initially set at 80% of salary up to £2,500 per month
   - Government pays employers for hours **not** worked
   - Also pays national insurance and pension contributions
2. Contributions reduced from August 2020
   - Employers make national insurance and pension contributions
   - Government support reduced to 70% in September, 60% in October
3. Government contributions increase to 80% in November 2020
   - Support reduced by 10% in July 2021 and 10% more in August
   - Employers contribute gap to 80%, program ends in September



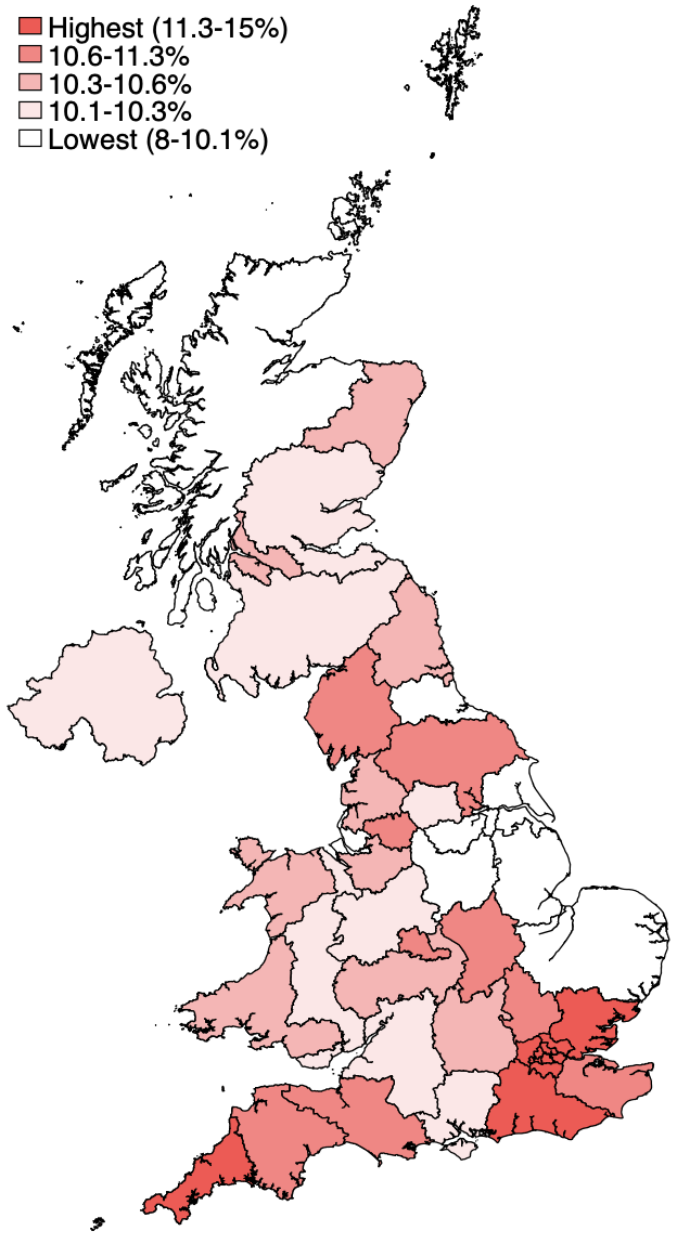
Furlough take up across industries

% of eligible workers, over time



Regional variation in furlough take up

% of eligible workers, average over time



Furloughed employees predicts lower insolvencies

Insolvency filings (relative to 2019) in industry i, county c:

$$\Delta Insolvencies_{i,c} = \alpha + \beta Furlough_{i,c} + \gamma_c + \delta_i + \varepsilon \quad (3)$$

where:

- Furlough is measured in 1000s of employees, averaged over time
- γ_c is a county fixed effect, δ_i is an industry fixed effect

Dependent variable: all insolvency notices

	2020		2021	
	(1)	(2)	(3)	(4)
Furlough	-1.65**	-1.74**	-1.96**	-1.72*
	(0.72)	(0.68)	(0.73)	(0.91)
County fixed effects	Y		Y	
Industry fixed effects		Y		Y
Observations	4,416	4,416	4,416	4,416
R-squared	0.17	0.07	0.19	0.05

Notes: Counties refer to 379 local authority districts. Industries are reduced to 12 which is the level at which furlough data is available. Standard errors clustered at the industry level. Significance follows $^{*}p < 0.1, ^{**}p < 0.05, ^{***}p < 0.01$.

Primary guaranteed loans programmes

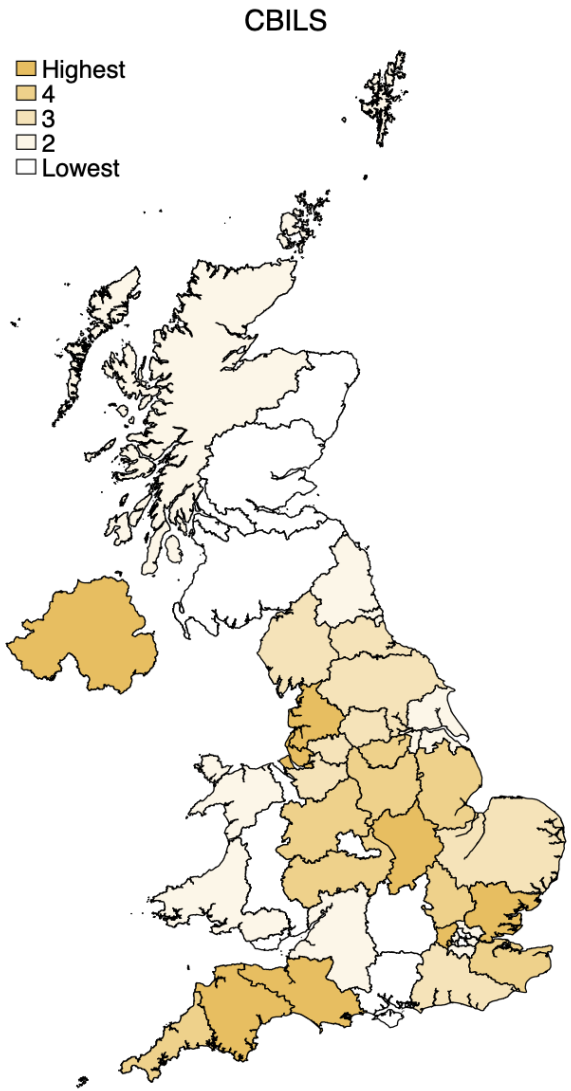
1. **Bounce Back Loan Scheme (BBLS): 60% of total**
   - Loans of up to 25% of sales from 2-50k
   - 100% guaranteed, no fees or interest for 12 months
   - After 12 months, 2.5% interest, loan terms of 6 years
2. Coronavirus Business Interruption Loan Scheme (CBILS)
   - Loans of 25% of sales, up to 200m
   - 80% guaranteed, variable interest that gov't pays for 12 months
   - 3-6 year maturities, depending on loan type

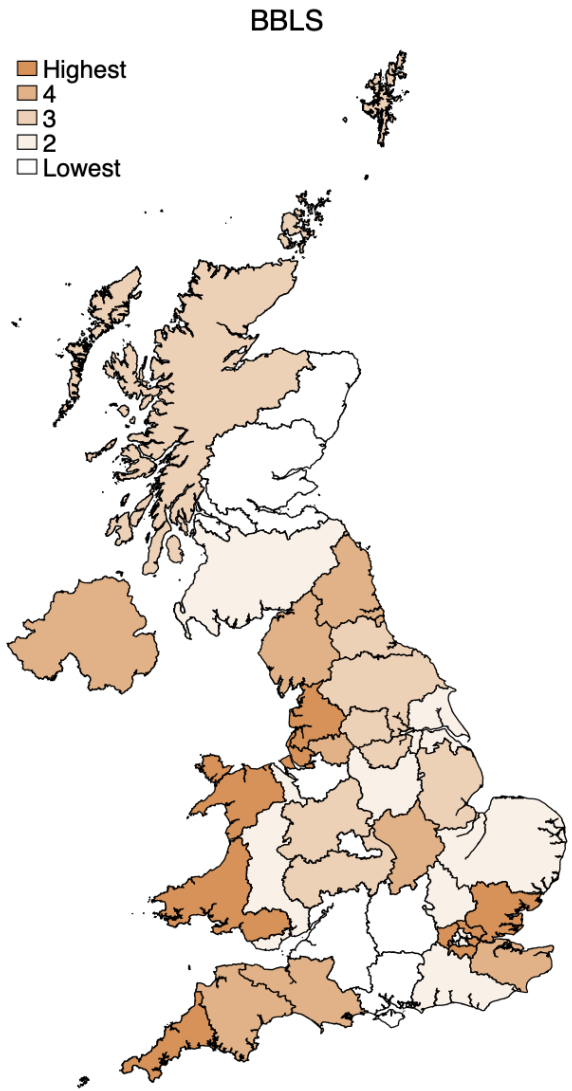
	Value of loans (bn)	Approval rate (%)	Average loan size
BBLS	47.4	74	30,353
CBILS	26.4	44	240,178
CLBILS*	5.6	65	7,383,798

Notes: Coronavirus Large Business Interruption Loan Scheme (CLBILS) is structured similarly to the CBILS, for companies with annual turnover of over £45 million.

◂ Eligibility thresholds

CBILS and BBLS are up to 2 and 5% of local GDP





Note: Measure is value of total loans relative to GDP.

Back

More guaranteed loans predicts lower insolvencies

Insolvency filings (relative to 2019) in county c:

$$\Delta Insolvencies_{i,c} = \alpha + \beta Loans_{i,c} + GDP_{2019} + \varepsilon \quad (4)$$

where loans are measured as a % of regional GDP in 2019.

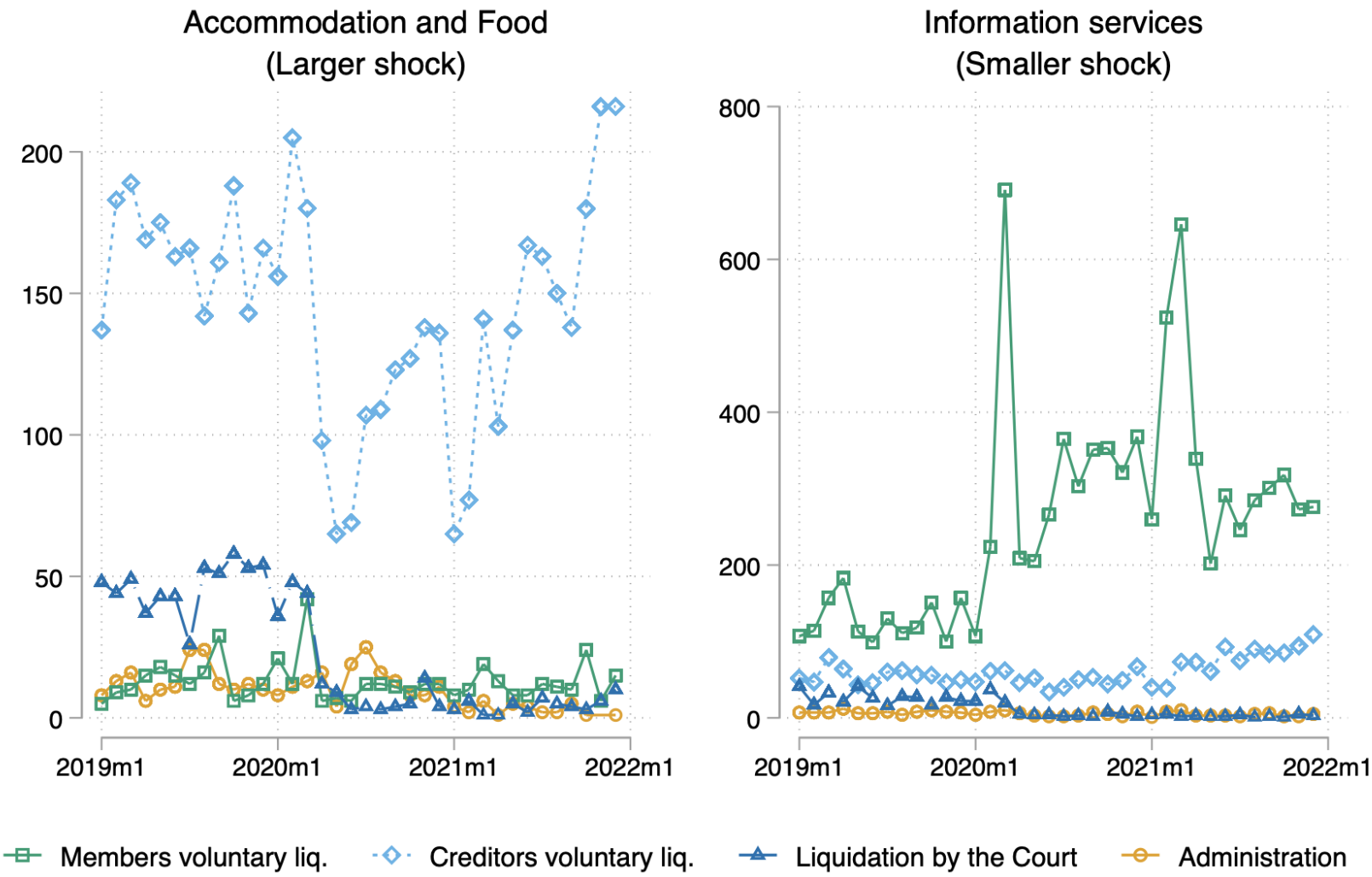
Dependent variable: all insolvency notices

	2020		2021	
	(1)	(2)	(3)	(4)
CBILS	-185.56		-647.71*	
	(277.17)		(339.56)	
BBLS		-310.58**		-453.44**
		(142.88)		(178.24)
$GDP_{c,2019}$	-500.35***	-539.05***	-666.60***	-689.91***
	(145.06)	(140.86)	(245.44)	(242.91)
Observations	378	378	378	378
R-squared	0.10	0.11	0.08	0.08

Notes: Counties refer to 379 local authority districts. Significance follows $^{*}p < 0.1, ^{**}p < 0.05, ^{***}p < 0.01$.

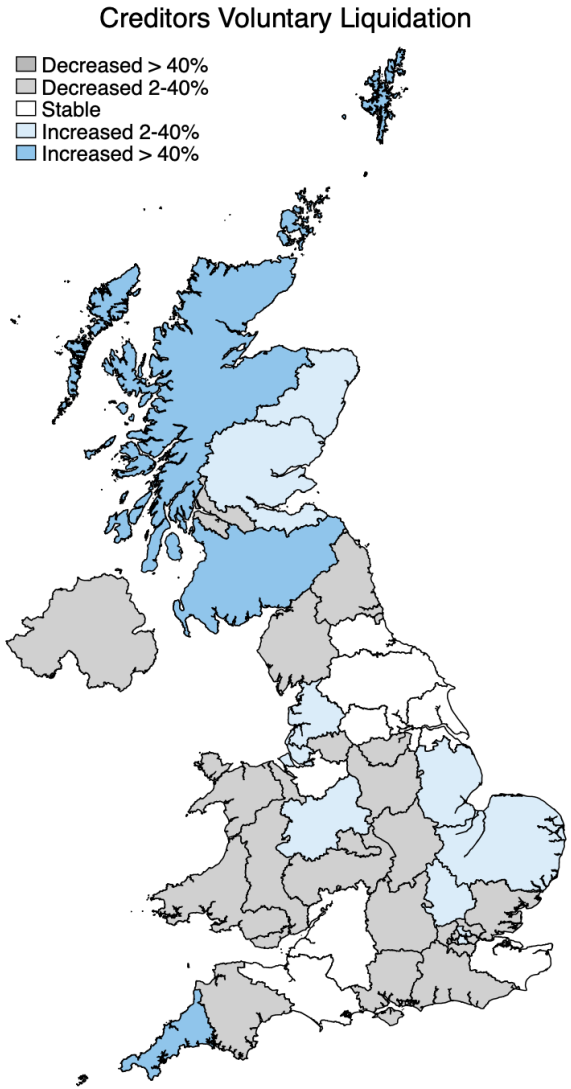
Remaining slides: differences between insolvency modes (e.g. MVL, CVL)

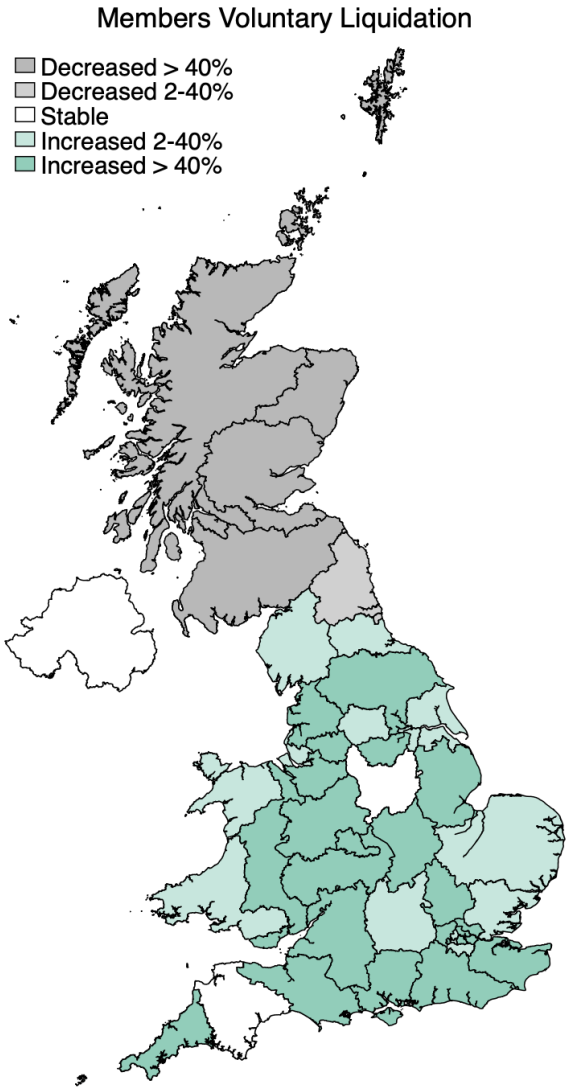
Larger shocks affect liquidation mode (CVL vs MVL)



Source: The Gazette.

Regional patterns in CVL and MVL

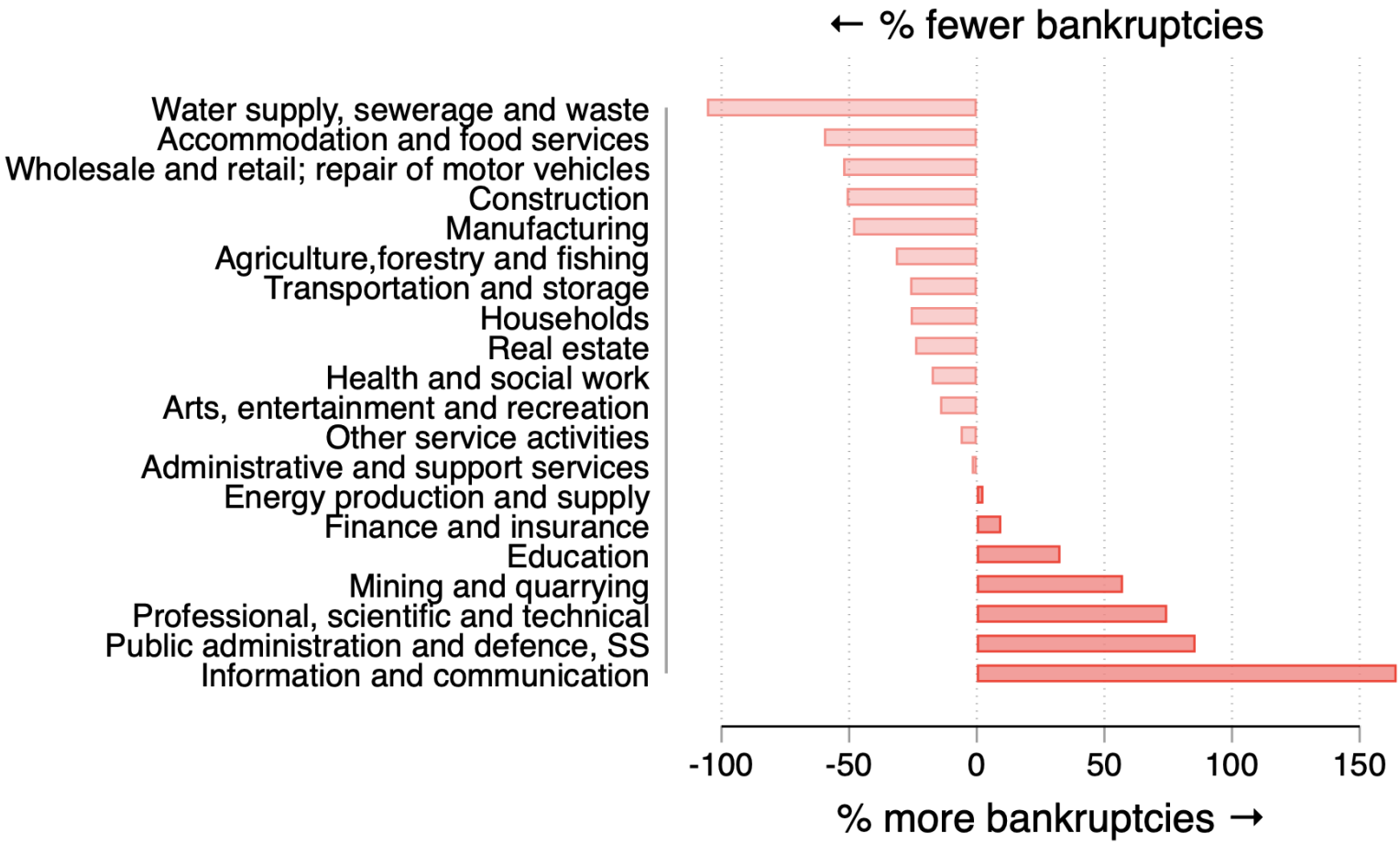




Note: 2020 and 2021 average, relative to 2019.

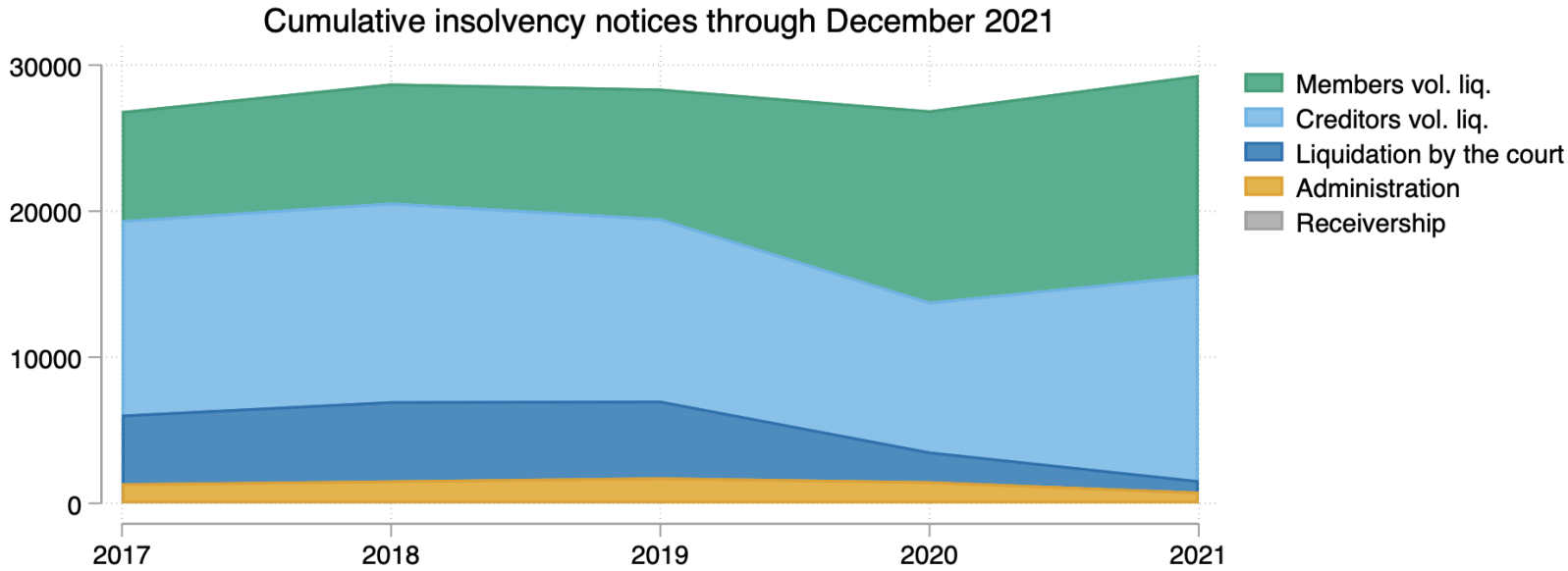
⏩ Mobility Data ⏩ Furlough ⏩ CBILS/BBLS

Industry level insolvencies relative to 2019 (%)



Conclusion: widespread bankruptcies yet to emerge

Insolvencies have nonetheless picked up in recent months



1. Government assistance seems to have succeeded
   - Preserves organizational capital, supplier links, etc.
2. One potential concern is whether assistance was too generous
   - Future concerns regarding debt overhang, risk, and imbalances
3. If forced liquidations are particularly costly, are MVLs better?
   - Rise of CVLs over 2021 indicates shift away from solvency

Thank you!

Related literature

1. Insolvency and corporate finance
   - Direct costs (Altman, 1984; Weiss, 1990) and indirect costs (Altman, 1984; Opler and Titman, 1994; Bris, Welch, and Zhu, 2006; Almeida and Philippon, 2007)
   - Restructuring vs liquidation tradeoffs (Corbae and D'Erasmo, 2017)
   - Congestion in bankruptcy courts (Iverson, 2018) and inefficient bankruptcy (Antill, 2021)

2. Covid impact on SMEs
   - Widespread financial distress and policy options (Greenwood, Iverson, and Thesmar, 2020)
   - Potential amplification (Guerrieri, Lorenzoni, Straub, Werning, 2020)
   - Process-light bankruptcy and restructuring (Blanchard, Philippon, and Pisany-Ferry, 2020; Stein et. al. 2020)

◂ What we find

Data sources

1. The Gazette
   - Notices between 2016 (July) - 2021 (October)

2. FAME
   - All active companies or dissolved after 2016
   - General information: industry, type, legal form, date of incorporation
   - Historical notices statistics

3. Others
   - Google Mobility Data
   - HMRC furlough program
   - British Business Bank: BBLS, CBILS

Organisational capital and suppliers

Liquidation value $\lambda \leq 1$ captures "organisational capital":

- Value of existing business exceeds sum of parts
- Systemic distress lowers liquidation values
- Fire sale dynamics more pronounced in specialised industries[2]

Suppliers earn private benefits Δ_s in $t = 2$

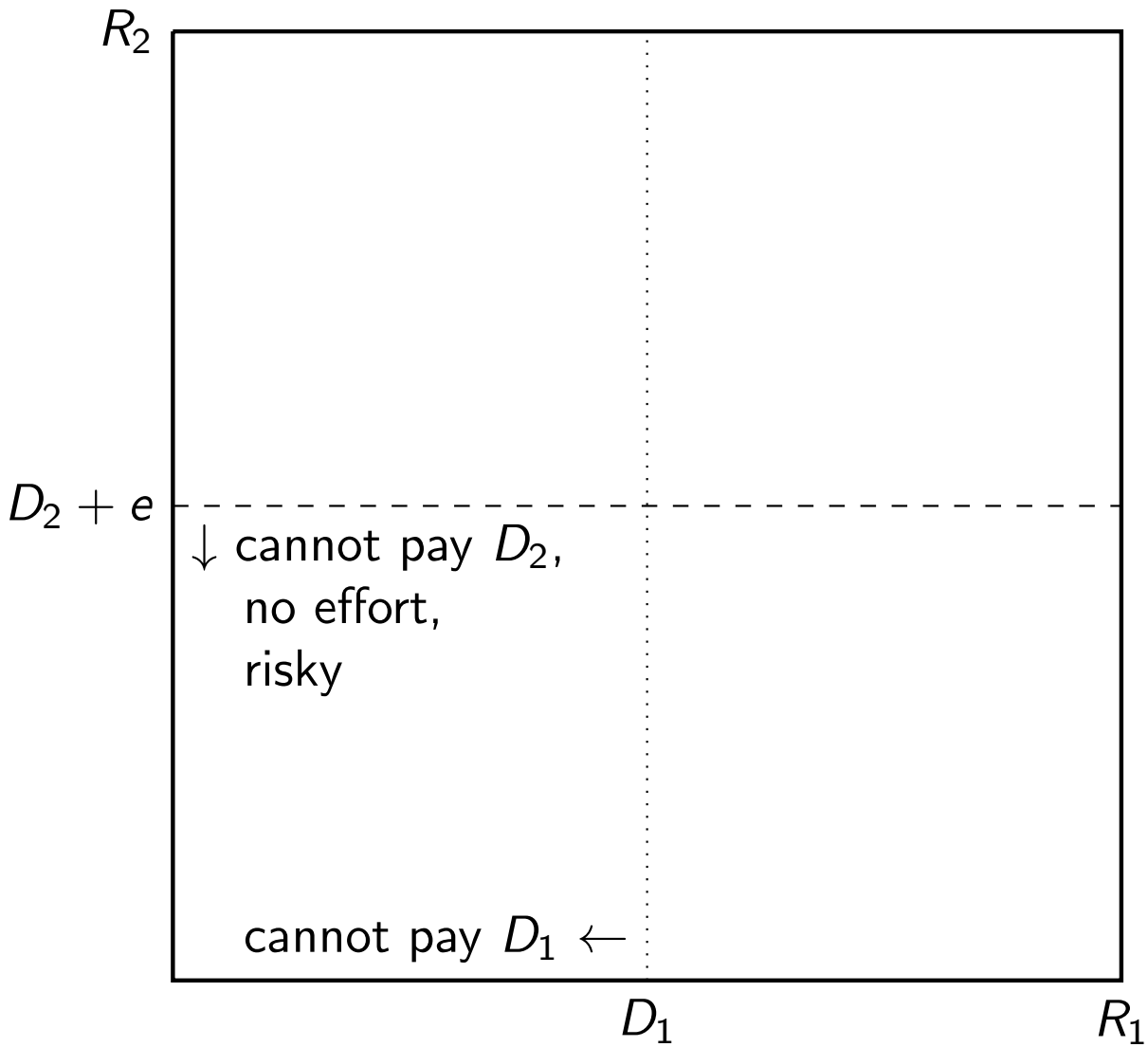
- Creditors do not internalize network effects in restructuring
- Indicates scope for policy

Back

[2] Acharya, Bharath, Srinivasan, 2007; Williamson, 1988; Shleifer and Vishny, 1992

Entrepreneurs' debts, efforts, and risk

If $(1-p)R_2 \geq e$, relevant incentive constraint is $R_2 \geq D_2 + e$ $\quad (IC_{LL})$



Entrepreneurs' incentive constraint

Entrepreneurs' incentive constraint:

$$R_2 - D_2 - e \geq \max\{pR_2 - D_2, 0\} \tag{5}$$

which can be rearranged to get:

$$R_2 \geq \frac{e}{1-p} \tag{IC_e}$$

$$R_2 \geq D_2 + e \tag{IC_{LL}}$$

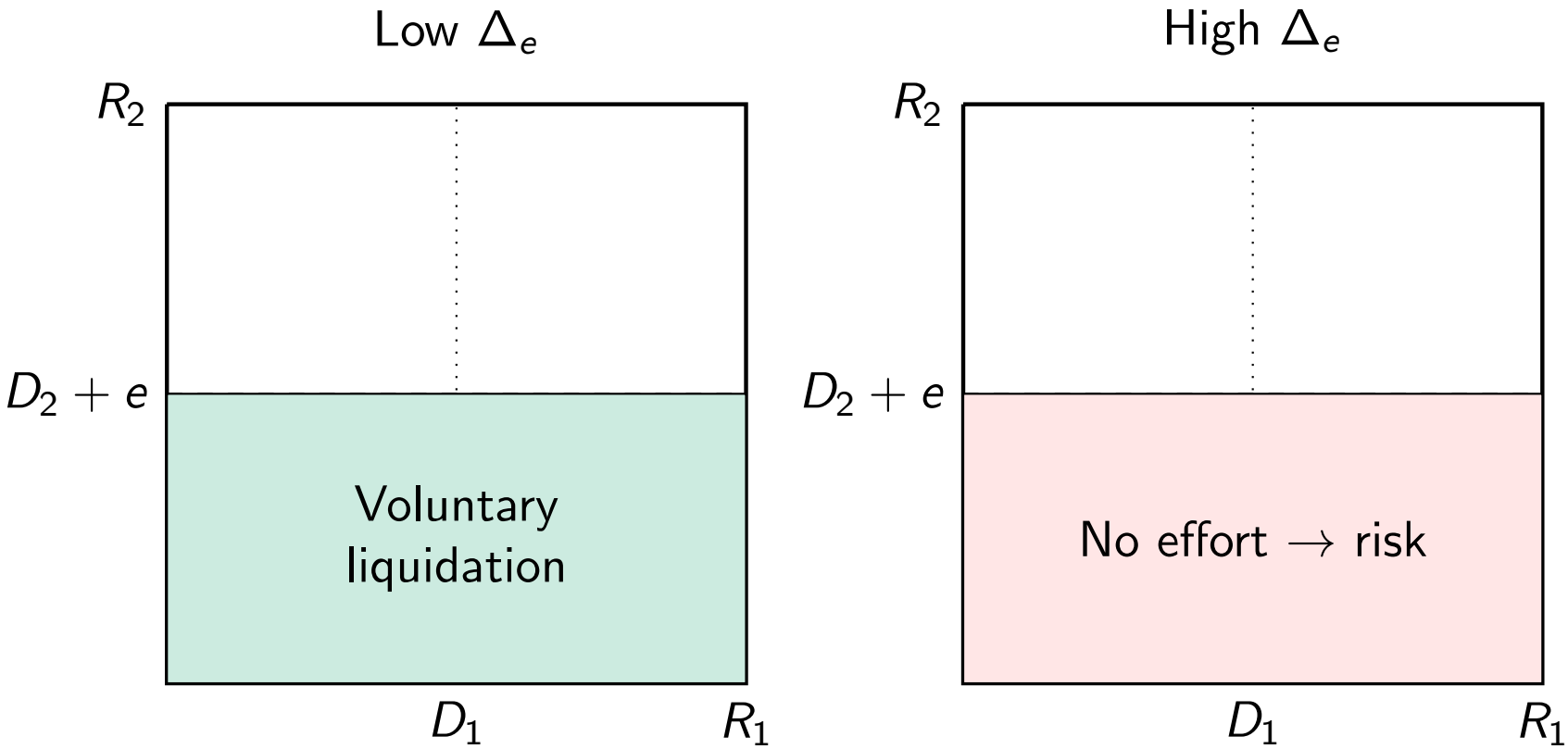
where for $D_2 \geq ep/(1-p)$ only (IC_{LL}) binds.

Expected profits:

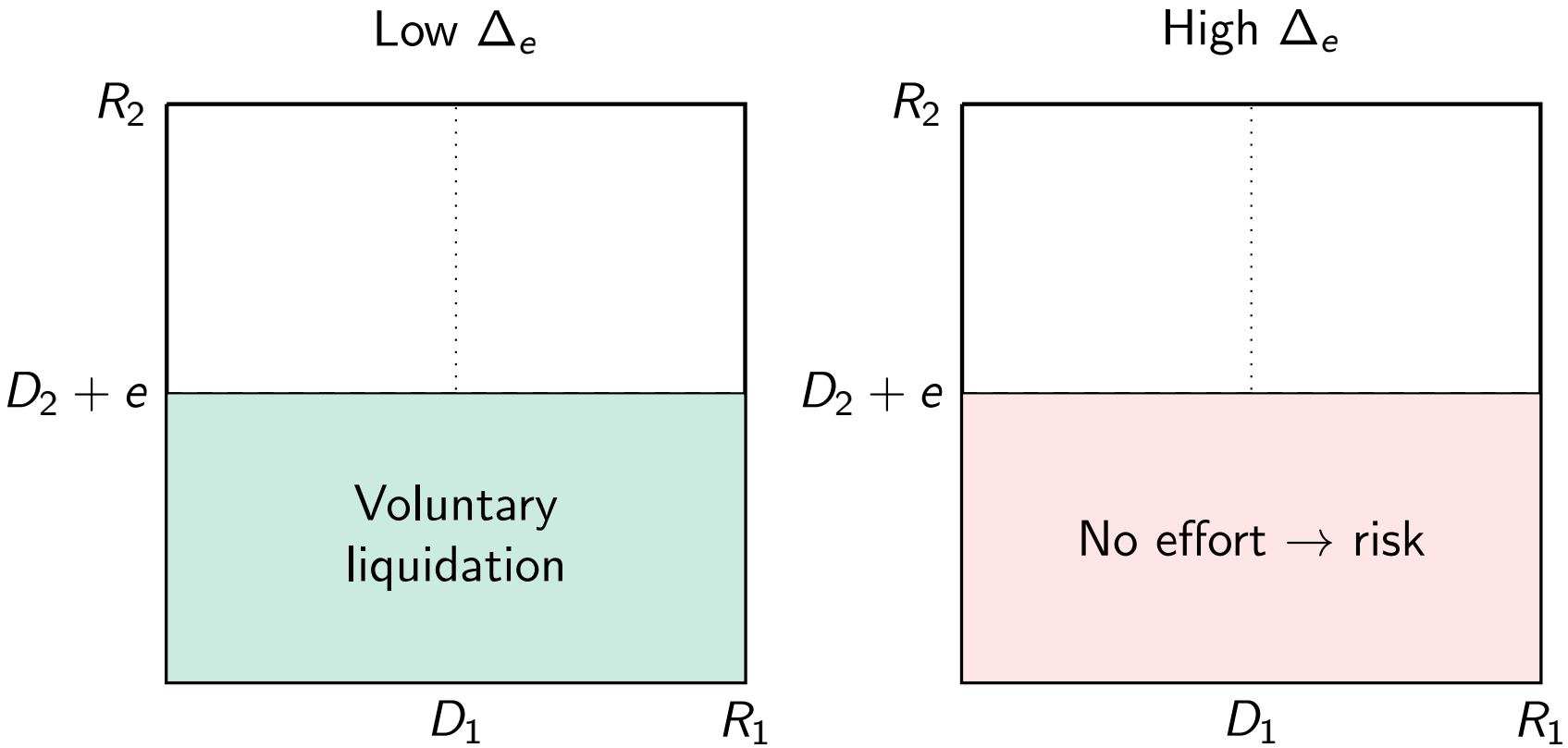
$$\mathbb{E}[\Pi_e] = \max\{\underbrace{R_2 - D_2 - e}_{\text{Return to effort}}, \underbrace{pR_2 - D_2}_{\text{Risky return}}, \underbrace{0}_{\text{Limited liability}}\} + \underbrace{\Delta_e}_{\text{Private benefit}}$$

Back

Entrepreneurs' debt repayment, effort, and liquidation



Entrepreneurs' debt repayment, effort, and liquidation



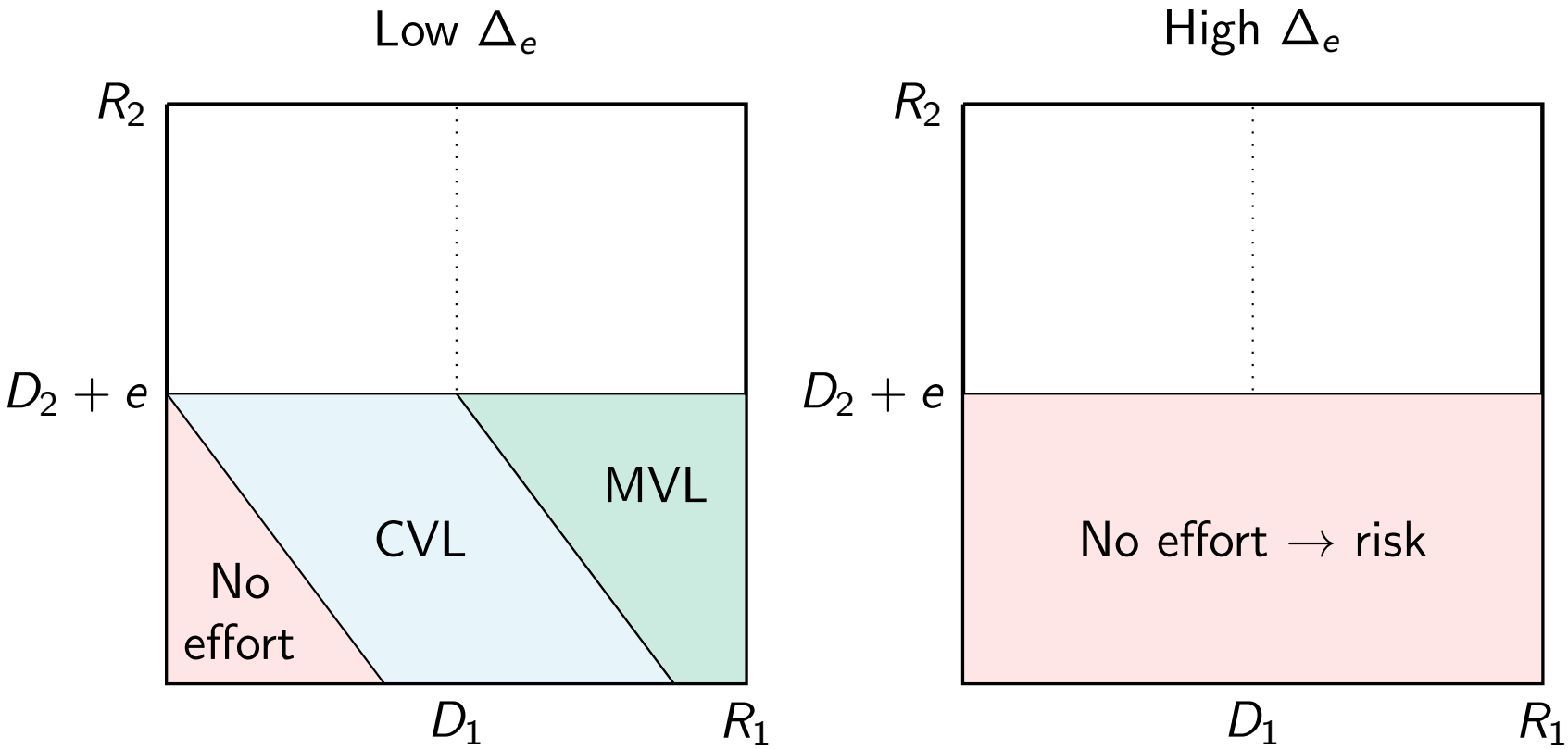
Voluntary liquidation pays entrepreneur: $\lambda I - (D_2 + \max\{D_1 - R_1, 0\})$

- Positive payoff: Members Voluntary liquidation (MVL)
- Negative payoff: Creditors Voluntary liquidation (CVL)

When payoff $+ \omega < \Delta_e$, no effort $\rightarrow$ risk.

IC Back

Entrepreneurs' debt repayment, effort, and liquidation



Voluntary liquidation pays entrepreneur: $\lambda I - (D_2 + \max\{D_1 - R_1, 0\})$

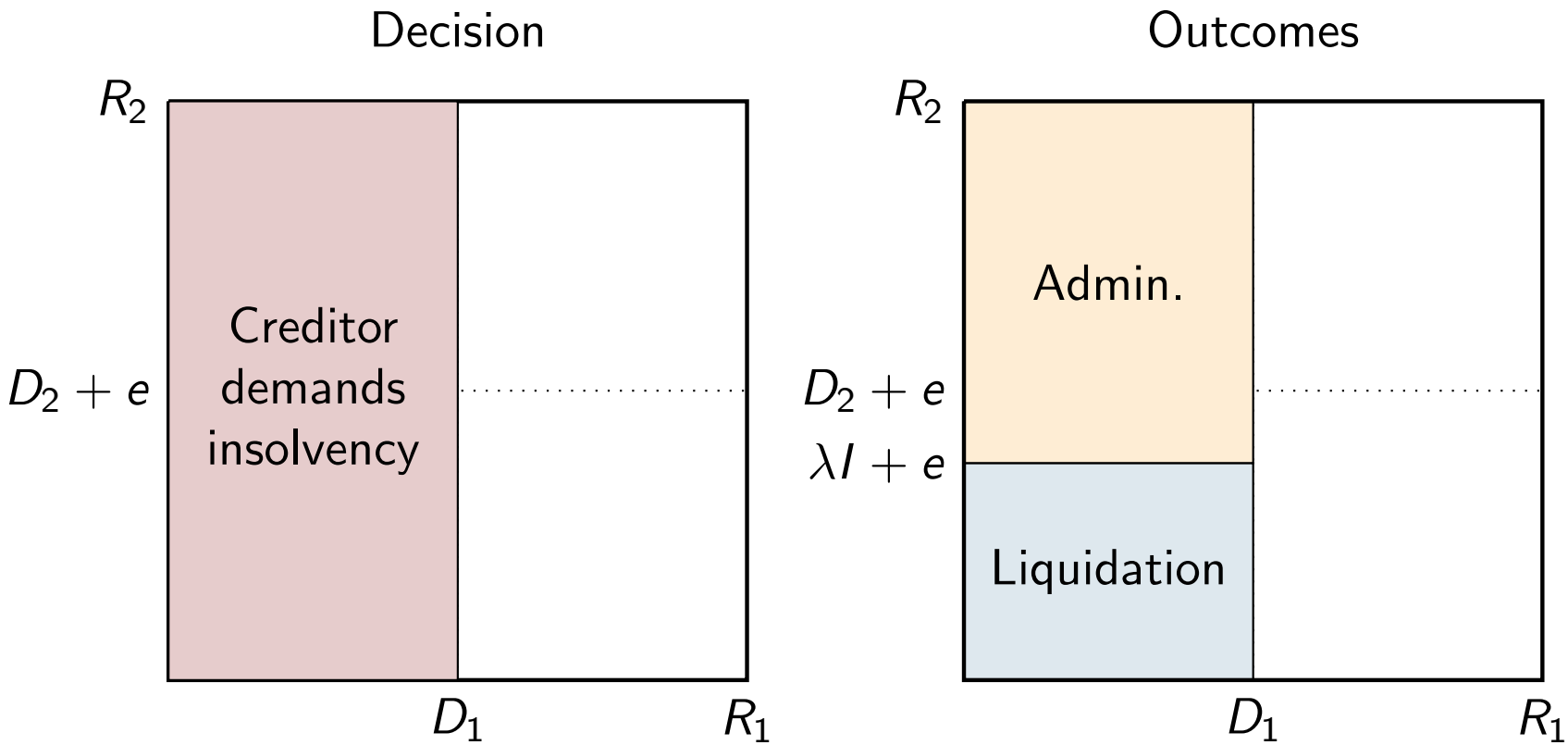
- Positive payoff: Members Voluntary liquidation (MVL)
- Negative payoff: Creditors Voluntary liquidation (CVL)

When payoff $+ \omega < \Delta_e$, no effort $\rightarrow$ risk.

IC Back

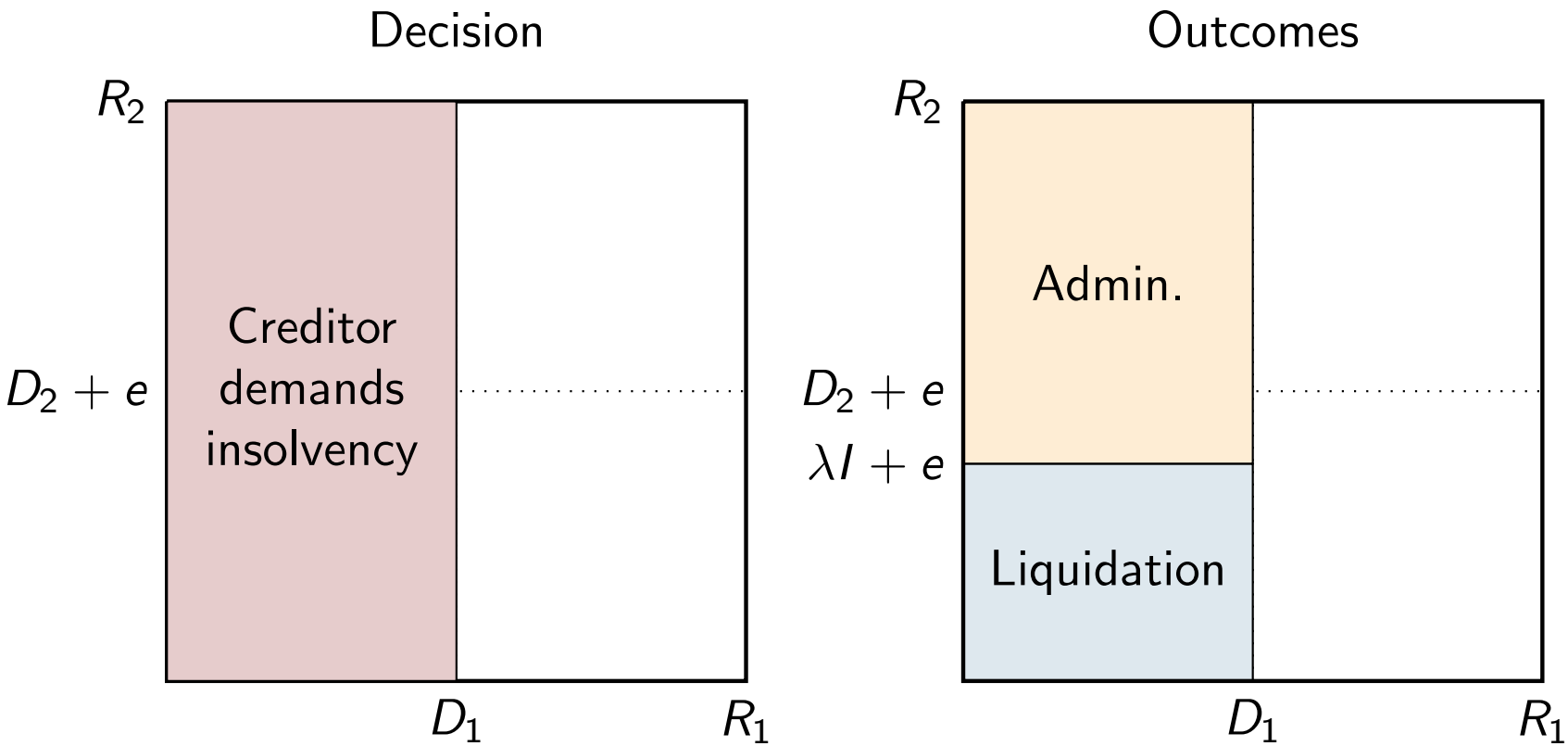
Creditor can demand insolvency if $R_1 < D_1$

Liquidates if $R_2 \leq \lambda I + e$, otherwise restructures.



Creditor can demand insolvency if $R_1 < D_1$

Liquidates if $R_2 \leq \lambda I + e$, otherwise restructures.



Administration outcomes depend on bargaining power σ: Details

- $D_2' < D_2$ to restore incentives, or $D_2' > D_2$ to make creditors whole
- When $R_1 > D_1$, entrepreneurs may voluntarily restructure

Back

Entrepreneurs' voluntary liquidation

If $R_1 \geq D_1$, liquidation payoff is given by:

$$L_{e|R_1 \geq D_1} = \max\{\lambda I - D_2, 0\} + \omega$$

where λI is liquidation value, ω is outside wage.

If $R_1 < D_1$, liquidation payoff is given by:

$$L_{e|R_1 < D_1} = \max\{\lambda I - (D_2 + D_1 - R_1), 0\} + \omega$$

where any outstanding debts from $t = 1$ must also be repaid.

Voluntary liquidation if:

$$L_e \geq \mathbb{E}[\Pi_e]$$

◂ Back

Outcomes of administration depend on bargaining power

For $R_2 \geq \lambda I + e$, restructuring provides more payoff than liquidation.

Nash bargaining with debtor bargaining power σ:

$$D_2' = \sigma\lambda I + (1-\sigma)\max\{R_2 - e - \theta, D_1 - R_1 + D_2\}$$

where $\theta = \max\{L_e - \Delta_e, 0\}$ compensates low Δ_e firms for the outside option value of voluntary liquidation.

Note:

- Creditor earns λI from liquidating firm: if $\sigma = 1$ then $D_2' = \lambda I$
- If $\sigma = 0$, creditor is paid max(incentive compatibility, total debt)

Entrepreneur earns $R_2 - D_2' - e + \Delta_e$, in some cases seeks restructuring:

- To lower debt, and restore incentives or avoid liquidation

Back

Voluntary restructuring tradeoffs

Entrepreneur voluntarily restructures in three cases: if D_2'

1. Restores incentive compatibility:

$$R_2 - D_2' - e > \max\{pR_2 - D_2, 0\}$$

2. Improves on liquidation:

$$R_2 - D_2' - e + \Delta_e > L_e$$

3. Reduces debt, i.e. $D_2' < D_2$:

$$\sigma\lambda I + (1-\sigma)\max\{R_2 - e - \theta, D_1 - R_1 + D_2\} < D_2$$

which is possible if bargaining power is high.

Back

Consider polar cases

1. $\sigma = 1$. In this case, $D_2' = \lambda I$; entrepreneur earns $R_2 - \lambda I - e + \Delta_e$.
   - Restores incentive compatibility if $R_2 > \lambda I + e$.[3]
   - Improves on liquidation outcome if $R_2 - \lambda I - e + \Delta_e > L_e$
   - Reduces overall debt (by assumption)

2. $\sigma = 0$. In this case, $D_2' = \min\{R_2 - e - \theta, D_1 - R_1 + D_2\}$

   2.1 If $D_2' = R_2 - e$ then the creditor gets the whole surplus
   - If $\Delta_e \geq L_e$, entrepreneur will expend effort
   - If $\Delta_e < L_e$ then entrepreneur requires additional compensation
   - To be convinced not to liquidate: $\theta = L_e - \Delta_e$

   2.2 If $D_2' = D_1 - R_1 + D_2$ then the creditor is repaid in full
   - Any additional surplus goes to the entrepreneur
   - Incentive compatible: requires $R_2 - e - \theta < D_1 - R_1 + D_2$

Back

[3] and $R_2 > (\lambda I + e - D_2)/(1 - p)$, which we assumed is the case if $D_2 \geq ep/(1 - p)$

For what σ does administration imply a reduction in debt?

If debts can be fully repaid without causing incentive problems,[4] then renegotiated debt is lower than existing debt if:

$$D_2 \geq \sigma\lambda I + (1-\sigma)(D_1 - R_1 + D_2)$$

which can be rearranged to:

$$\sigma \geq \frac{D_1 - R_1}{D_1 + D_2 - R_1 - \lambda I} \tag{A1}$$

where σ must be at least this large for debt to fall in renegotiation.

If incentive problems limit the surplus available in renegotiations,[5] then:

$$\sigma \geq \frac{R_2 - e - \theta - D_2}{R_2 - e - \theta - \lambda I} \tag{A2}$$

where σ must be at least this large for debt to fall in renegotiation.

Back

[4] I.e. $D_1 - R_1 + D_2 \leq R_2 - e - \theta$

[5] I.e. $D_1 - R_1 + D_2 > R_2 - e - \theta$

Extensive margin of voluntary restructuring, case 1

Given σ, voluntarily restructuring can be characterised by R_1 and R_2.

Case 1: debts can be fully repaid (i.e. $D_1 - R_1 + D_2 \leq R_2 - e - \theta$):

$$\sigma \geq \frac{D_1 - R_1}{D_1 + D_2 - R_1 - \lambda I}$$

rearrange to get:

$$R_1 \geq D_1 - \frac{\sigma}{1 - \sigma}(D_2 - \lambda I)$$

when this holds, renegotiation decreases debt.

- If $\sigma = 0$, voluntarily restructure for $R_1 \geq D_1$
- As $\sigma \to 1$ this moves towards zero, everyone wants to renegotiate

Back

Extensive margin of voluntary restucturing, case 2

Case 2: incentive problems bind (i.e. $D_1 - R_1 + D_2 > R_2 - e - \theta$):

Start from the minimum σ that implies that renegotiation decreases debt:

$$\sigma \geq \frac{R_2 - e - \theta - D_2}{R_2 - e - \theta - \lambda I}$$

rearrange to get:

$$R_2 \leq \frac{D_2}{1-\sigma} + e + \theta - \frac{\sigma \lambda I}{1-\sigma}$$

where $\theta = \max\{L_e - \Delta_e, 0\}$, renegotiation decreases debt.

- If $\sigma = 0$, voluntarily restructure for $R_2 \leq D_2 + e + \theta$
- As $\sigma \to 1$ this moves up, everyone wants to renegotiate

Back

Corporate Insolvency and Governance Act 2020

Permanent measures updating UK insolvency regime

P1. Court-sanctioned restructuring with cross-class cram down

P2. Debt moratoria absent court permission for creditor action

P3. Suppliers cannot cut ties with insolvent businesses

Temporary measures to assist business during the pandemic

T1. Suspension of statutory demands, winding up petitions

T2. Eased requirements for moratorium procedure

T3. Small suppliers exempt from obligation to supply

T4. Suspension of directors' personal liability for wrongful trading

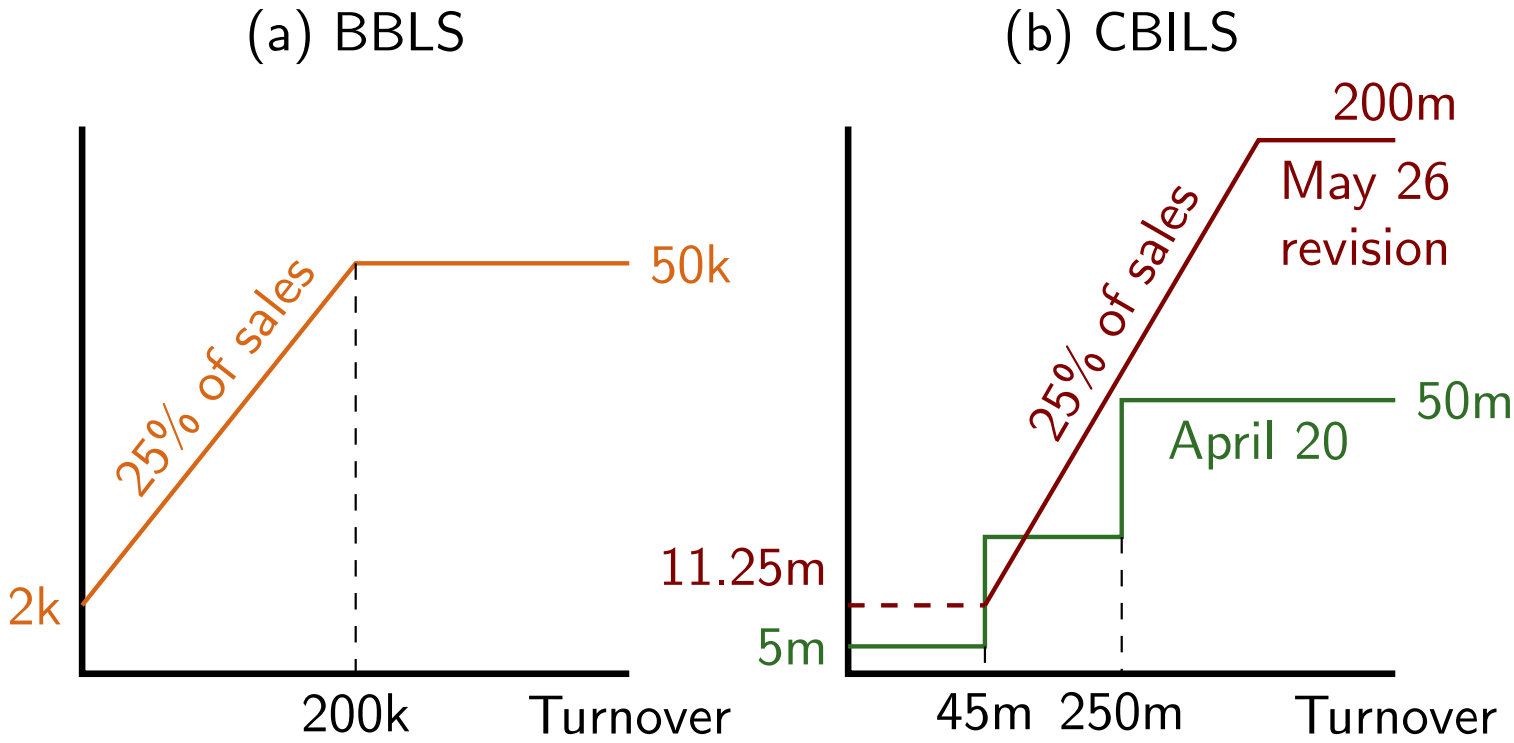
T5. Greater flexibility on annual meetings and Companies House filings

Back

Timing of new insolvency measures

Back

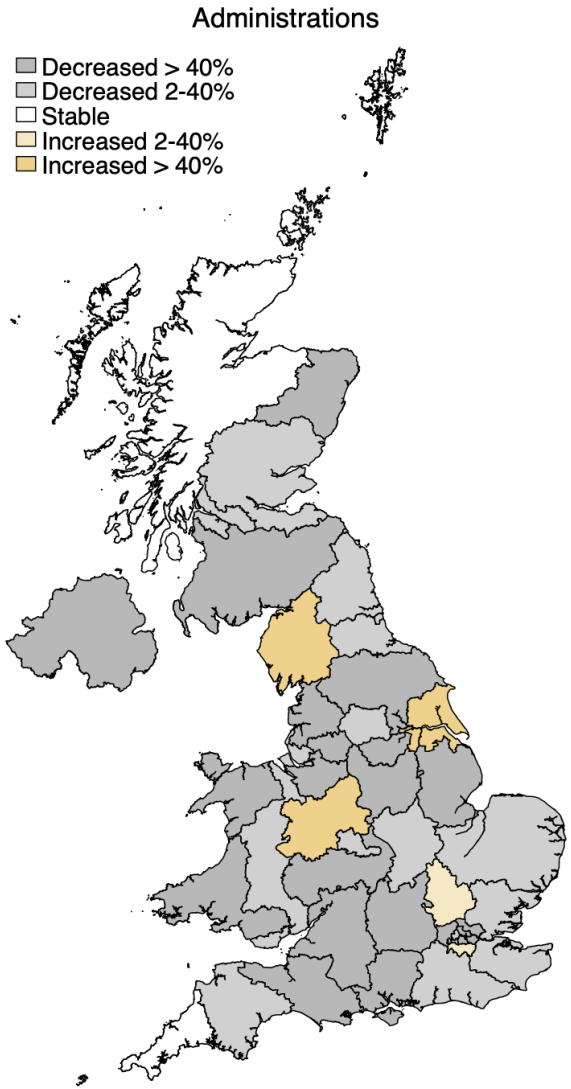
Eligibility for guaranteed loans

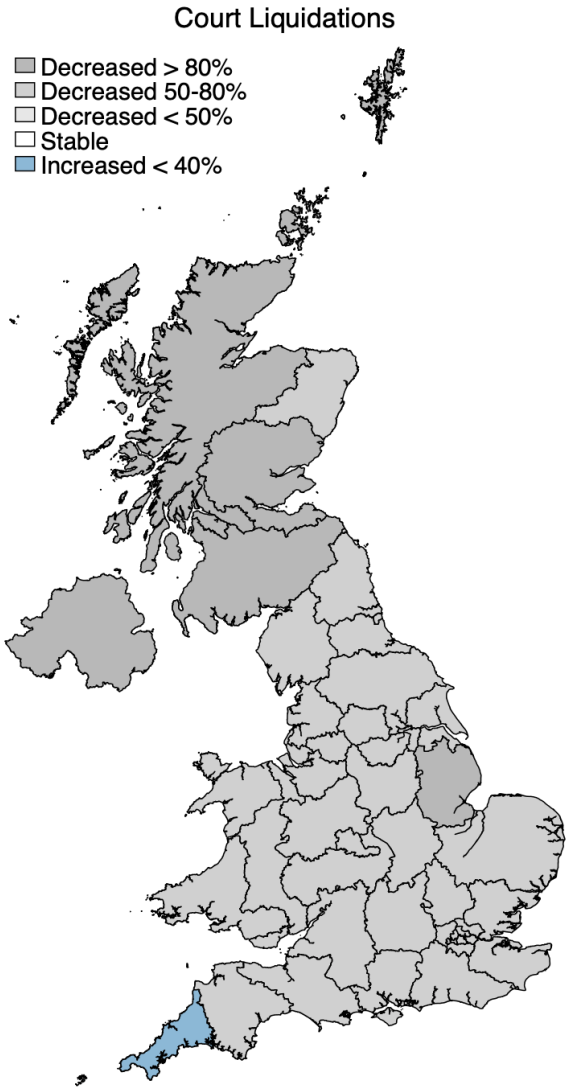


	Bounce Back Loan Scheme (BBLS)	Coronavirus Business Interruption Loan Scheme (CBILS)
Announced	April 27, 2020	March 2020
Loan term	6 years	3-6 years
Guarantee	100%	80%
Interest rate	2.5%	Variable

◂ Assistance summary ◂ Loans programs summary ◂ Role of guaranteed loans

Administrations and liquidations by the court

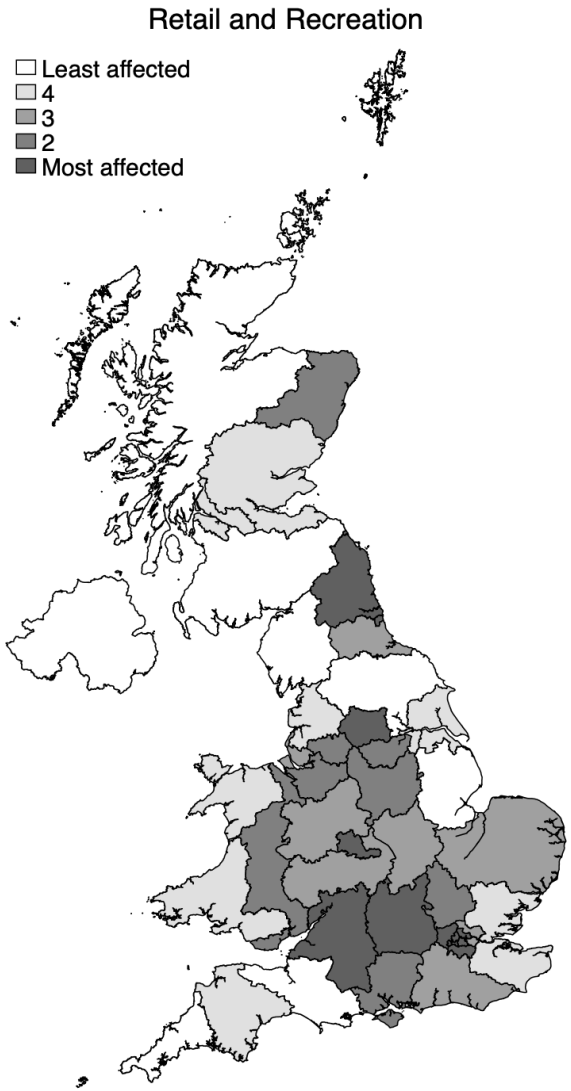


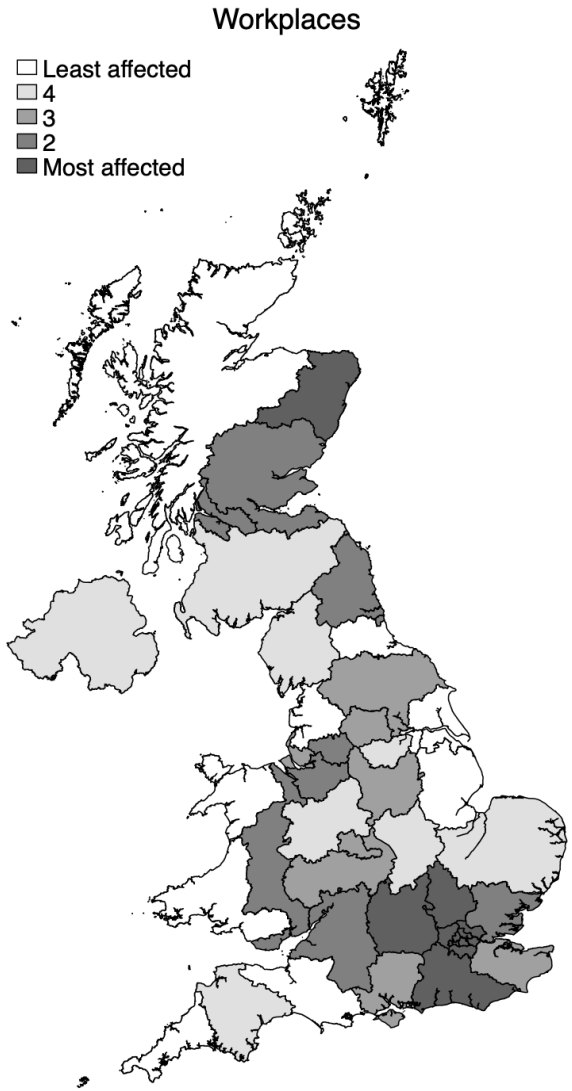


Note: 2020 and 2021YTD average, relative to 2019.

Back

Google Mobility Data

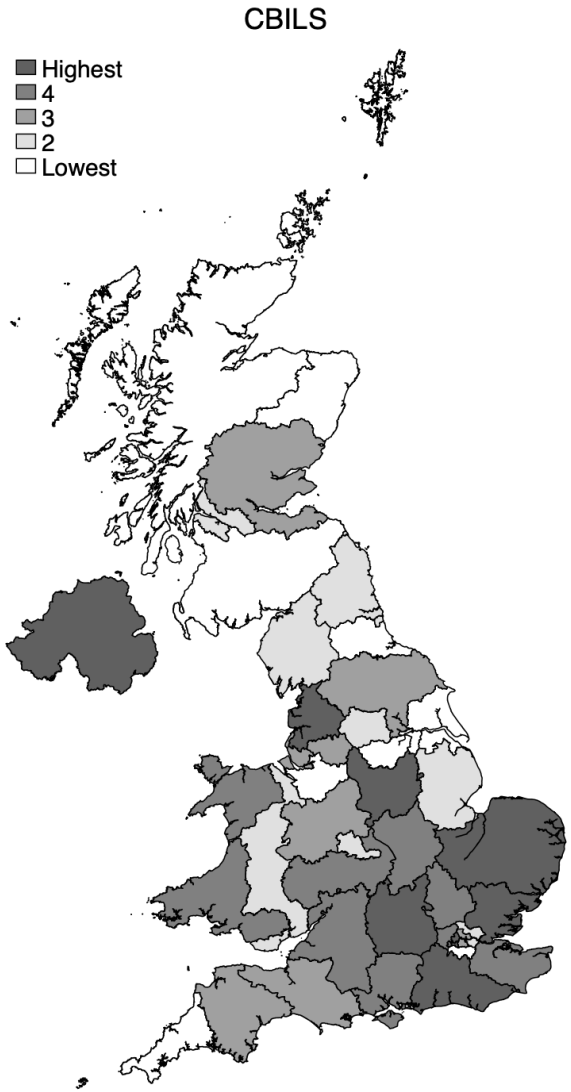


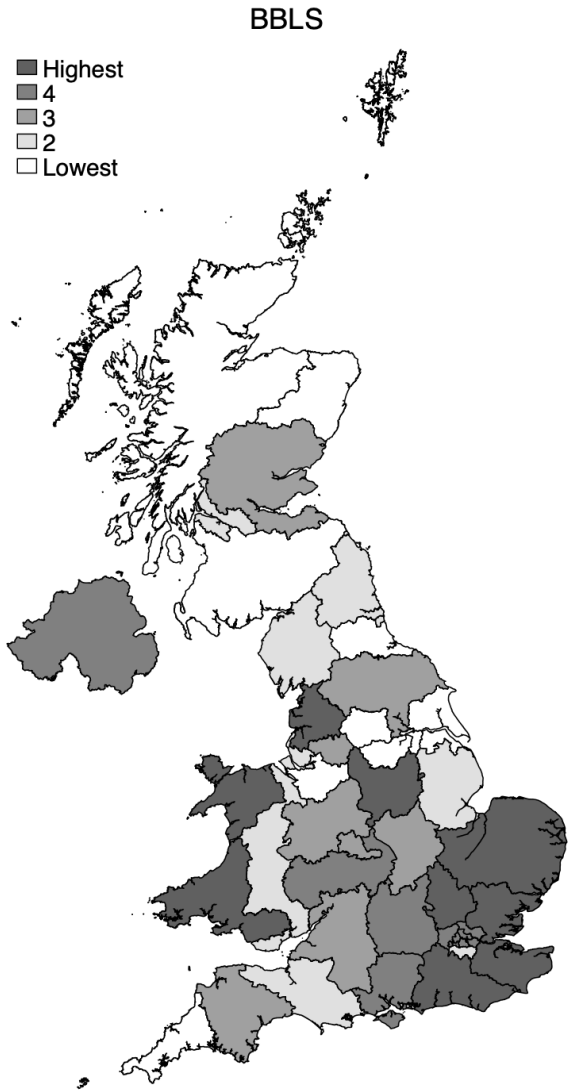


Source: Google Mobility data, averaged over constituent regions in 2020.

Back

Guaranteed loans: CBILS and BBLS per employee





Note: Measure is value of total loans relative to furlough-eligible employees.

Relative to GDP
Back