False Modesty:
When disclosing good news looks bad

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Sender-Receiver games

Assume sender wants receiver to have high estimate of sender's type

Cheap talk games

- Any type can send any message, zero cost
- How can communication be credible?

Signaling games

- Different types have different cost of sending messages
- Why communicate when it is costly?

Disclosure (or verifiable message) games

- Different types have different possible messages, zero cost
- Why not always communicate?

I have some good news – should I brag about it?

- Disclosure game – cannot lie but can keep quiet
- If I don’t say anything people will assume I have nothing good to report
- Unraveling result: Senders with best news reveal it, so senders with mediocre news must also reveal it, and so on – all information is revealed

But doesn’t always ring true

Don’t be so humble -- you’re not that great.

Golda Meir

La modestie va bien aux grands hommes. C'est de n'être rien et d'être quand même modeste qui est difficile.

Jules Renard

Many possible reasons for withholding information

- Message costly
- Strategic reasons
- Sender uninformed
- Receiver naïve
- Receiver uninformed
- Receiver boundedly rational

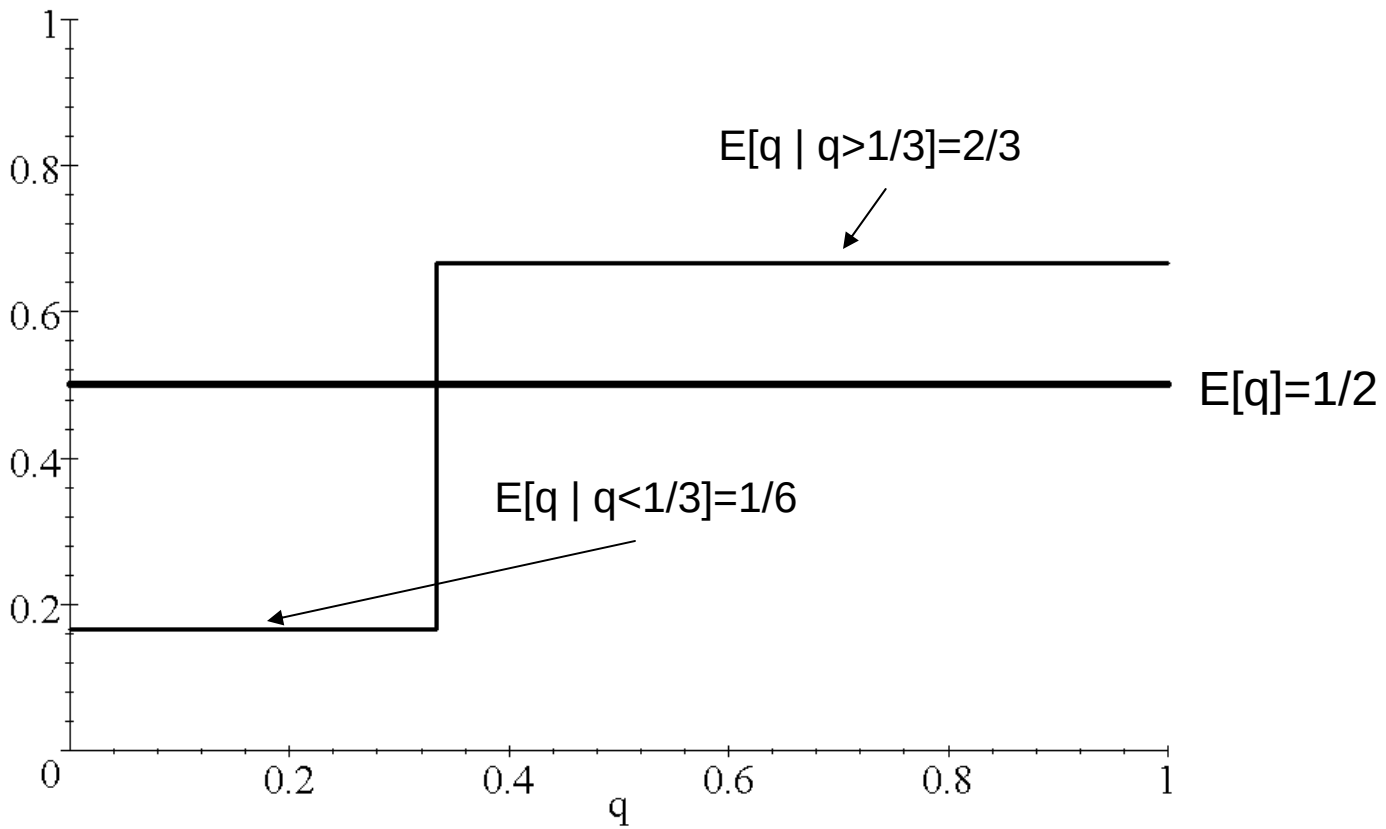
Closest: Teoh and Hwang (1991) dynamic disclosure game

- Sender has good news or bad news
- Should disclose news now or wait?
- Additional assumptions:
  - News is eventually revealed independent of sender's action
  - High type senders expect additional favorable news in future, low type senders do not
  - Sender gets payoff now and after all info is revealed
  - Sender payoff depends directly on current and future news, not just on receiver estimate of sender type
  - Effect of news on sender payoffs depends on sender type
- Can have equilibrium where high type senders reveal bad news but not good news, low type senders reveal good news but not bad news!

Example of our approach

- Sender observes own type q uniform on [0,1]
- Some standard q^* for “good news”
- If $q \geq q^*$ sender can reveal good news that $q \geq q^*$
- Sender payoff is receiver's estimate of sender's type conditional on all available info
- Those with good news $q \geq q^*$ can withhold it, but those without good news cannot claim to have it

Disclosure and nondisclosure equilibria without private receiver info



But does nondisclosure equilibrium make sense?

- What if a sender deviates and discloses?
- For any payoff P from deviating, every sender type has P-E[q]=P-1/2 benefit from deviating
- Benefit does not vary in q. So no reason to assume a particular type is more likely to deviate
- Naïve beliefs, neologism proofness: concentrate distribution on q>1/3
- Payoff from deviation/disclosure is 2/3>1/2
- So deviation is profitable under these beliefs and nondisclosure equilibrium does not survive

Add private receiver information

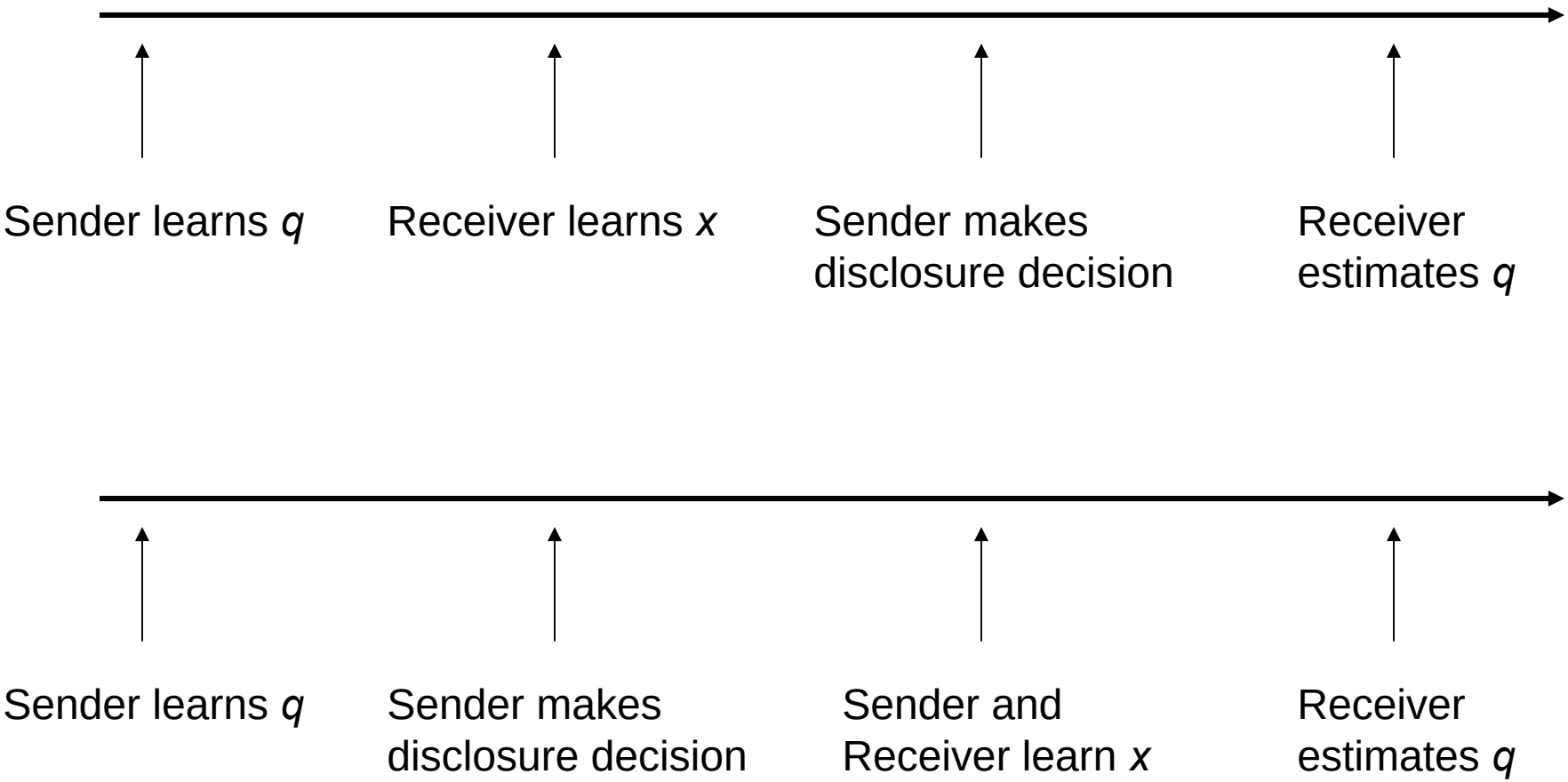
Receiver has own information x that is informative about q

Sender does not know x at time of making disclosure decision

Receiver knows x at time of making estimate of q that sender cares about

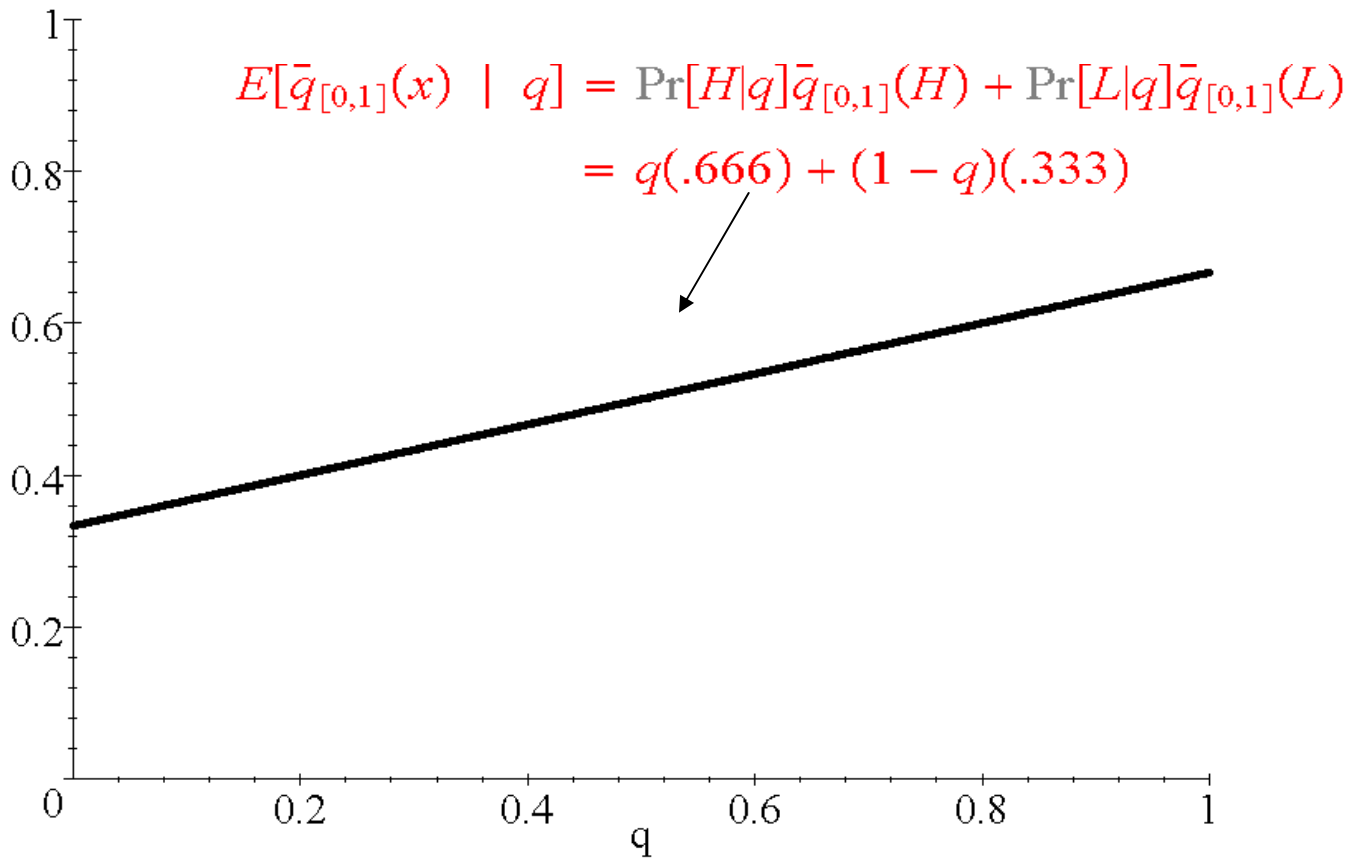
Example: Receiver observes x in $\{L,H\}$ where $\Pr[H|q]=q$

Possible timelines

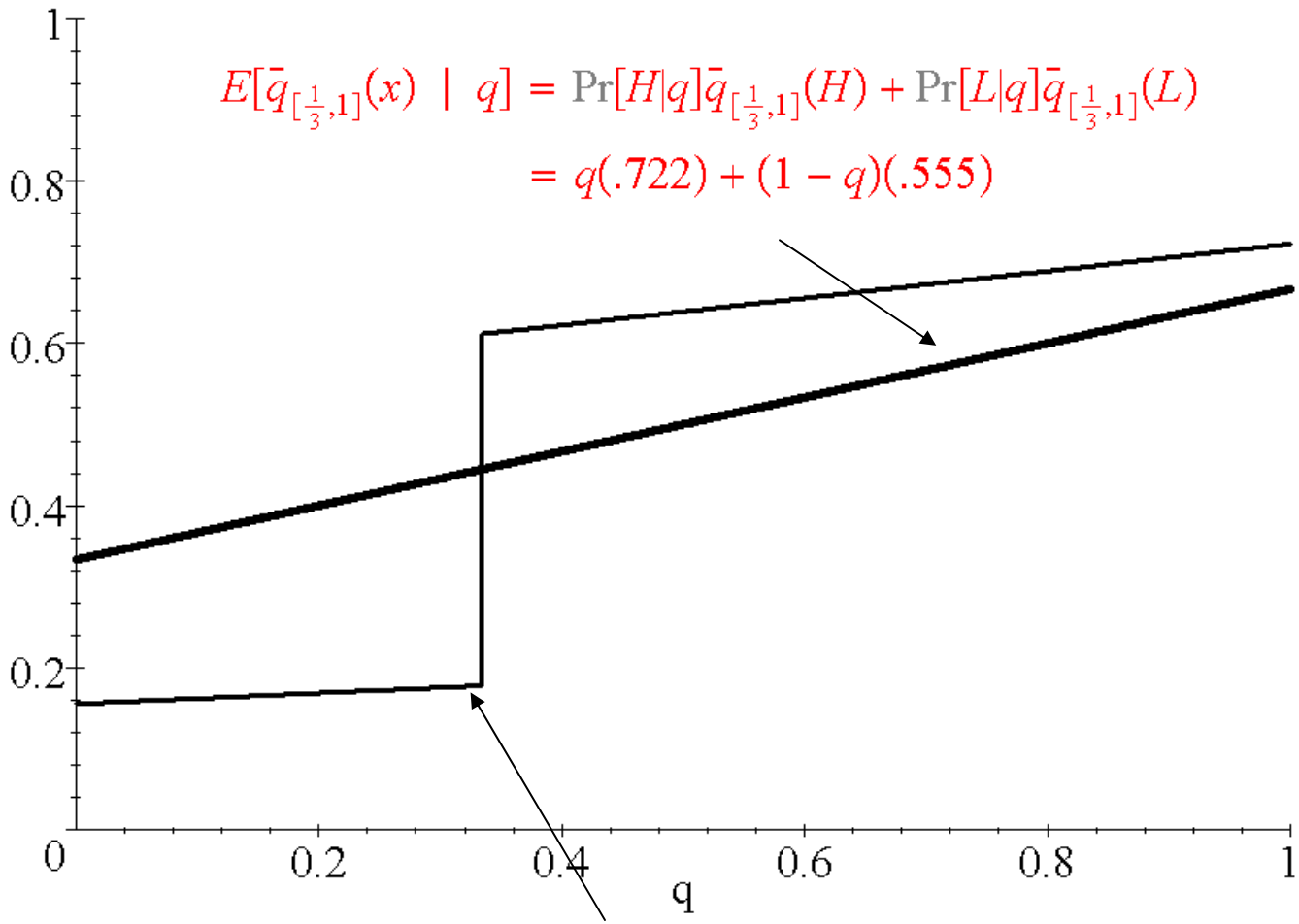


Nondisclosure equilibrium

$q_{[a,b]}(x)$: expectation of q given q in $[a,b]$ and x



Disclosure equilibrium



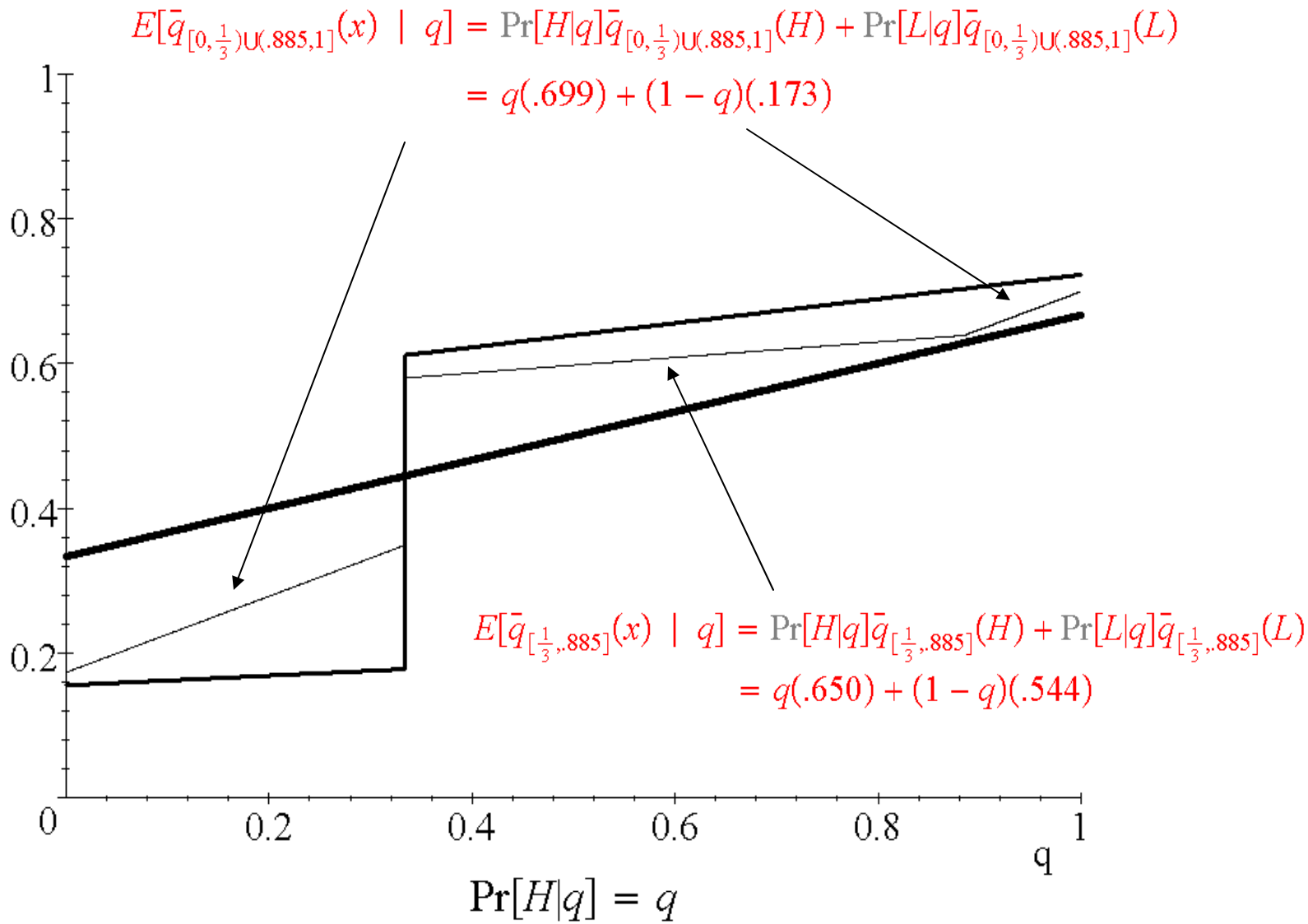
$$E[\bar{q}_{[\frac{1}{3},1]}(x) \mid q] = \Pr[H|q]\bar{q}_{[\frac{1}{3},1]}(H) + \Pr[L|q]\bar{q}_{[\frac{1}{3},1]}(L)$$

$$= q(.722) + (1-q)(.555)$$

$$E[\bar{q}_{[0,\frac{1}{3}]}(x) \mid q] = \Pr[H|q]\bar{q}_{[0,\frac{1}{3}]}(H) + \Pr[L|q]\bar{q}_{[0,\frac{1}{3}]}(L)$$

$$= q(.222) + (1-q)(.155)$$

Countersignaling equilibrium



Does nondisclosure eq. make sense?

If deviation observed from nondisclosure eq., who did it? Receiver agnostic – any type? Receiver skeptical – worst type?

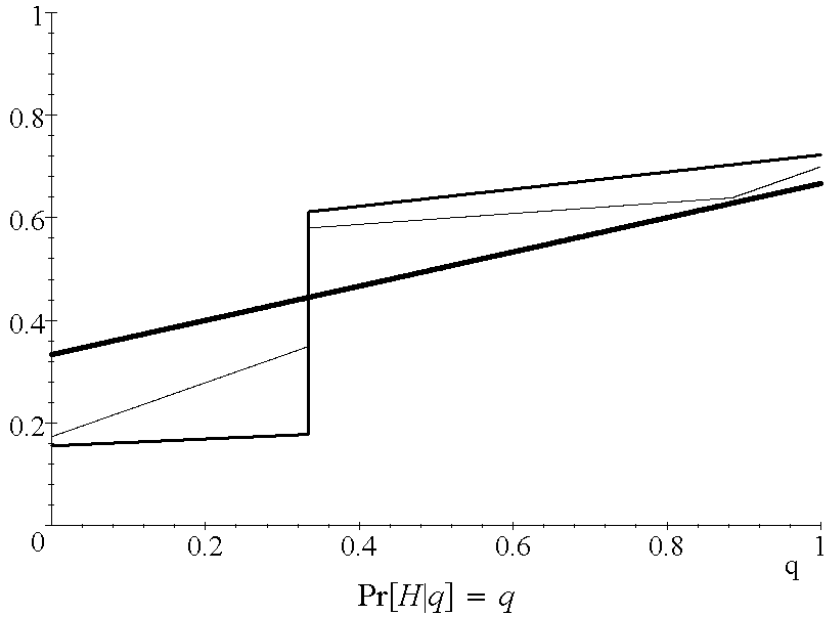
Intuitive Criterion: Are any senders unwilling to deviate even if receiver beliefs about deviators are most favorable? If so, rule them out.

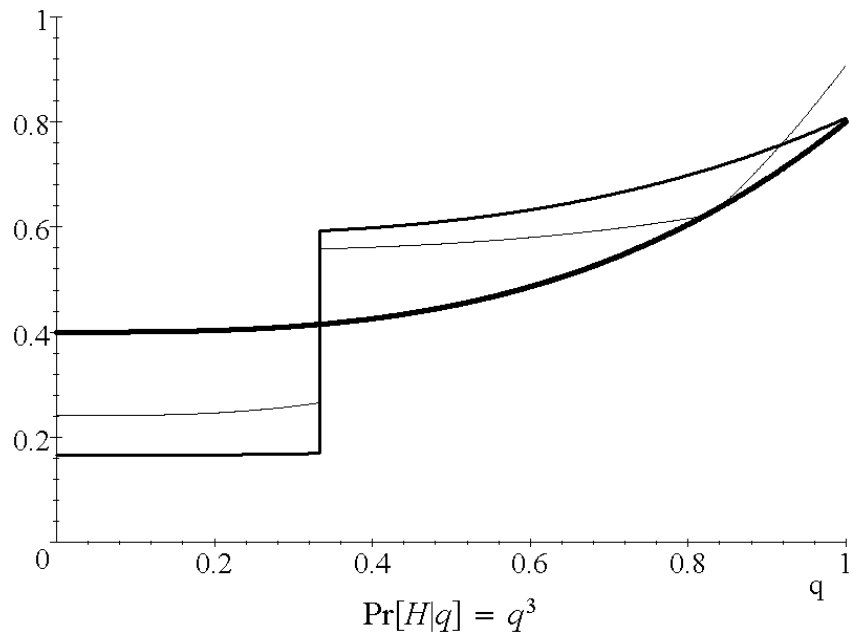
Any q in $[q^*,1]$ benefits from deviation if receiver beliefs about deviators are most favorable (q=1), so can't rule out any types.

D1: If one type is willing to deviate for a larger set of rationalizable payoffs than another type, put zero weight on second type.

Because receiver estimate of sender type in nondisclosure equilibrium is increasing in sender type, type q^* is willing to deviate for largest set of such payoffs – so skeptical beliefs not just permitted, but *required*.

Can Pareto-rank equilibria?





Some existence results

A disclosure eq. always exists. (Prop 1)

If q^* is sufficiently large ($q^*>q\sim$) the disclosure eq. is unique (Prop 2)

- The worst sender can do from disclosure is q^*
- Types $q<q^*$ have positive mass, so expected value of q given nondisclosure is bounded away from 1

If q^* is sufficiently small ($q^*<q\hat{}$) a nondisclosure eq. surviving D1 always exists (Prop 4)

- With skeptical beliefs unexpected disclosure gives payoff q^*
- Expected value of q given nondisclosure is bounded away from 0

These results imply predictions based on *public* information

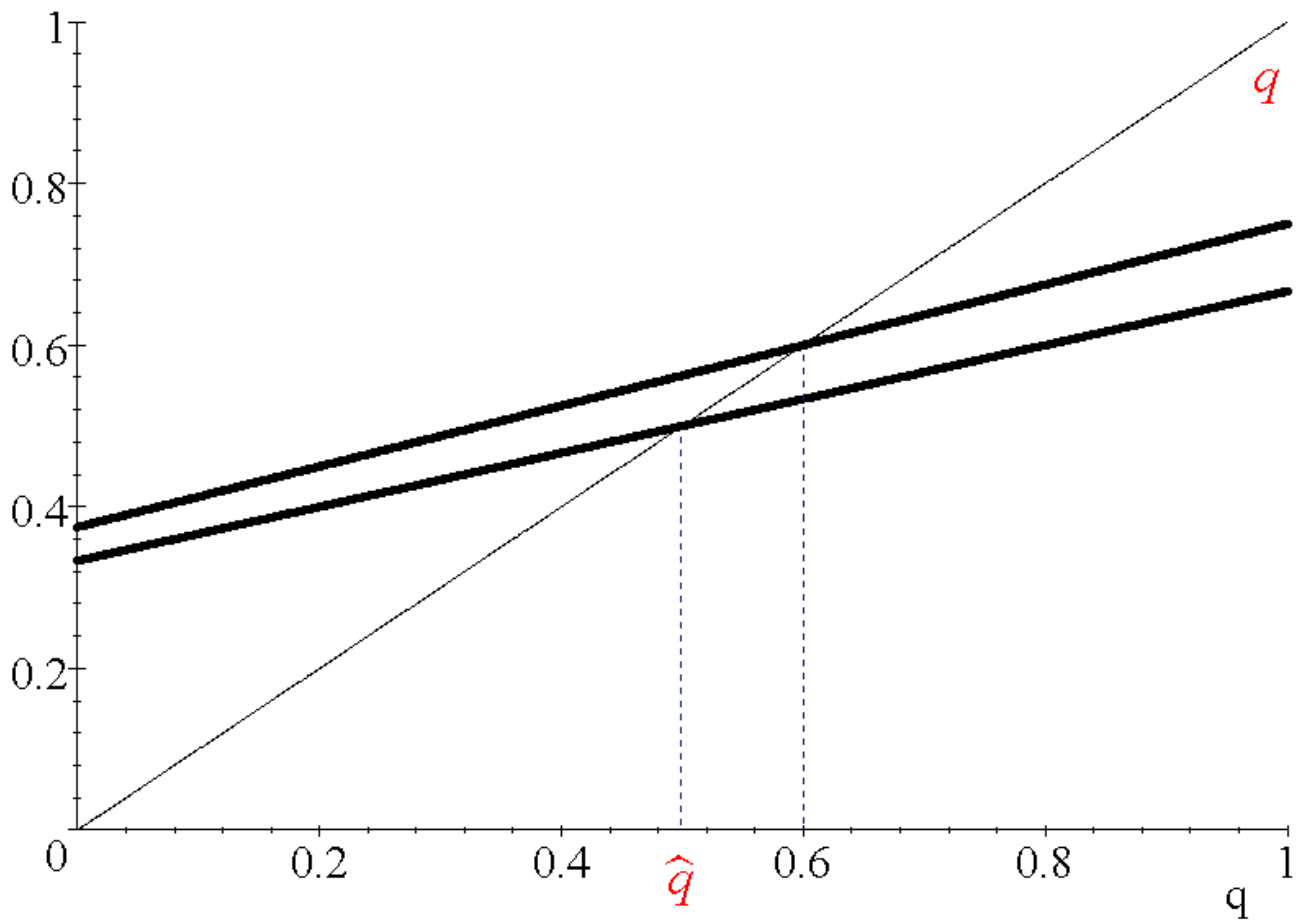
If the standard q^* for having good news increases:

- More likely that $q^* > q\sim$ so disclosure eq. is unique
- And less likely that $q^* < q\hat{}$ so nondisclosure eq. is sure to exist

If distribution of types becomes more favorable $q\sim$ and $q\hat{}$ both rise so (Prop 5):

- Less likely that $q^* > q\sim$ so disclosure eq. is unique
- And more likely that $q^* < q\sim$ so nondisclosure eq. is sure to exist

Favorable information on sender type shifts distribution upwards – so payoff is higher from nondisclosure and need to be assured of higher payoff from disclosure to deviate



Policy implication: mandatory disclosure?

- Receiver better off with more information
- But sender might be reluctant to “toot own horn”
- Nondisclosure eq. or confusion over multiple eq.
- Third party disclosure can solve problem
- Same with mandatory disclosure
- (But in countersignaling equilibrium receiver might get more info than disclosure equilibrium)

Policy implications: standard setting

- Literature trades off gains from higher standards vs lower rates of attainment
- But if standard too easy then can get understatement
- So tougher standards might increase attainment
- (Also more accurate standards reduces understatement)

Test – When do university professors use titles like "Dr" or "Professor”?

- Look at voicemail greetings and undergrad course syllabi
- Economics departments in California's 26 state universities
  - Eight have doctoral programs
  - Eighteen do not
- Usable voicemail greetings for about three-fifths of both doctoral and non-doctoral universities.
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- Undergraduate course syllabi for about half of the faculty at doctoral universities and one-third of the faculty at non-doctoral universities.
- Model implies that we should expect more use of honorifics when public information is less favorable
- So expect more use of honorifics at departments without doctoral programs

Summary statistics

	Doctoral Universities	Non-Doctoral Universities	t-stat. for diff. in mean
Voicemail title usage (%)	3.876	26.667	5.311^{***}
	(19.377)	(44.407)	
Years since PhD	17.016	17.942	0.638
	(11.763)	(11.112)	
Male (%)	78.295	73.333	0.913
	(41.385)	(44.407)	
Number of faculty	129	120	
Syllabus title usage (%)	52.419	77.612	3.501^{***}
	(50.144)	(41.999)	
Years since PhD	17.242	15.985	0.693
	(12.084)	(11.738)	
Male (%)	80.645	74.627	0.964
	(39.668)	(43.843)	
Number of faculty	124	67	

Standard deviations in parentheses.

*** indicates that the mean differs between Doctoral and Non-Doctoral Universities at the 1% level of significance.

Non-parametric tests

- Different behavior in doctoral and non-doctoral universities?

- One-sided non-parametric Fisher exact test:
  - $p<0.0001$ for voicemail greetings
  - $p<0.0005$ for syllabi

- One-sided Wilcoxon-Mann-Whitney test
  - $p<0.0005$ for voicemail greetings
  - $p<0.05$ for syllabi

- One-sided robust rank-order test
  - $p<0.0005$ for voicemail greetings
  - $p<0.05$ for syllabi

Logit results for voicemail title usage

	All Universities	Doctoral Universities	Non-Doctoral Universities
Doctoral dummy	-2.220^{***}		
	(0.514)		
Years since PhD	0.067^{***}	0.038	0.077^{***}
	(0.018)	(0.042)	(0.022)
Male	-1.122^{**}	-1.305	-1.074^{**}
	(0.462)	(1.063)	(0.512)
Constant	-1.540^{***}	-2.993^{***}	-1.769^{***}
	(0.460)	(0.905)	(0.527)
Number of faculty	249	129	120
Pseudo-R^2	0.206	0.040	0.106

Standard errors in parentheses.

*, ** and *** denote significance at 10%, 5% and 1% levels.

Logit results for syllabus title usage

	All Universities	Doctoral Universities	Non-Doctoral Universities
Doctoral dummy	-1.121^{***}		
	(0.350)		
Years since PhD	-0.021	-0.022	-0.018
	(0.014)	(0.016)	(0.025)
Male	-0.798^{*}	-1.030^{*}	-0.274
	(0.435)	(0.531)	(0.737)
Constant	2.238^{***}	1.325^{***}	1.760^{**}
	(0.488)	(0.502)	(0.711)
Number of faculty	186	124	67
Pseudo-R^2	0.078	0.067	0.013

Standard errors in parentheses.

*, ** and *** denote significance at 10%, 5% and 1% levels.

Conclusion

- Any amount of private receiver information allows for nondisclosure equilibrium if good news is attainable by sufficiently mediocre types
- If any favorable public information about sender then easier to get nondisclosure equilibrium
- Empirical results consistent with this prediction