The psychology of Labor
The standard perspective is that employers buy the time and effort of the employees in exchange for money.

What are some additional assumptions of this perspective?

What are some of its implications?
Something seem to be missing

What can psychology teach us about labor?
The psychology of labor

- Relative vs absolute levels of compensations
- The relationship between payment and motivation, effort, performance
  - Low payments, high payments
- Labor & meaning
- Sabotage
Relative vs absolute levels of compensations
Relative vs absolute levels of compensations

- Person A gets $80,000 in a company where the range is $80,000 - $100,000
- Person B gets $70,000 in a company where the range is $50,000 - $70,000

Who will be happier? Who will work harder? Who will stay longer with the company?

What job will you select?
Salary & happiness

- So, happiness is at least partially determined by relative salary

- Relative to what?

- How would you order the different effects?

- What is the largest determinant of them?
Implications

- How would you keep your employees happy with their salary?
- How would you compensate them?
- What structural changes could you take?
- How would you deal with salary decreases and retirement?
The relationship between payment and motivation, effort, performance

At low levels of payment
A tale of 2-markets

Imagine you are about to move to a new apartment and you need some help in packing and carrying your stuff to your new home.

Who to ask for help?

What to promise them as compensation?

Imagine that you start a new company. How would you want to pay your employees? Hourly? Monthly? With cash or with cash & gifts?
A few theories

Level of payment

No Payment  Low Payment  High Payment

Effort level

0.0  0.2  0.4  0.6  0.8  1.0  1.2

Altruism

Reciprocity

Selfish maximization

Level of payment

No Payment  Low Payment  High Payment
Fiske’s Rational theory (1992)

Four basic types of social relationships:

Communal Sharing (CS)
- high-level of cooperation, equal treatment of all, and “we-ness.”

Authority Ranking (AR)
- A clear superior-subordinate relationship.

Equality Matching (EM)
- Combine features of CS and AR relationships – they are very structured but with perfect equality.

Market Pricing (MP)
- generally consist of on-going cost/benefit analysis and participants are paid for their labor via a wage rate that reflects the amount and quality of the work performed
Fiske’s Rational theory (1992)

Four basic types of social relationships:

Communal Sharing (CS)
- high-level of cooperation, equal treatment of all, and “we-ness.”

Authority Ranking (AR)
- A clear superior-subordinate relationship.

Equality Matching (EM)
- Combine features of CS and AR relationships – they are very structured but with perfect equality.

Market Pricing (MP)
- generally consist of on-going cost/benefit analysis and participants are paid for their labor via a wage rate that reflects the amount and quality of the work performed
Hypotheses

The relationship between payment and effort will depend on the type of exchange (money vs. social markets).

In Money-Market relationships effort will be exerted according to the reciprocity theory.

In Social-Market relationships, effort will be shaped by the altruism theory and will not be sensitive to the level of payment.
What about not paying?

Rich background in social psychology

Dissonance / intrinsic & extrinsic motivation

Plus some interest in economics (e.g. Gneezy & Rustichini 2000 a & b)

3 level of payments for (0, low, high):

Math tasks

Collecting donations

The results are V shaped and these were interpreted as incomplete contracts
Hypotheses

Level of payment
- No Payment
- Low Payment
- High Payment

Effort level

Social-Market

Money-Market

Level of payment
- No Payment
- Low Payment
- High Payment
Two-markets

What can shift people from one market to the other?

In cases when both social and money aspects are present, which will “win”?

Hypothesis:

Introducing monetary payments into a social exchange will cause individuals to shift from perceiving the exchange as a Social-Market to a Money-Market, and effort patterns will follow.
Experiment 1

- Hypothetical survey about helping to move a sofa
- Asking for willingness of other students to help on a 11-point scale
<table>
<thead>
<tr>
<th>Level of payment</th>
<th>Form of payment</th>
<th>Cash</th>
<th>Candy</th>
<th>$Candy</th>
</tr>
</thead>
<tbody>
<tr>
<td>No</td>
<td>$0.5</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Low</td>
<td></td>
<td>$0.5</td>
<td>Candy bar</td>
<td>$0.5 candy bar</td>
</tr>
<tr>
<td>Middle</td>
<td></td>
<td>$5</td>
<td>Godiva box</td>
<td>$5 Godiva box</td>
</tr>
</tbody>
</table>
Results Exp1

Expected WTH

- Money
- Candy
- $Candy
- Control

Level of payment
- No Payment
- Low Payment
- High Payment

Expected WTH vs Level of payment graph
Conclusion Exp 1

- All main predictions held in this hypothetical surveys
- Will they hold with real effort?
Experiment 2

In the greatest tradition of social psychology using a mind numbingly boring task for 3 minutes
The task
<table>
<thead>
<tr>
<th>Level of payment</th>
<th>Form of payment</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>No</td>
<td>Cash</td>
<td>Candy</td>
</tr>
<tr>
<td>Low</td>
<td>$0.1</td>
<td>5 JB</td>
</tr>
<tr>
<td>Middle</td>
<td>$4</td>
<td>1/2 lbs JB</td>
</tr>
</tbody>
</table>
Results Exp2

- Effort level (balls)
  - No Payment
  - Low Payment
  - High Payment

Payment Types:
- Money
- Candy
- Control
Conclusion Exp2

- The cash and candy conditions support the “two-markets” hypothesis.
- Candy ≠ Cash conditions.
- Effort under no payment is above low cash payment but not above low candy payment.
Experiment 3

- Testing the Cash vs. $Candy conditions
- In a domain of mental effort
The task (1-4)

Select a set of numbers that adds up to 100

<p>| | | | | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>19</td>
<td>20</td>
<td>26</td>
<td>27</td>
<td></td>
</tr>
<tr>
<td>5</td>
<td>10</td>
<td>13</td>
<td>38</td>
<td></td>
</tr>
<tr>
<td>17</td>
<td>40</td>
<td>34</td>
<td>31</td>
<td></td>
</tr>
</tbody>
</table>

Current total = 52

I give up
The task (5)

Select a set of numbers that adds up to 100

- [ ] 11
- [ ] 15
- [ ] 61
- [X] 27

- [X] 42
- [ ] 57
- [X] 3

- [ ] 30
- [ ] 8
- [ ] 19
- [ ] 69

Current total = 72

I give up
## Design

<table>
<thead>
<tr>
<th>Level of payment</th>
<th>Form of payment</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>No</td>
<td>Cash</td>
<td>$0.5 - $0.5 candy bar</td>
</tr>
<tr>
<td>Low</td>
<td>$0.5 candy bar</td>
<td>$0.5 candy bar</td>
</tr>
<tr>
<td>Middle</td>
<td>$5</td>
<td>$5 Godiva box</td>
</tr>
</tbody>
</table>

**Diagram:**
- Candy

**Form of payment:**
- Cash
- $Candy
Results Exp3

Level of payment

Effort level (seconds)

No Payment Low Payment High Payment

Money $Candy Control

Level of payment
Conclusion Exp3

The similarity between the cash and $candy conditions suggest that mean mentioning $ is sufficient to change the type of relationship from social to money markets.

No payment is a social market and thus higher in effort.
Mark Twain ends chapter 2 of Tom Sawyer by noting that:

“If he (Tom) had been a great and wise philosopher, like the writer of this book, he would now have comprehended that work consists of whatever a body is obliged to do, and that play consists of whatever a body is not obliged to do.” He than continues and adds that “There are wealthy gentleman in England who drive four-horse passenger-coaches twenty or thirty miles on a daily line in the summer, because the privilege cost them considerable money; but if they were offered wages for the service, that would turn it into work, and then they would resign.”
Other examples

Paying for help seem to dramatically change the nature of the help

“I am not chagrinning you because if I would, you would not be able afford me”

Paying for sex seem to dramatically change the nature of sex

“The most expensive sex is free sex” -- Woody Allen

“The big difference between sex for money and sex for free is that sex for money usually costs a lot less” -- Brendan Behan
Summary

- Paying changes the nature of labor
- The currency of payment (and the link to effort) also influences the nature of labor
- Companies can strive to have a mix of social and money markets in their relationships
The relationship between payment and motivation, effort, performance

At high levels of payment
Large Stakes & Big Mistakes
Incentives

- Incentives are an important part of the labor market.
- The basic assumption is that increased (decreased) payment for performance will cause individuals to work more (less).
- Non-performance based, and long term payments are more complex...
High incentives @ work

- Stock brokers: commission compensation + bonus
- P&G partner advertising agencies: payment-by-results
- National federations in soccer World Cup: payment-by-round
- Students at school: “payment”-by-evaluation
- Farm labor, Sales peoples, etc.
Incentives & performance

- Incentives do not always behave as we would expect.
- Decreasing incentives to 0 can increase effort (Lepper, Green & Nisbett 1973; Gneezy & Rustichini 2000; Heyman & Ariely 2004).
- What about increasing incentives? Can they be counterproductive? Under what conditions?
What do people predict?

**Packing-quarters predictions**

- **Earnings**
- **Very-Good**

**Simon predictions**

- **Earnings**
- **Very-Good**
Ψ of high incentives

The “Yerkes-Dodson law”

Experiment: rats had to learn to discriminate safe from unsafe areas in a cage. Performance showed an inverted U-shape relation between arousal (size of electronic shock) and learning.
The “Yerkes-Dodson law”

Task X vs Task Y

Performance vs Arousal

Higher stakes
Ψ of high incentives

- Chocking under pressure
  - Taking an exam
  - Giving a talk
  - Home teams: championship in baseball and basketball (Baumeister & Steinhilber 1984)
  - Roll-up game (Baumeister 1984)
- All of these suggest a possible decrease in performance
We assume that link 1 is correct, but question link 2 for very high incentives.
High, but not moderate, incentives can be counterproductive and can produce a reduced level of performance
Experiment setup

- A place that we could pay a substantial sum given our research budget ➔ rural India
- Payment for performance on 7 tasks
The population

- Average all-India monthly per capita consumer expenditure (MPCE) in rural areas: Rs 495 (approx. $10)
- TV: 49.4%; Telephone: 6.9%
- Transportation: 51.7% bicycle, no cars
- Education: 5.6 years, 26% no formal education
- Religion: 90.8% Hindu, 5.7% Christians, 3.4% Muslims
- Gender: 26.4% female, 73.6% male (87 people)
### Payment Levels

<table>
<thead>
<tr>
<th></th>
<th>P &lt; Good</th>
<th>Good &lt; P &lt; VGood</th>
<th>P &gt; VGood</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Low</strong></td>
<td>0 rs</td>
<td>2 rs</td>
<td>4 rs</td>
</tr>
<tr>
<td><strong>Medium</strong></td>
<td>0 rs</td>
<td>20 rs</td>
<td>40 rs</td>
</tr>
<tr>
<td><strong>High</strong></td>
<td>0 rs</td>
<td>200 rs</td>
<td>400 rs</td>
</tr>
</tbody>
</table>

- **DV1** = % of people with \( P > (VGood) \)
- **DV2** = % of max possible payment
Game Types

- Creativity
- Concentration
- Motor skills
- Bluffing ability
Game 1 - creativity

Packing Quarters

- fit 9 metal pieces into black frame as fast as possible

Scoring Rule:

- 1 trial
- good: $\leq 240$ sec
- very good: $\leq 120$ sec
Game 1 - results

Packing-quarters

- Earnings
- Very-Good

<table>
<thead>
<tr>
<th>Game 1 - results</th>
</tr>
</thead>
<tbody>
<tr>
<td>Low</td>
</tr>
<tr>
<td>Mid</td>
</tr>
<tr>
<td>High</td>
</tr>
</tbody>
</table>

- p=.337
- p=.493
- p<.001, p=.020
- p<.001, p=.006
Game 2 - concentration

Simon

- repeat sequence by pushing corresponding light-buttons in same order

Scoring Rule:

- 10 trials
- good: 1 repetition of $\geq 6$ consec. lights
- very good: 1 repetition of $\geq 8$ consec. lights
Game 2 - results

Simon

Earnings

Very-Good

Low
Mid
High

0% 10% 20% 30% 40% 50% 60% 70% 80%

p=.865

p=.014, p=.010

p=.178

p=.095, p=.005
Game 3 - Concentration

Recall last 3-digits

- Experimenter reads sequences of digits, stops at an unannounced point. Participant has to recall the last 3-digits (e.g., 8,7,8,2,5,9,7,3)

Scoring Rule:

- 14 trials
- Good: $\geq 4$ correct trials
- Very good: $\geq 6$ correct trials
Game 3 - results

Recall last 3 digits

- Earnings
- Very-Good

Low: p=.896
Mid: p=.157, p=.207
High: p=.638, p=.180, p=.075
Game 4 - bluffing

Lying about a coin-flip

- flip a coin and send a signal to research assistant about the state of the coin. Research assistant has to guess the true state. If s/he doesn’t, participant gets 1 point.

Scoring Rule:

- 10 trials
- good: $\geq 6$ points
- very good: $\geq 8$ points
Game 4 - results

Lying about coin flip

Earnings

Very-Good

p = .629, p = .986, p = .103, p = .022, p = .003, p = .004
Game 5 - motor skills

- Labyrinth
  - Pass the ball along the path-way avoiding the holes in the board from “start” to “finish”

- Scoring Rule:
  - 10 trials
  - good: 1 trial $\geq$ 7th hole
  - very good: 1 trial $\geq$ 9th hole
Game 6 - motor skills

Dart Ball
- Throw a velcro ball at the inflated target

Scoring Rule:
- 20 trials
- good: \(\geq 5\) balls hitting the center
- very good: \(\geq 8\) balls hitting the center
Game 6 - results

Dart-Ball

Earnings

Very-Good

- Low: p = 0.176
- Mid: p = 0.346, p = 0.602
- High: p = 0.206, p = 0.080, p = 0.619
Game 7 - motor skills

Roll-Up

Attempt to drop the ball into the highest possible slot by deftly spreading apart then pushing together the two rods.

Scoring Rule:

- 20 trials
- good: $\geq 4$ balls hitting the furthest hole
- very good: $\geq 6$ balls hitting the furthest hole
Game 7 - results

Roll-Up

- Earnings
- Very-Good

- p=.887
- p=.896
- p=.202, p=.166
- p<.050, p=.044
Results all (I)

- **Creativity**
- **Concentration**
- **Motor Skill**
- **Bluffing**

**Graphs**

- Packing-quarters
- Simon
- Dart-Ball
- Lying about coin flip
- Recall last 3 digits
- Roll-Up
- Labyrinth

**Scores**

- Low
- Mid
- High

**Earnings**

- Very-Good
Results all (II)

- Incentive level:
  - Low
  - Mid
  - High

- Earnings
  - Very-Good

- Statistic:
  - $p = 0.919$
  - $p < 0.001, p < 0.001$
  - $p = 0.450$
  - $p < 0.001, p < 0.001$
Summary

- No obvious difference in pattern of performance across the different game types.
- Except for 1 case (i.e. Labyrinth) there was no (marginally) significant difference in performance between low and mid payment conditions.
- Performance always lowest in high payment condition when compared with low and mid payment conditions together.
Predictions?

Can people predict this?

The effect of very high incentives would be of no consequence if people know about it and avoid incentives that are too high for particular tasks & individuals.
We described the India study to 60 students.

Students had to predict the results for Simon & Packing Quarters:

- Fraction of participants who would reach $P(\text{Good})$ & $P(\text{VGood})$ in each of the 2 games & each of the 3 payment conditions

Incentive: students were paid by accuracy of their prediction (max of $10$)
The prediction study (II)

Payment method per set:
- set = game & performance level
- max. $2.50 per set

<table>
<thead>
<tr>
<th>Total Difference</th>
<th>Payment</th>
</tr>
</thead>
<tbody>
<tr>
<td>0-2</td>
<td>$2.50</td>
</tr>
<tr>
<td>3-5</td>
<td>$2.25</td>
</tr>
<tr>
<td>6-8</td>
<td>$2.00</td>
</tr>
<tr>
<td>9-11</td>
<td>$1.75</td>
</tr>
<tr>
<td>12-14</td>
<td>$1.50</td>
</tr>
<tr>
<td>15-17</td>
<td>$1.25</td>
</tr>
<tr>
<td>18-20</td>
<td>$1.00</td>
</tr>
<tr>
<td>21-23</td>
<td>$0.75</td>
</tr>
<tr>
<td>24-26</td>
<td>$0.50</td>
</tr>
<tr>
<td>27-29</td>
<td>$0.25</td>
</tr>
<tr>
<td>&gt;=30</td>
<td>$0.00</td>
</tr>
</tbody>
</table>
Students predicted that as reward increased participants in the original experiment would on average...

- be more likely to achieve $P(V\text{Good})$
- receive a higher % of max possible payment
Predictions: results (II)

Repeated Measure ANOVA results:
Earnings: $F(2, 42) = 51.328, p < .001$; all 3 pairwise comparisons $p < .001$
Very-Good: $F(2, 42) = 64.336, p < .001$; all 3 pairwise comparison $p < .001$
Predictions: implications

- Students do not seem to have an intuitive understanding of the possible negative effects of very high incentives.
- Do others? Do HR experts understand this?
- Do companies set very high incentives for other purposes?
Providing incentives are generally costly for those providing them, raising contingent incentives beyond a certain point may be a losing proposition.
Other questions

- Can people get used to high incentives?
- How high is too high?
- Would breaking bonuses into many smaller bonuses help?
- What kind of tasks are more likely to have negative effects of very large incentives?
Summary

- We often assume that higher incentives increase performance (perhaps in a diminishing returns)
- These results show that higher incentives can decrease performance
Labor & meaning
Why do people work?

- The standard view is that people exchange leisure for labor in order to get $.
- What are the implications of this view?
  - Nothing else matters
  - People should stop working once they have reached their level of optimal returns
The meaning of labor

- Build Lego for pay ($3, $2.70 etc.)
- 2 conditions
Sabotage
Overall summary: Topics

- Relative vs absolute levels of compensations
- The relationship between payment and motivation, effort, performance
  - Low payments, high payments
- Labor & meaning
- Sabotage
Overall summary

- Labor is complex
- People work for many different motives and incentives
- Figuring out these motives can help making employees happier and more productive
- Labor is not more rational than other aspects of our life -- and it is important to figure it out