The Economics of Deferral and Clawback Requirements

An indirect tax approach to compensation regulation

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  - reduce excessive risks, and, hence, make banks, ultimately, safer!?

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  - Tax varies across actions, and, hence affects principal's action choice

Contribution

- To address Lucas critique, we microfound contracts in banking setting
  - **Agent:** bank employee risk management effort (preventing failure)
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  5) A cautionary tale on "*one-size-fits-all*" compensation regulation

Literature

- Financial sector pay:
  - Axelson and Bond (2015),
  - Bell and van Reenen (2014),
  - Benmelech, Kandel, Veronesi (2010),
  - Biais et al. (2010),
  - Myerson (2012).
- Contract design builds on companion paper (Hoffmann et al., 2018), Hartman-Glaser et al. (2012) and Malamud et al. (2013).
- Regulation of (executive) compensation focuses on size of pay:
  - Thanassoulis (2012),
  - Bénabou and Tirole (2015).

Roadmap

- Tax approach to compensation regulation and toy model
- Concrete application to financial sector

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- Relevant policy question: Do contracting constraints imply higher taxes for "good" or "bad" actions?

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  - a_2 is "prudent" action preferred by society: say $a_2 \succ a_1 \succ a_0$

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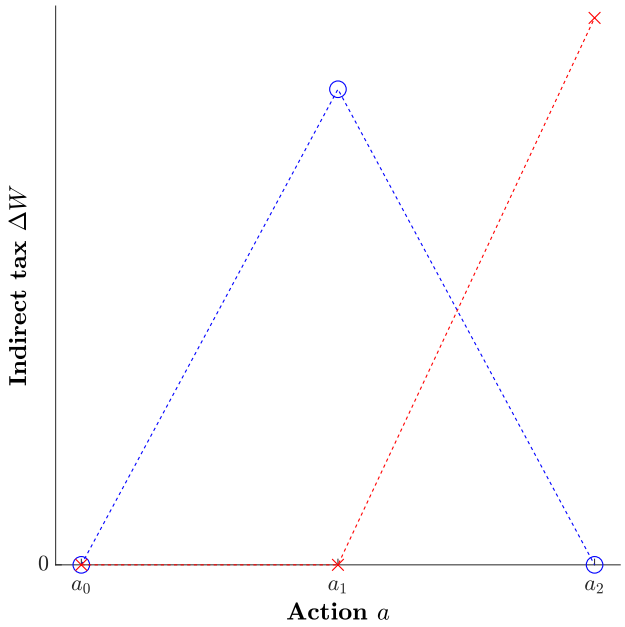

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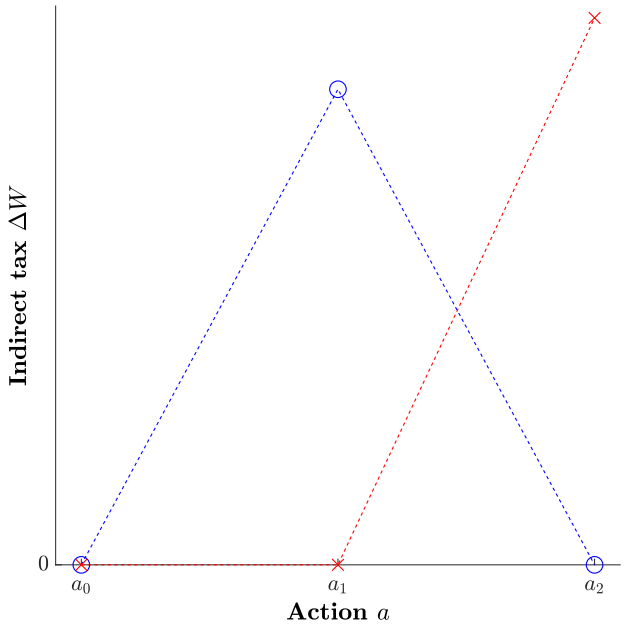

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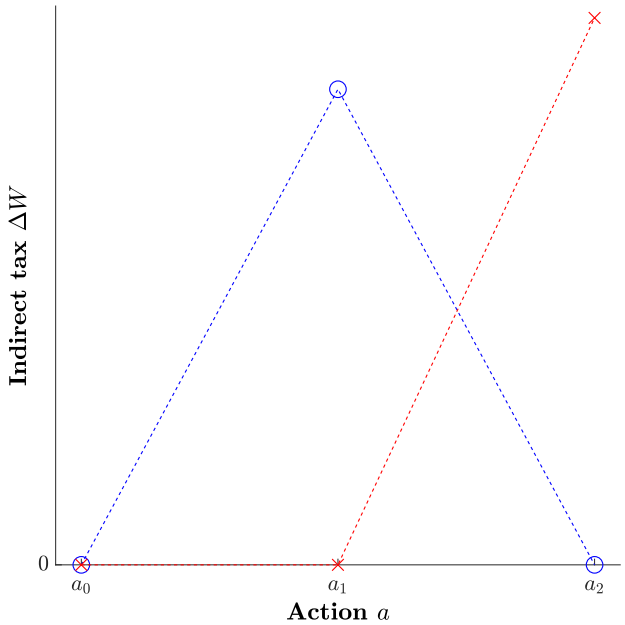

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- If $T^*(a_2) < T^*(a_1)$, both forces work against this regulation

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2. determine the indirect tax function across actions (contract design under regulatory constraints yielding $W(a|\Gamma_R)\ \forall a$)
3. evaluate positive and normative effects of (marginal) deferral requirements and the role of a clawback clause on a^*

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  Modeling: *Debt financing and anticipated bailouts (Atkeson et al., 2018) causes shareholders to underinvest in risk-management.*

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- Risk-neutral bank shareholders and manager, but manager is relatively impatient with Δr denoting the rate of impatience.
- Manager's one-time effort $a \in [0, \bar{a}]$ at cost $c(a)$ reduces default hazard rate at all points in time (akin to MLRP)

$$\frac{d}{da}\lambda(t|a) < 0 \ \forall t, a.$$

Example: exponential arrival with constant hazard rate $\lambda(t|a) = \frac{1}{a}$

- Interpretation: risk-management effort with persistent effects,
- Learning from absence of disasters as captured by survival function

$$S(t|a) := e^{-\int_0^t \lambda(s|a)ds}$$

Optimal contracts with PC slack: Single payout

- Optimal contract: Pay out agent bonus if bank has survived until date

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1) Given bilateral risk neutrality and agent limited liability, optimal to reward only most informative outcomes and pay zero else.
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- Timing-of-pay-force: Sign of $T'(a)$ depends on whether $\frac{d \log \mathscr{I}(t|a)}{dt}$ increasing or decreasing in a. For exp. example: $T^* = \frac{1}{\Delta r}$

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    1. present value of compensation to agent goes down (agency rent$\downarrow$)

Compensation design under deferral regulation

When deferral regulation $T_{\min}$ constrains the principal, she must adjust contract terms to be able to implement the same action.

1. The constrained optimal contract still features a unique *payout date* of $T_{\min} > T^*(a)$
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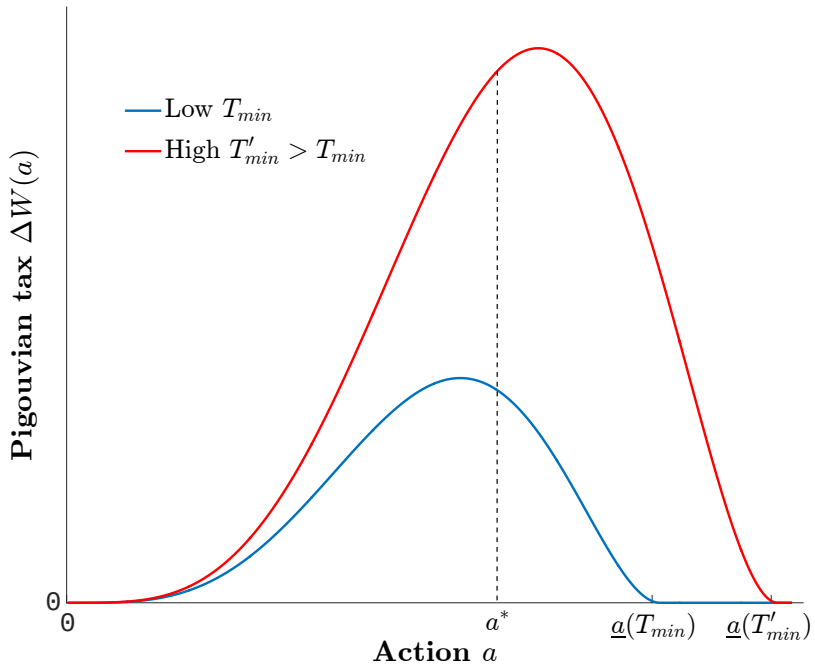
    2. present value of compensation to shareholders goes up $\Rightarrow \Delta W(a) > 0$

Does tax increase or decrease in effort?



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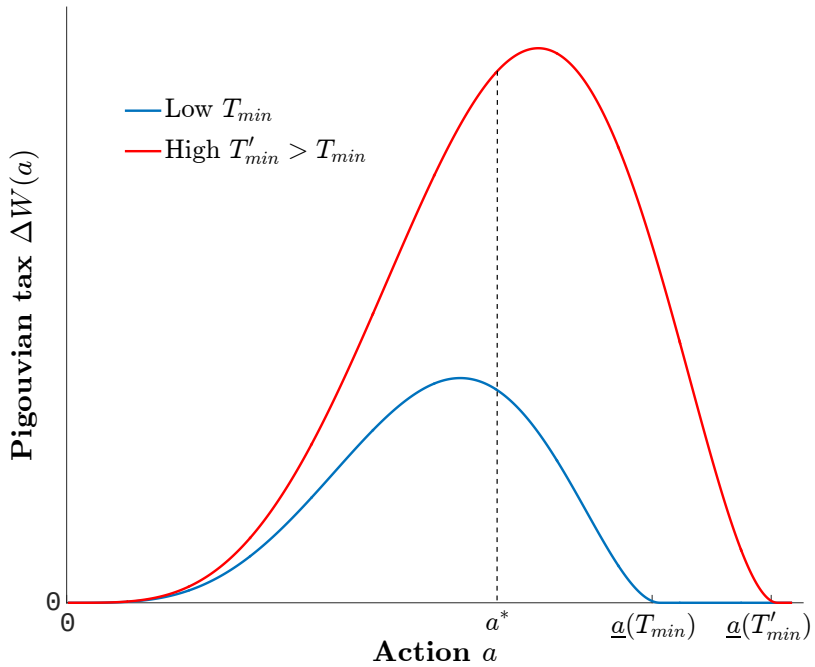

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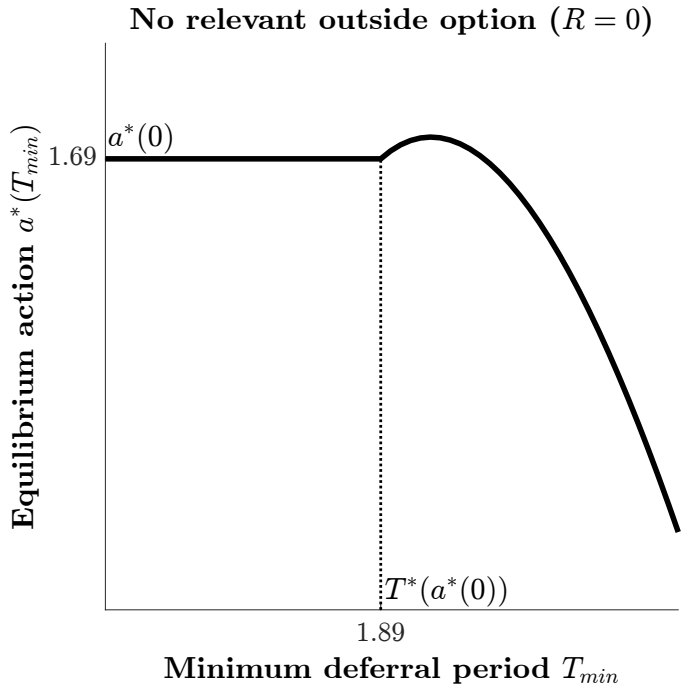
1. **Timing-of-pay:** Only actions with $T^*(a) < T_{\min}$ are taxed.
2. **Size-of-pay:** Tax is low for low actions with low (marginal) costs

$$\Delta W(a) = c'(a) \left[\frac{e^{\Delta r T_{\min}}}{\mathscr{I}(T_{\min}|a)} - \frac{e^{\Delta r T^*(a)}}{\mathscr{I}(T^*(a)|a)} \right] \geq 0$$

Effects of deferral regulation on equilibrium action

- Case $\frac{d}{da}T^*(a) > 0$:
  - Moderate deferral increases a^*.
  - Stringent deferral decreases a^* with $\lim_{T_{\min}\to\infty} a^*(T_{\min}) = 0$.
- Case $\frac{d}{da}T^*(a) \leq 0$: Binding deferral always decreases a^* (backfiring)



Unconstrained compensation design with binding PC

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- Comparative statics unambiguously support deferral regulation as

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Contract adjustments under deferral requirements

Key insight: If principal is constrained in timing dimension she must adjust other terms of compensation contract to induce same action.

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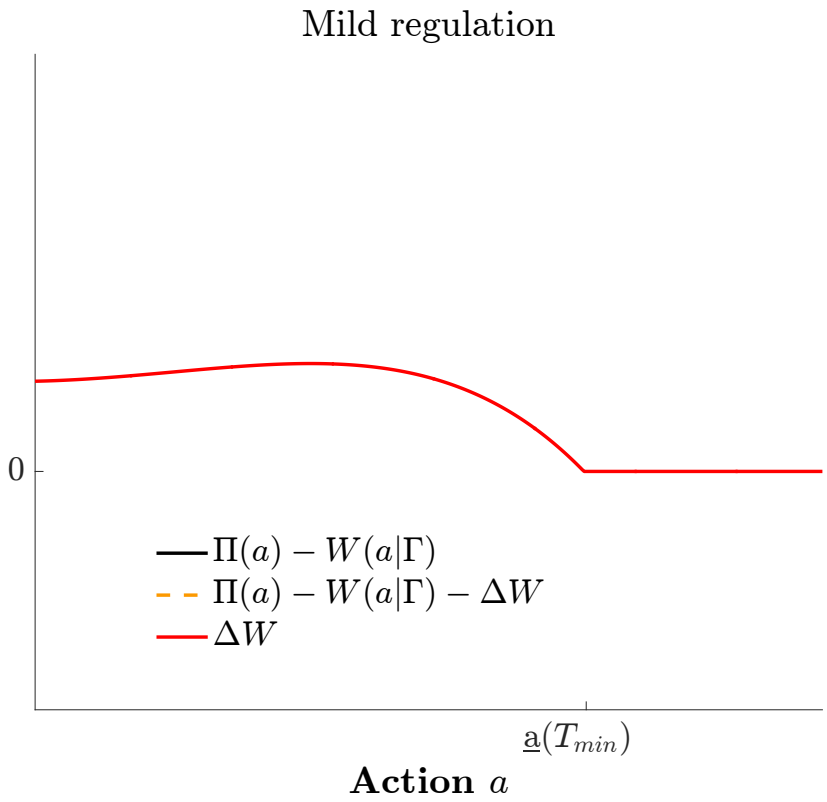
Is it ever optimal to pay for failure in equilibrium (for opt. action choice)?

Clawbacks required to generate large action changes



X / O equilibrium action without / with clawbacks
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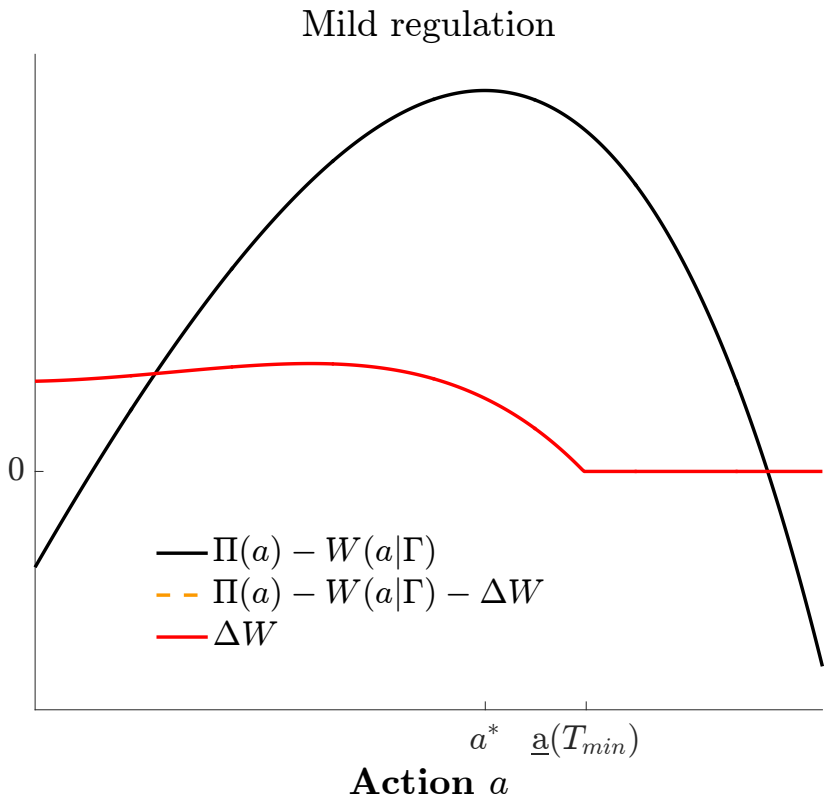

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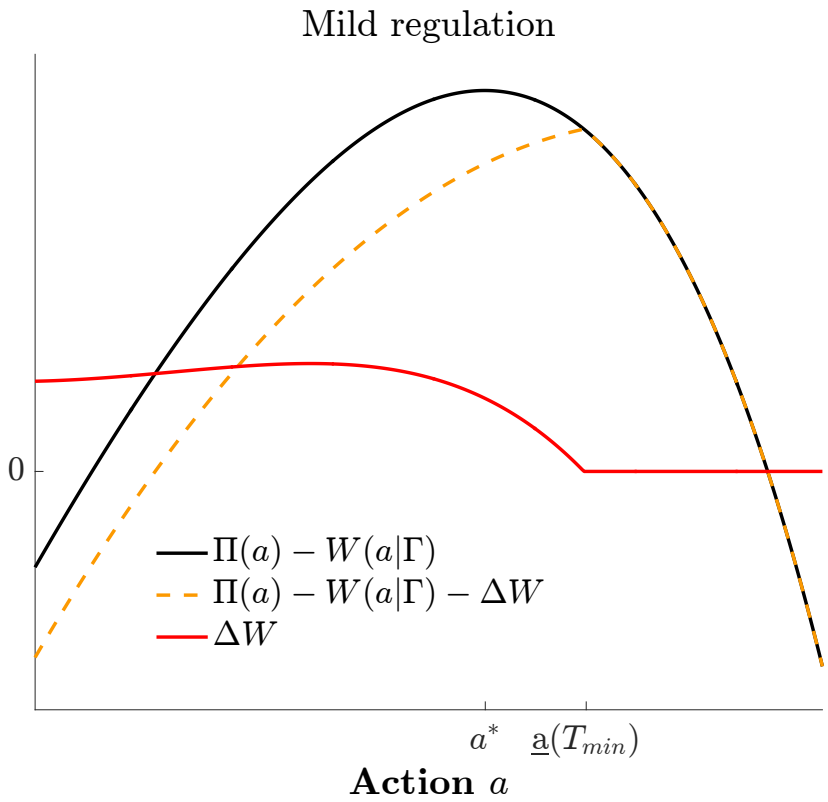

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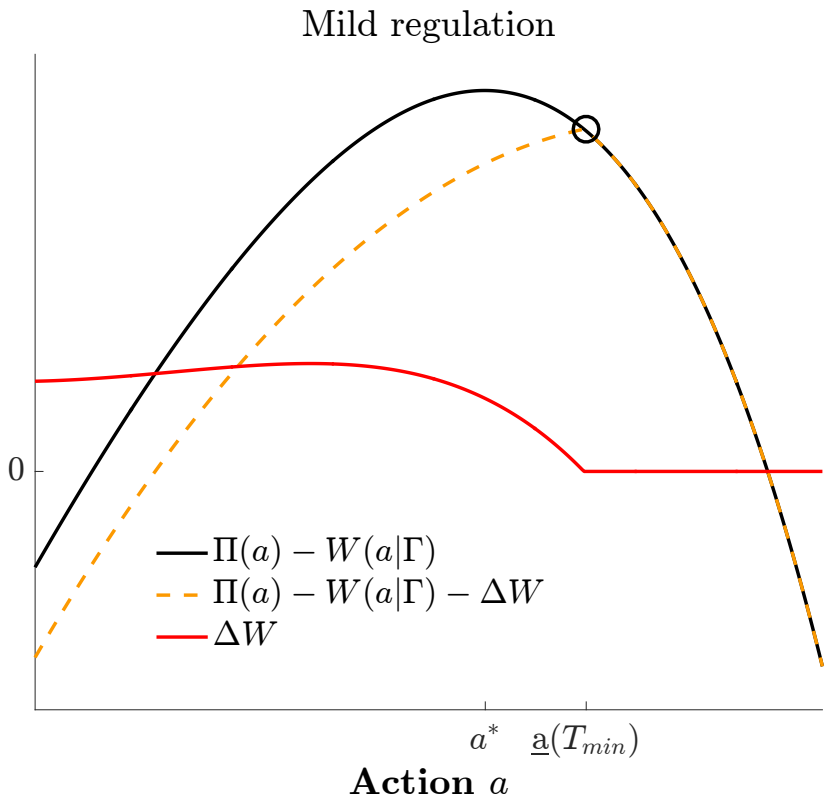

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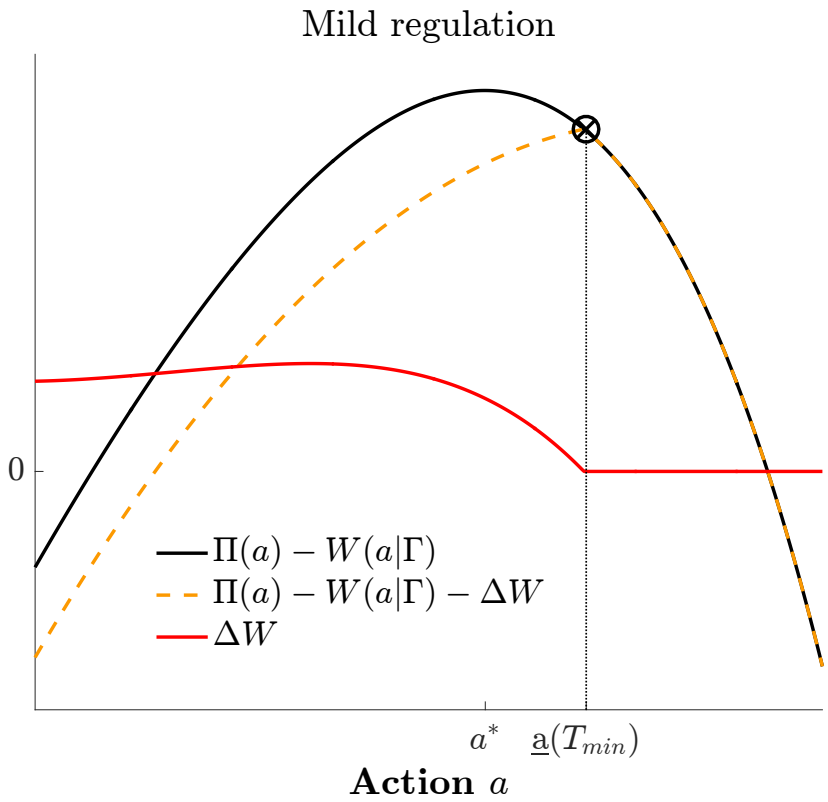

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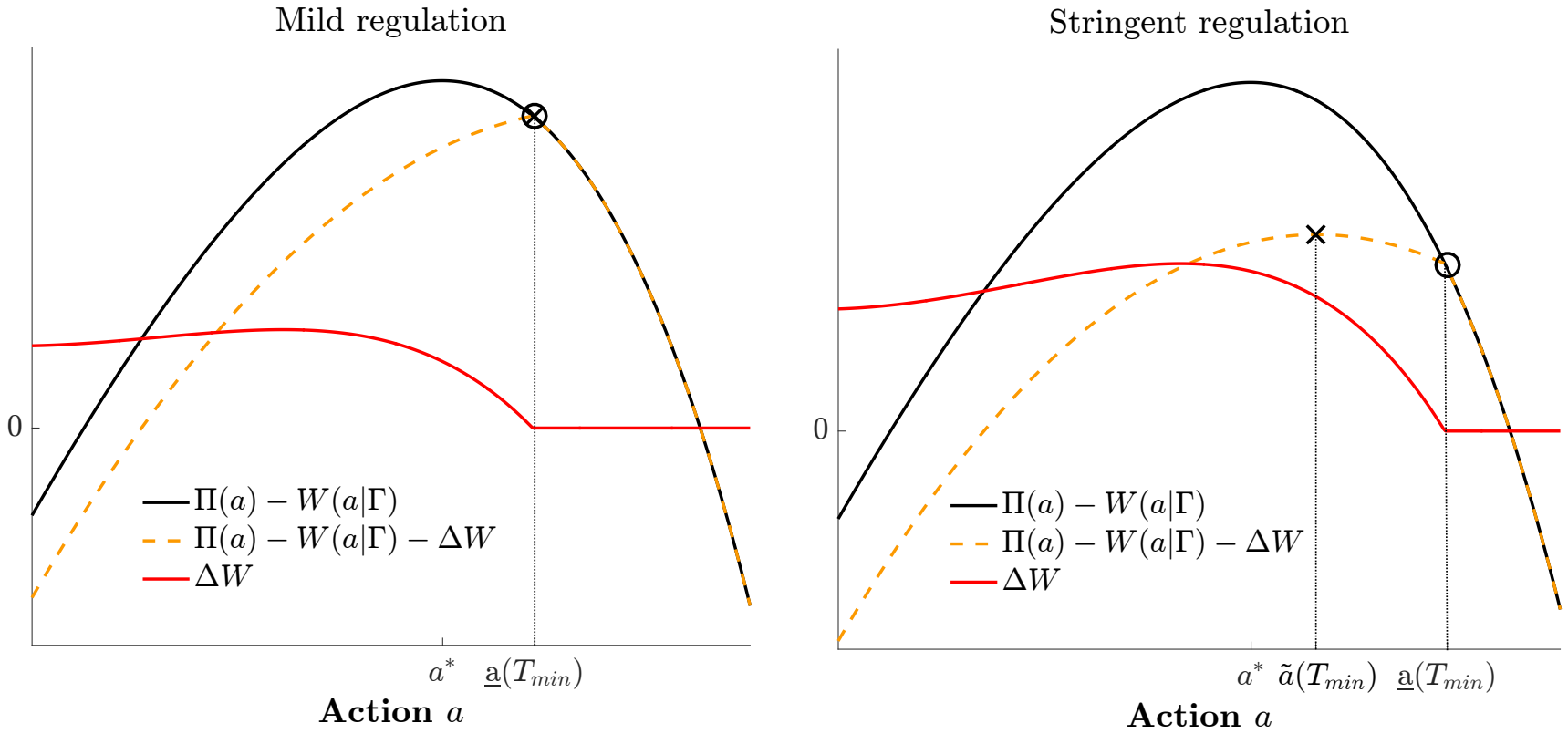

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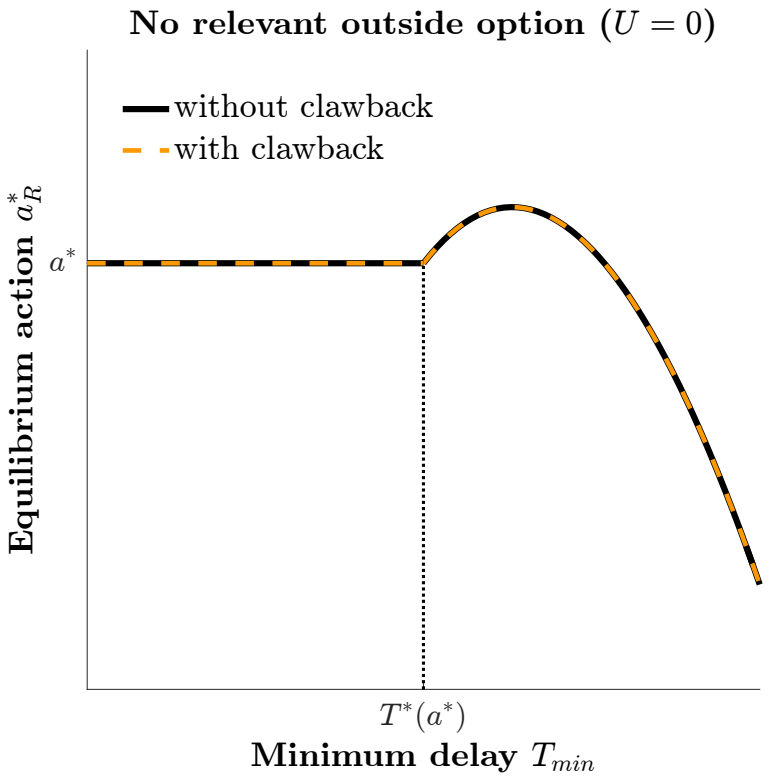
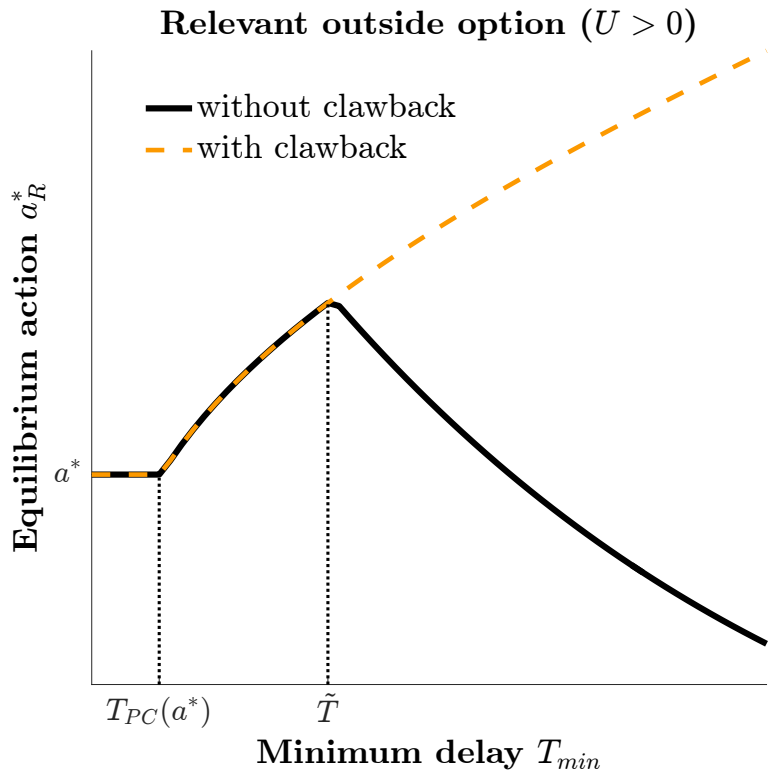
PC binding: Effects of deferral and clawbacks





Clawbacks required to get large action changes (iff PC binds)

Robustness

- Multitasking / risk-taking (think of a as vector of actions):
  $\Rightarrow$ results hold for effort dimension
- Risk-aversion instead of impatience
  $\Rightarrow$ costs of deferral from interfering in consumption smoothing
- Independent of regulatory motivation

Scope for regulation

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- Bank subject to bailouts $\Rightarrow$ can raise (risky) debt D at risk-free rate r
  Objective of shareholders distorted by government put

$$\Pi(a) - V(a) = Dr \left(\frac{1}{r} - \int_0^\infty e^{-rt} S(a,t)\, dt \right)$$

with $\Pi'(a) < V'(a)$

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  - Since shareholders have aligned incentives, it is in their own interest to set "correct" compensation packages.

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$$\frac{\partial}{\partial a} \mathbb{E}^a \left[\int_0^\infty e^{-(r+\Delta r)t} db_t \right] = c'(a) \tag{IC}$$

$$db_t \geq 0 \quad \forall t \tag{LL}$$

$$b_t = 0 \quad \forall t < T_{\min}. \tag{DEF}$$

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Compensation regulation in the financial sector

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  - **Mandatory deferral** of bonuses for 3-5, **clawback** for up to 7 years,
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Note: regulation does not micromanage all contract dimensions, instead imposes structural constraints that still leave flexibility

Information arrival distributions