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HOUSES, HORSES, AND HALLS OF LEARNING: DO FINANCIAL INCENTIVES MATTER?

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THE ISSUE

The predicted effect of financial incentives on human behavior is a sharp theoretical dividing line between economics and … psychology. (Colin Camerer & Robin Hogarth)

ECONOMICS

Incentives are the essence of economics.
(Candice Prendergast)

Most of economics can be summarized in four words: People respond to incentives. The rest is commentary
(Steven Landsburg)

PSYCHOLOGY

Money is not a motivator.
(I)ndividuals who are committed to excellence… are particularly unlikely to respond to financial incentives. (Alfie Kohn)

THE EVIDENCE

- Evidence on power of financial incentives in work/employment situations primarily relates to simple/manual tasks where performance is measured by *quantity*.
  - financial incentives matter.

- But what about *quality*-oriented tasks of so-called 'experts'? Intrinsic motivation and 'professional pride' seem likely to be more important here.

- Laboratory evidence suggests financial incentives have little or no effect on performance *quality*.

FOUR QUESTIONS

1. Do experts exploit situations that allow them to extract rents from clients?

2. Can self-interested reputational concerns discipline expert behaviour?

3. Do experts put more 'effort' into tasks offering greater financial gain?

4. If you pay peanuts, do you get monkeys for experts?

QUESTION 1

Do experts exploit situations that allow them to extract rents from clients?

SETTING

- REAL ESTATE AGENT-CLIENT RELATIONSHIP

   Net marginal return to agent is about 1.5%

   Suppose additional effort by agent would yield extra $10,000 in price. Opportunity cost to agent is $200, so has incentive not to expend extra effort.

   But would do if also the owner.

- Compare sales prices of client- and agent-owned houses

DATA

- 100,000 home sales in Illinois 1992-2002 (Levitt & Syverson, 2005)

- 307,000 home sales in Texas 1998-2002 (Rutherford et al, 2005)

- Collected information on home characteristics, location, marketing strategy, agent experience etc

RESULTS

After controlling for house characteristics etc

- On average, agent-owned houses sell for 3.7% more than client-owned houses in Illinois

- On average, agent-owned houses sell for 4.5% more than client-owned houses in Texas

Economically Plausible

- For the median house, premium corresponds to $7700 in Illinois and $6000 in Texas.

CONCLUSION ON QUESTION 1

- Real estate agents obtain higher prices for own houses than for otherwise-equivalent client-owned houses.

- Apparently an example of a response to financial incentives that disadvantages clients - cannot rely on 'professional pride' for discipline.

QUESTION 2

Can self-interested reputational concerns discipline experts?

It is maddening that society confers its blessings on traditional academic pursuits but views the study of horseracing as utter frivolity.
(Andrew Beyer)

SETTING

- RACEHORSE OWNER-TRAINER RELATIONSHIP

  Client-owned: trainers receives fixed daily fee + 10% of winnings

  Trainer-owned: trainers receive 100% of winnings

- Tradeoff between short- and long-run – REPUTATION

- Compare performance of client- and trainer-owned horses

DATA

- Every harness horse that raced in NZ at least once during 1997-98 and 2002-03 seasons

- 1997-98: 4087 horses, 27451 horse-races, and 984 trainers

  2002-03: 3861 horses, 27126 horse-races, and 852 trainers

- Tracked performance, ownership and training details of every horse over entire season

- Also collected info on horse and trainer characteristics.

PERFORMANCE MEASURES

$$\text{consistency ratio} = \frac{9*\text{number of firsts} + 5*\text{number of seconds} + 3*\text{number of thirds}}{9*\text{Number of races during season}}$$

$$\text{earnings ratio} = \frac{\text{Stake earnings during the season}}{\text{Sum of winning stakes from all races during season}}$$
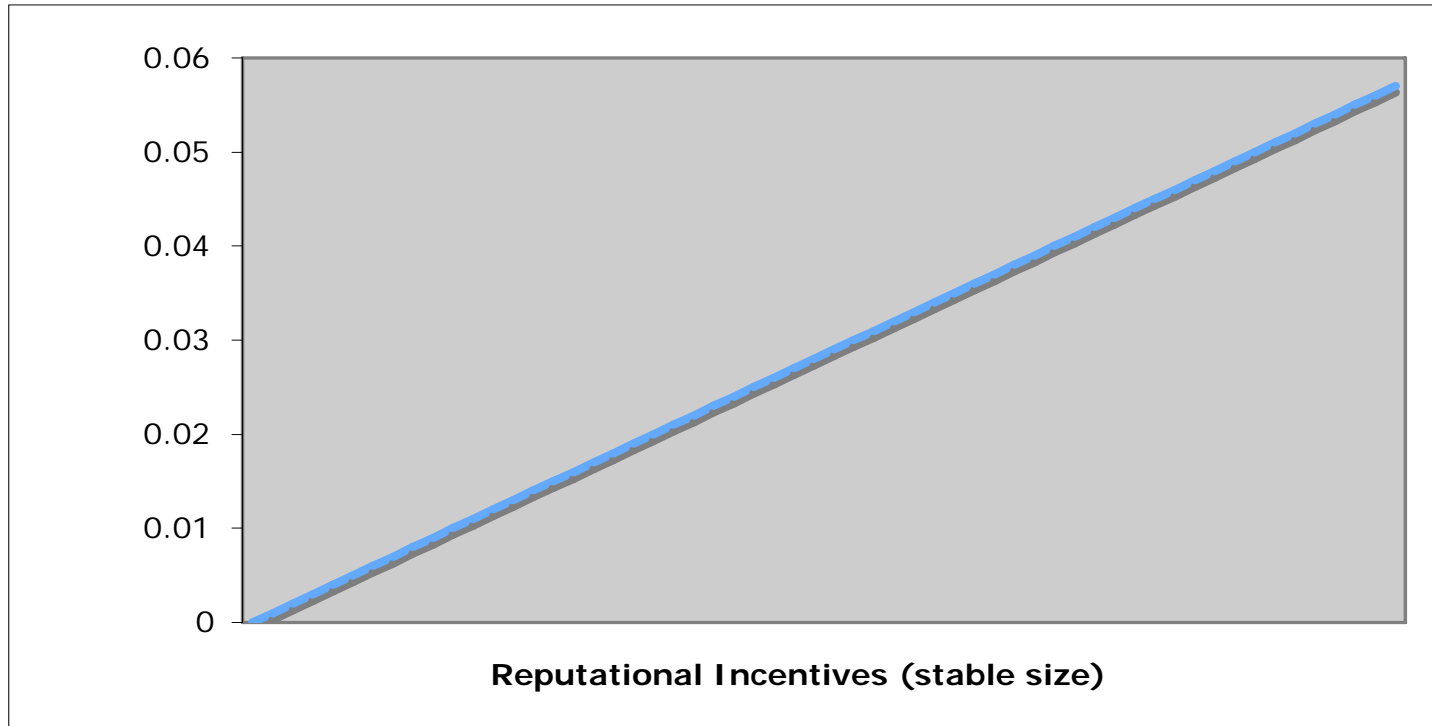
RESULTS

A. Uncontrolled

	Trainer-Owned	Client-Owned	Diff
Consistency Ratio	0.120	0.162	***
Earnings Ratio	0.095	0.126	***

B. Controlled for horse and trainer characteristics

	Trainer-Owned	Client-Owned	Diff
Consistency Ratio	0.136	0.155	***
Earnings Ratio	0.109	0.124	***

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WHAT DOES THIS HAVE TO DO WITH REPUTATION?

- Similar results with age/license proxies for reputation importance.

ECONOMIC INTERPRETATION

- Mean performance of client-owned horses is approximately 12% *better* than that of trainer-owned horses.

- Every $10K earned by typical horse when trainer-owned becomes $11220 when client-owned.

- But all ownership 'action' occurs in stables with strong reputational incentives.

- Every $10K won by typical client-owned horse in small stable (weak reputation incentives) becomes $13400 in large stable (strong reputation incentives).

CONCLUSION ON QUESTION 2

- On average, client-owned horses do better than trainer-owned horses

- But this advantage is apparent only in stables with strong reputational incentives

- The ability of long-term reputational incentives to discipline agents cannot simply be dismissed as a theoretical curiosity

- Most labour markets aren't allowed to work as efficiently as that for horse trainers.

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QUESTION 3

Do experts put more 'effort' into tasks offering greater financial gain?

- Or does 'professional pride' motivate them to treat all clients equally?

- Particularly germane to money managers, lawyers etc, but data not available.

SETTING

- STAY AT THE RACETRACK

  Some horses race for much higher stakes than others

  Trainers have incentive to devote extra effort to horses in high-stakes races.

  Compare trainer effort/performance in high-stakes races with that in low-stakes races.

HOW CAN TRAINER EFFORT BE OBSERVED OR INFERRED?

- Punters set odds using available information.

- Can observe horse, trainer, driver quality etc, but don't know how much effort stable has put in.

- If significant variation in trainer effort, then odds will be noisy estimate of true probabilities.

- High stakes races - all trainers put in optimal effort.

- So would see lower dividends on average in high-stakes races

DATA

- 30,450 harness races in NZ between 1993 and 2006.

- Collected information on:

  Race stake

  Race dividends - win, quinella, trifecta

  Race characteristics - field size, track surface &

  condition, dispatch method, distance

RESULTS

(including controls for field size and race 'unpredictability')

	STAKE PERCENTILE		
	20th	**80th**	**20% higher stake**
WIN	$6.00	$5.65	-1.6%
QUINELLA	$23.45	$22.00	-2.0%
TRIFECTA	$342.50	$313.45	-2.8%
(races for experienced horses only)			
WIN	$6.30	$5.90	-2.0%
QUINELLA	$25.60	$23.90	-2.2%
TRIFECTA	$391.55	$352.40	-3.2%

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CONCLUSION ON QUESTION 3

- Market odds a better predictor of outcomes when stakes are high.

- Suggests that there is less 'inside information' to be utilised in high stakes races.

- Consistent with experts choosing to prioritise high-payoff tasks.

QUESTION 4

If you pay peanuts, do you get monkeys for experts?

⇒

?

THE GENERAL IDEA

• NZ academic pay depends only on rank, not on discipline

> *If a university went ahead and paid equally,*
> *lowering economists' pay and raising French*
> *professors' pay, it would have a great French staff*
> *and a dreadful bunch of economists.*
> (Hamermesh, 2004, p180)

If peanuts beget monkeys, then the disciplines that are most 'underpaid' should have the weakest research performance on average.

IDENTIFYING PEANUTS & MONKEYS

Monkeys (PBRF)

- Average Quality Score
  - arithmetical average of discipline-researcher scores

- Proportion of R grades
  - 'prevalence of monkeys' in discipline

Peanuts

- Available proxy: US discipline-specific academic salaries

'Underpayment' = *average US salary - average NZ salary*

SOME SIMPLE NUMBERS: I

DISCIPLINE CHARACTERISTIC	MEAN	MAX	MIN
Average Quality Score	2.79	4.74	0.34
Proportion of 'R' grades	0.36	0.87	0.08
'Underpayment'	$20,910	$90520	-$340

SOME SIMPLE NUMBERS: II

Top-5 Average Quality Score

Discipline	'Underpayment' ranking
Philosophy	36
Anthropology and Archaeology	35
Earth Sciences	23
Ecology, Evolution and Behaviour	21
Biomedical	14

SOME SIMPLE NUMBERS: III

5 Most Underpaid

Discipline	AQS ranking
Accounting & Finance	34
Management etc	31
Law	20
Marketing and Tourism	30
Computer Science etc	26

RESULTS: I
(controlling for other determinants of research performance)
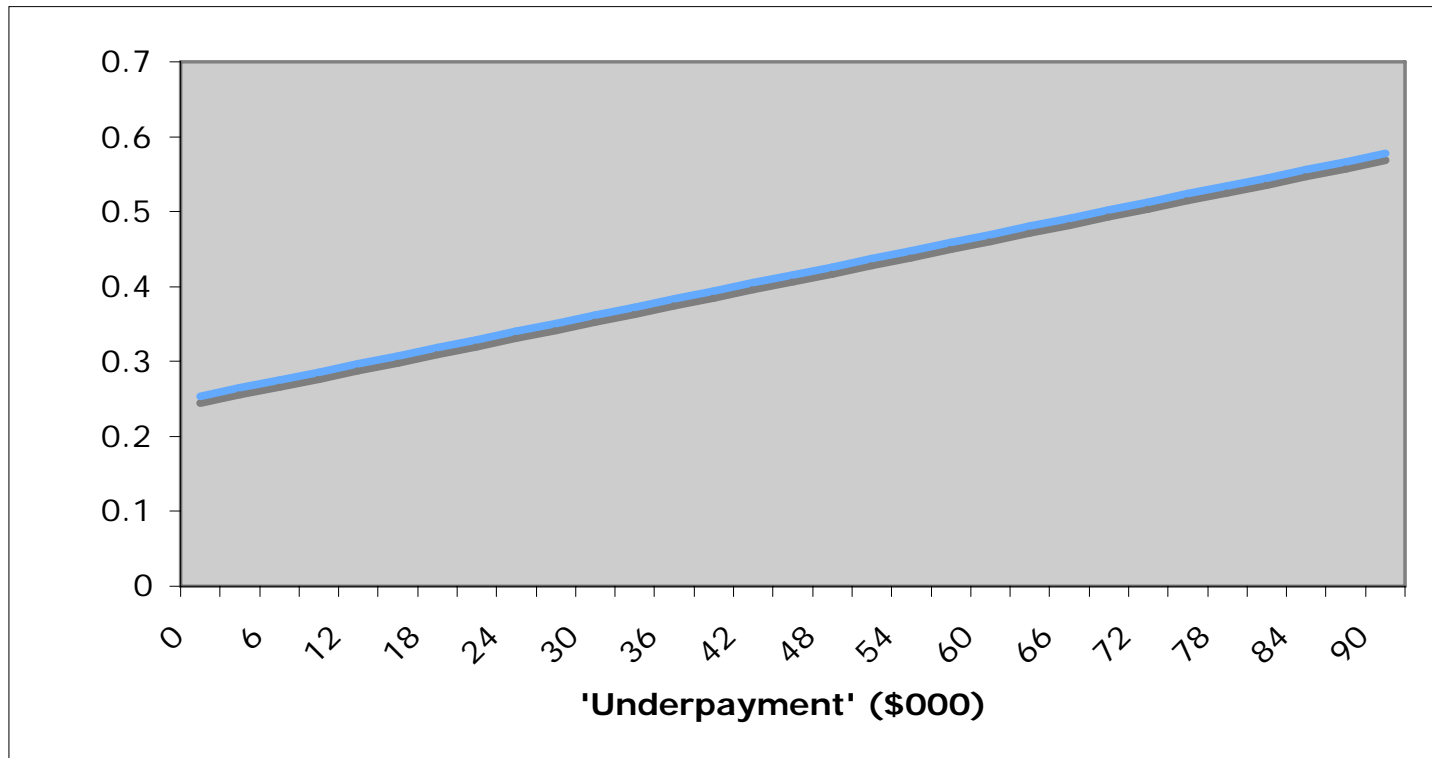

'Underpayment' ($000)
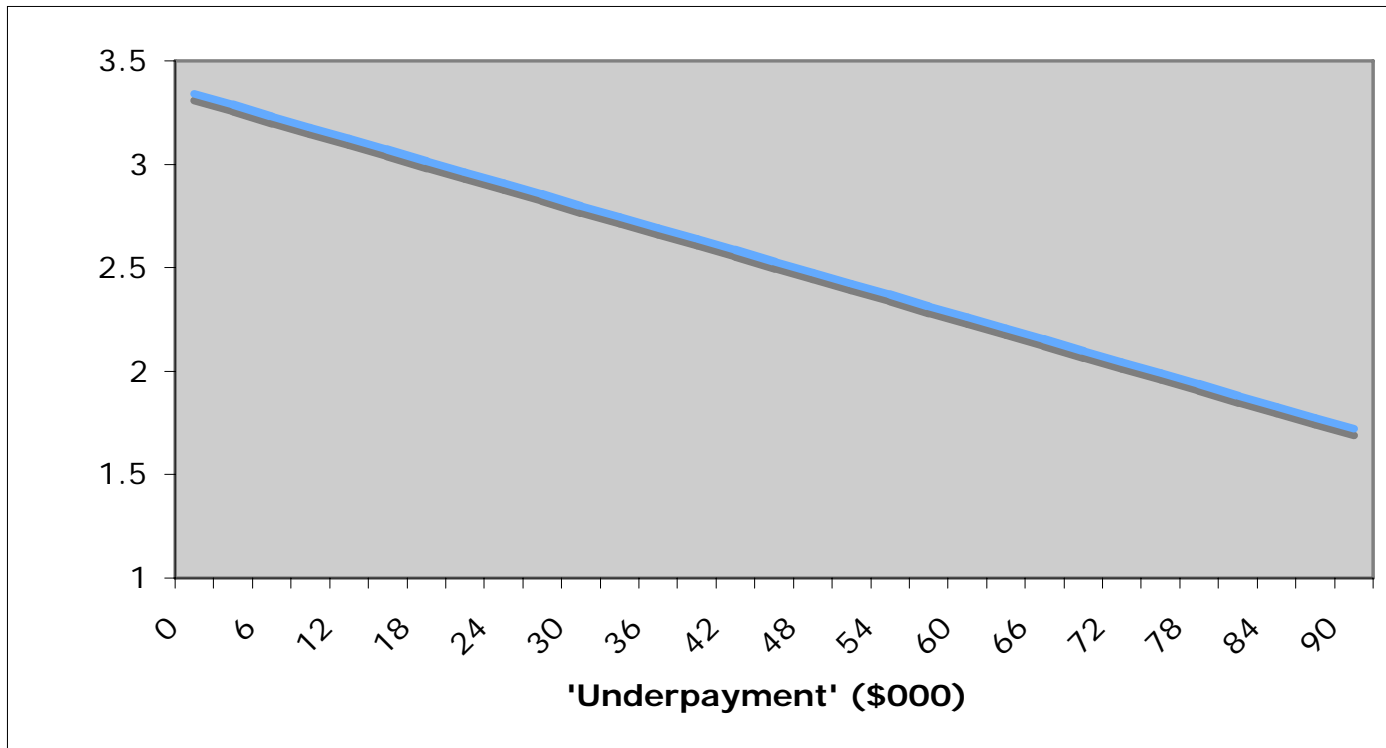
- Moving from most to least underpaid decile predicts a rise in average quality score of about 0.73 points, approximately 27% of the sample mean

RESULTS: II
(controlling for other determinants of research performance)

- Moving from least to most underpaid decile predicts a 14 percentage point increase in the number of 'R' grades, approximately 39% of the sample mean

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MONKEY ECONOMICS?

- Part-time workers

- New researcher bias

- Workload

- "Teaching matters too!"

- 'Monkey-mimicking' behaviour

CONCLUSION 4

- The greater a discipline's average salary in US universities, the weaker its research performance in NZ universities.

- NZ universities apparently get what they pay for: disciplines in which compensation is high relative to opportunity cost are best able to recruit high-quality researchers.

- Paying (relative) peanuts attracts mainly monkeys.

FINAL REMARKS

- Experts respond to financial incentives!

- Quality of performance is money-sensitive.

- But unknown whether this can be successfully exploited
    - decrease intrinsic motivation
    - unforseen consequences, e.g., 'multitasking'