Inequality and Happiness

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[Partly based on Clark and D'Ambrosio (2015), *Handbook of Income Distribution, Vol. 2A*, Chapter 13]
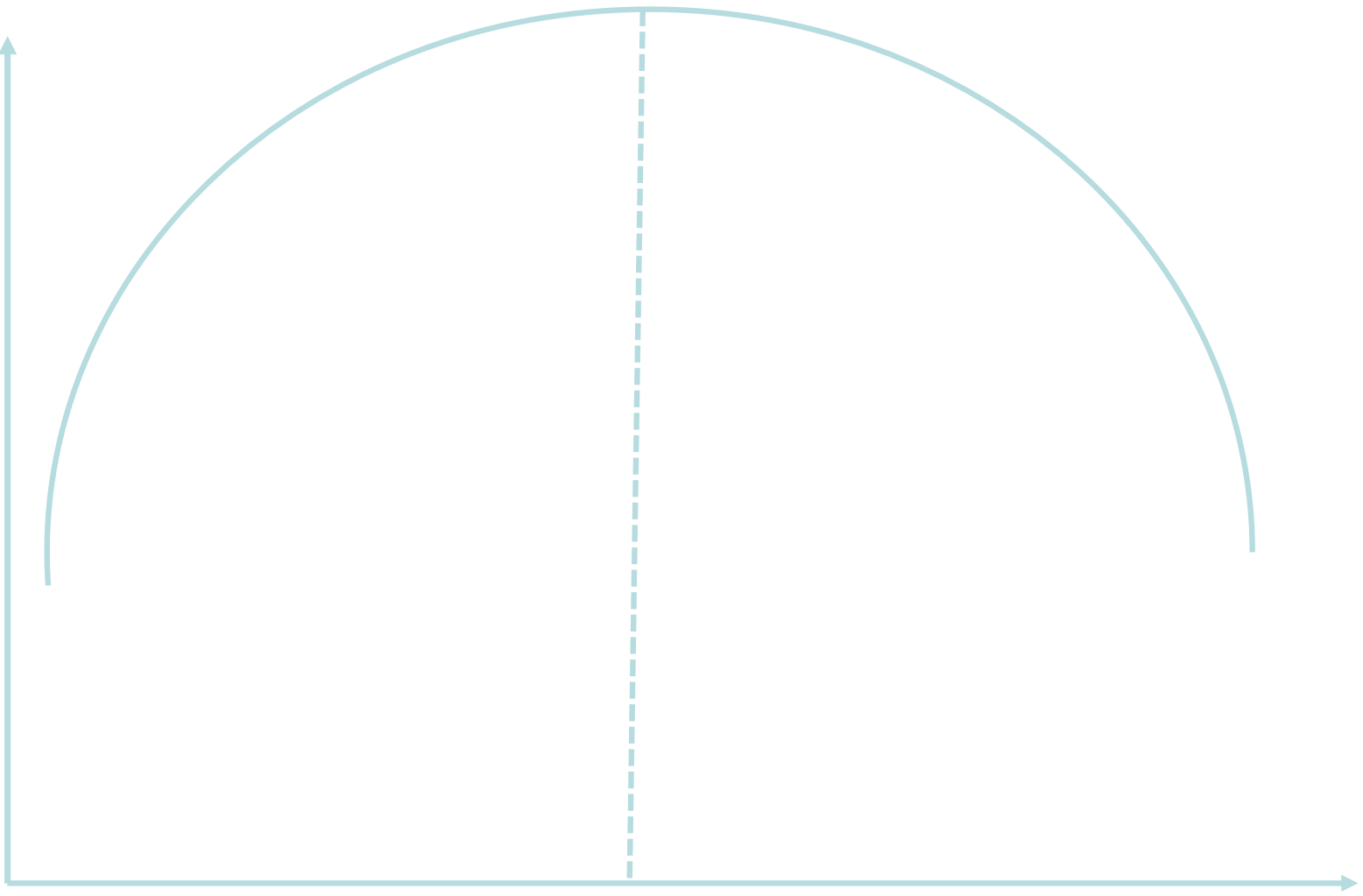
This presentation is going to be about one thing that you think you know about …. because of this lecture series

- Income Inequality;

And subjective well-being, or happiness
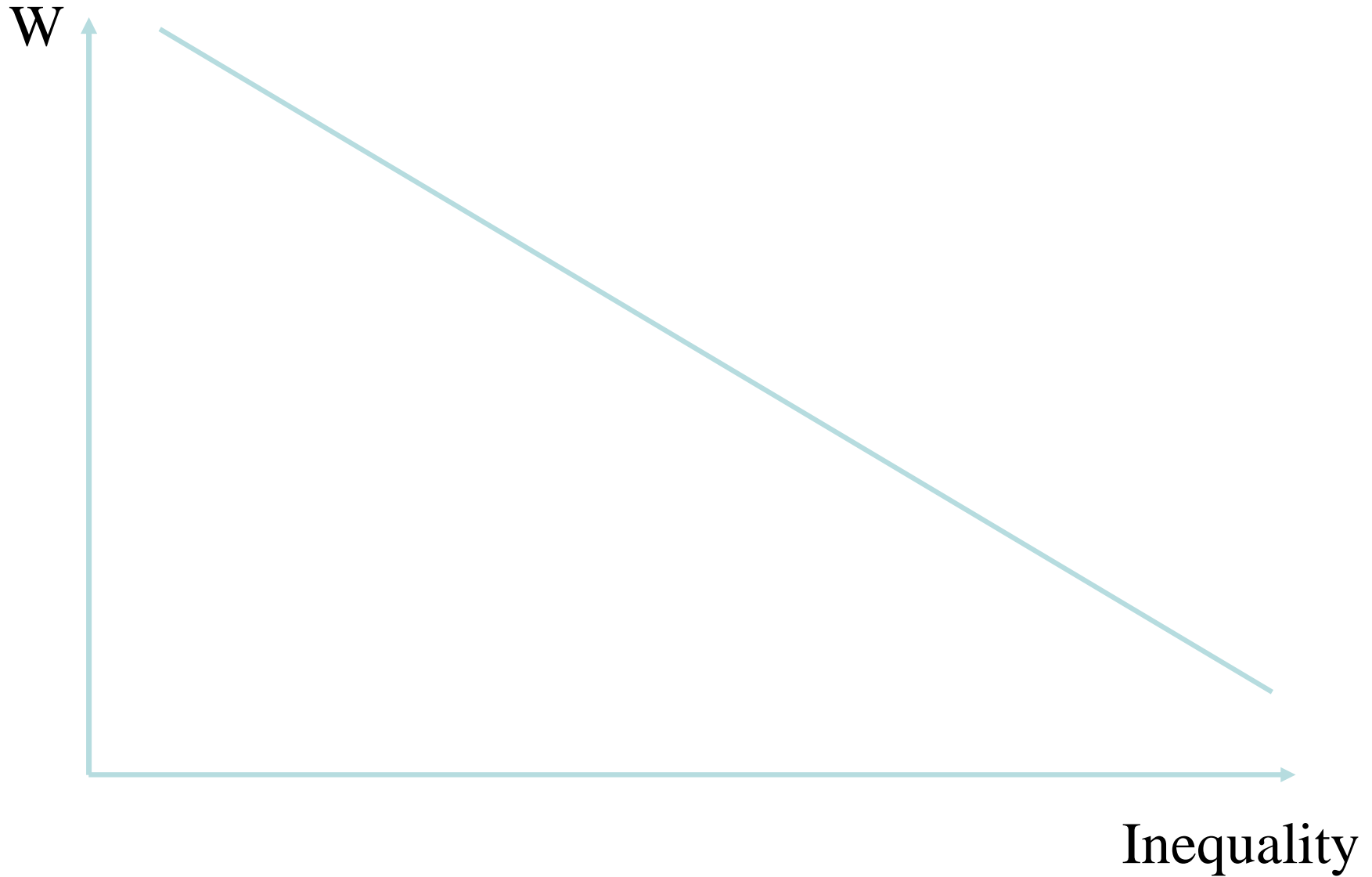
What do we think the relationship might be?

Why this hump shape?

Because of incentive problems at low levels of inequality

And fairness issues at the top end

So holding the size of the pie to be shared constant:

W

Inequality

We have inequality aversion

There are then two key variables

- **Income Inequality**;
- And **subjective well-being**, or happiness;

You know what the first is.

But what is the second?

Satisfaction Questions

The BHPS/Understanding Society Question:

Here are some questions about how you feel about your life. Please tick the number which you feel best describes how dissatisfied or satisfied you are with the following aspects of your current situation.

Your life overall

[1] [2] [3] [4] [5] [6] [7]

   not satisfied at all ⟶ completely satisfied

This question is also asked about domains of life:

e.g. health, income, house, partner ...

ONS Happiness Survey Questions Revealed

After becoming Conservative leader in 2005, David Cameron said gauging people's feelings was one of the "central political issues of our time".
"It's time we admitted that there's more to life than money and it's time we focused not just on GDP but on GWB - general well-being," he said.

The ONS will add the subjective questions to its next annual Integrated Household Survey
The questions will include:
Overall, how satisfied are you with your life nowadays?
Overall, how happy did you feel yesterday?
Overall, how anxious did you feel yesterday?
Overall, to what extent do you feel the things you do in your life are worthwhile?

www.bbc.co.uk/news/uk-12566965

These are very often single-item measures (drives psychologists mad).

These provide democratic, not paternalistic, measures of well-being: it is you who decides what the good life is.

They are intuitively understood: there are few missing values

Despite their simplicity, they do seem to be picking up essential information about the quality of individuals' lives

Cross-Rater Validity

- If *A* is happy, then *B* is more likely to say that *A* is happy too: including *A*'s family, friends and the interviewer.

- This generalises to people you don't know: respondents shown pictures or videos of others accurately identify whether the individual shown to them was happy, sad, jealous, and so on.

Physiological and Neurological Evidence

- There is a strong positive correlation between emotional expressions like **smiling**, and **frowning**, and answers to well-being questions

- In right-handed people, positive feelings are generally associated with more **alpha power in the left prefrontal cortex** (the dominant brain wave activity of awake adults are called alpha waves), and negative feelings with more alpha power in the right prefrontal cortex (approach and avoidance).

- **Left-right brain asymmetry** is shown to be associated with higher levels of positive affect, and with both hedonic and eudaimonic well-being

- Brain asymmetry is also associated with physiological measures, such as cortisol and corticotropin releasing hormone (CRH)

- These are involved in response to stress, and with antibody production in response to influenza vaccine.

Predicting Health Outcomes

- High correlations in the expected sense between well-being scores and coronary heart disease, strokes, suicide and length of life.

- The Nun Study: happier nuns when they joined a convent in the 1930s (textual analysis of biography) live longer.

- Individuals with higher life satisfaction scores were less likely to catch a cold when exposed to a cold virus, and recovered faster if they did.

Predicting Labour Market Outcomes

- In the labour market, job satisfaction at time t is a strong predictor of job quits (even when controlling for wages, hours of work and other standard individual and job variables).

- Effort at work.

- Reciprocity between workers and firms

- Active sabotage

In general, SWB scores are "well-behaved"

Variables often associated with higher SWB:

– being in employment

– having good health

– being married

– being female

– having higher income

– (not) having children (?)

– Mid-life crisis: being young; or being old

So subjective well-being measures make sense and uncover the relationships that we "think" that they should.

And of course we all believe in inequality measurement

Is well-being "well-behaved" with respect to income inequality too?

I used to think that this was a no-brainer question

I don't any more…

1) A very simple model of inequality and happiness produces a simple answer:

i) Individual well-being is **concave in income** (an extra $1000 matters less for someone with $200 000 than for someone with $40 000)

ii) The "social welfare function" (our overall index for how society is doing) rises with the sum of individual well-being

Then **greater income inequality reduces social welfare** (as we are taking income away from those who value it more)

Game over!

But can it really be that easy?

Inequality is a social phenomenon: it refers to disparities in incomes between individuals (i.e. there is income inequality when some individuals receive different incomes than do others).

2) We can have a dispassionate normative opinion about any distribution of income, which is independent of our own position in that distribution.

- I can have an opinion about income distribution in Luxembourg

- You can have an opinion about income distribution in Brazil

- We can both have an opinion about the distribution of income in 19th Century Germany.

These "gut feelings" may well lead us to say that there is too much inequality too… (but we'll come back this to think why)

Over and above our (correct) fixation on the diminishing marginal utility of income, we can then still conclude that inequality reduces subjective well-being, right?

Not finished yet though…

3) Most of the time, we also appear in the income distributions that are changing.

So: any change in incomes will affect not only my own income, but also the gaps between my income and the income of others in my society (to whom I compare) – my reference group.

This brings about a passionate response, as it were.

Changing income inequality affects not only how much income I receive (my absolute income), but also how much richer and poorer I am compared to others.

In this sense, we can think of the utility from income, as depending on not only my income but also the income of my reference group:

$$V = V(Y_i, Y_{i,\,ref})$$

We think in general that:

$$V = V(Y_i, Y_{i, ref})$$

$$+ \quad -$$

An increase in income inequality that makes you richer (but not me) then makes me relatively poor (relative to you) and reduces my well-being

But the same increase in income inequality that makes you richer (but not me) makes you relatively rich (relative to me) and increases your well-being

Here, the rise in your income makes you richer in dollars, and you richer relative to everyone else.

But at the same time, this rise will make anyone who compares to you (for whom you are in their "reference group") relatively poorer.

In general then, any change in the distribution of income will have many, many effects on our incomes relative to others, depending on:

- the change in how much we earn;
- the change in how much others earn;
- to whom we compare (Everyone? Richer? Poorer?)

Let's take all of this at face value.

The correlation between inequality and happiness will be

1) Negative via own income (concavity)
2) Negative? (but who knows) via normative evaluation (this depends on your views of fairness)
3) Ambiguous via comparisons to others, as it depends how your own income changes relative to that of your reference group.

The jury really is out.

The main culprit so far for this ambiguity is income comparisons: inequality implies changes in both absolute income, and relative income.

Life would be so much easier without the latter

So how do we know that income comparisons matter for individual happiness?

1) **Happiness approach**: Luttmer (2005) US National Survey of Families and Households

TABLE I
BASELINE REGRESSION

Dependent variable: Self-reported happiness	(1) Baseline		(2) Only main respondent		(3) IV for own income	
	Coeff.	S.E.	Coeff.	S.E.	Coeff.	S.E.
PUMA ln *earnings* (predicted)	−0.239**	0.066	−0.248**	0.083	−0.296**	0.076
ln *Household income*	0.123**	0.020	0.111**	0.024	0.361**	0.102
ln *Value of home*	0.068**	0.021	0.073**	0.025		

NB. Equal and Opposite

Clark (1996). BHPS (UK): very local comparisons

Log hourly pay: $\ln(HP_i)$	0.111	0.039	0.060
	(0.060)	(0.068)	(0.066)
Log Hours	-0.251	-0.246	-0.250
	(0.061)	(0.061)	(0.061)
Log spouse's	-0.121	-0.056	-0.047
hourly pay: $(\ln(HP_s))$	(0.044)	(0.052)	(0.059)
Dummy: $HP_i > HP_s$	---	0.171	---
		(0.074)	
Log spouse's hourly pay	---	---	-0.069
(when $HP_s > HP_i$)			(0.037)

Estimated only on couples where both partners are in work. Includes other standard control variables.

2) **Ask people**. Preference for rising income profiles, and preferences for lower absolute incomes:

- **A**: Your current yearly income is $50,000; others earn $25,000.

- **B**: Your current yearly income is $100,000; others earn $200,000.

Individuals have a marked preference for A over B.

Positionality differs according to the domain. In Alpizar *et al*. (2005) this is stronger for cars and housing, and weaker for vacations and insurance.

3) **Experimental**.

In the ultimatum game (**where I essentially propose free money to you**) responders frequently reject offers that are under 25% of the total sum; as such the the vast majority of offers are between 40% and 50% of the sum.

Zizzo and Oswald (2001) report the results of an experiment whereby subjects can **pay to burn each other's money**. A majority of subjects chose to do so, even though it costs them real earnings. The average subject had half of her earnings burnt, and richer subjects were burnt more often.

4) **Natural Experiments**

Card *et al.* (2012): the revelation of information on others' earnings.

The natural experiment here is a court decision that made the salary of any California state employee public knowledge.

A local newspaper set up a website making it easy to find this information.

Following this website launch, Card *et al.* informed a random subset of employees at three UC campuses about the site.

Some days later, all employees on the three campuses were surveyed.

Compare the treatment group (informed about the website) to others to reveal the impact of information on others' salaries.

The reference group was defined here as co-workers in the same occupation group (faculty vs. staff) and administrative unit in the university.

The survey found lower job satisfaction for those with pay below the reference group median and a greater intention to look for a new job.

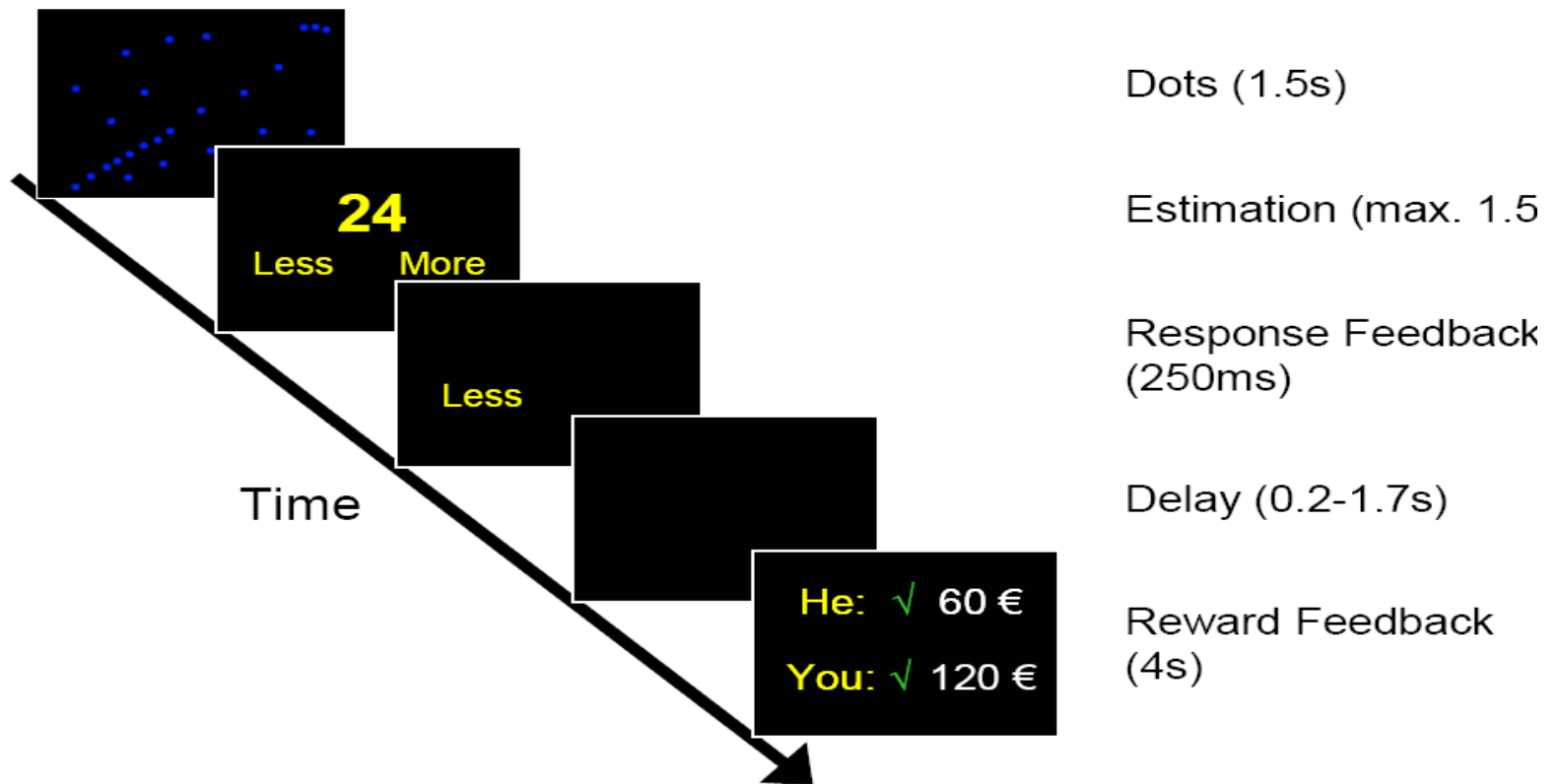The effect on both for those who were relatively well-paid was insignificant.

There is some evidence of an actual quitting effect on those who were found to be in the bottom earnings quartile in the reference group.

This is not a banal effect of "low pay leads to lower satisfaction and greater quits".

Pay in the treated and untreated groups is the same.

The treated group are instead more likely to find out that they are relatively badly-paid

5) **Neuro**. Fließbach, K., Weber, B., Trautner, P., Dohmen, T., Sunde, U., Elger, C., & Falk, A. (2007). "Social comparison affects reward-related brain activity in the human ventral striatum". *Science,* **318**, 1305-1308.

Dots (1.5s)

Estimation (max. 1.5

Response Feedback (250ms)

Delay (0.2-1.7s)

Reward Feedback (4s)

Payoffs vary according to whether the individual gets the task right, and also randomly when the task is correct

Accuracy	Relative reward level (A:B)	Absolute reward level	Payoffs in Euro (subject A – subject B)	Condition
Both subjects incorrect			0 – 0	C1
Subject A correct		High	60 – 0	C2
		Low	30 – 0	C3
Subject B correct		High	0 – 60	C4
		Low	0 – 30	C5
Both subjects correct	1 : 2	High	60 – 120	C6
		Low	30 – 60	C7
	1: 1	High	60 – 60	C8
		Low	30 – 30	C9
	2: 1	High	120 – 60	C10
		Low	60 – 30	C11

Table 1: Payoff conditions. Conditions of main interest (C6 to C11) are highlighted.

Brain activity measured via BOLD blood flow in various voxels.

Particular attention paid to the ventral striatum: the "neural circuitry of reward"

This kind of striatal activity has been shown to predict both hedonic outcomes (subjective well-being) and physiological outcomes (cortisol output: the body's response to stress)

Brain activation depends on relative income: compare C6, C8 and C11 (where the individual receives 60 Euros), and C7 to C9.

Fig. 3 (b)
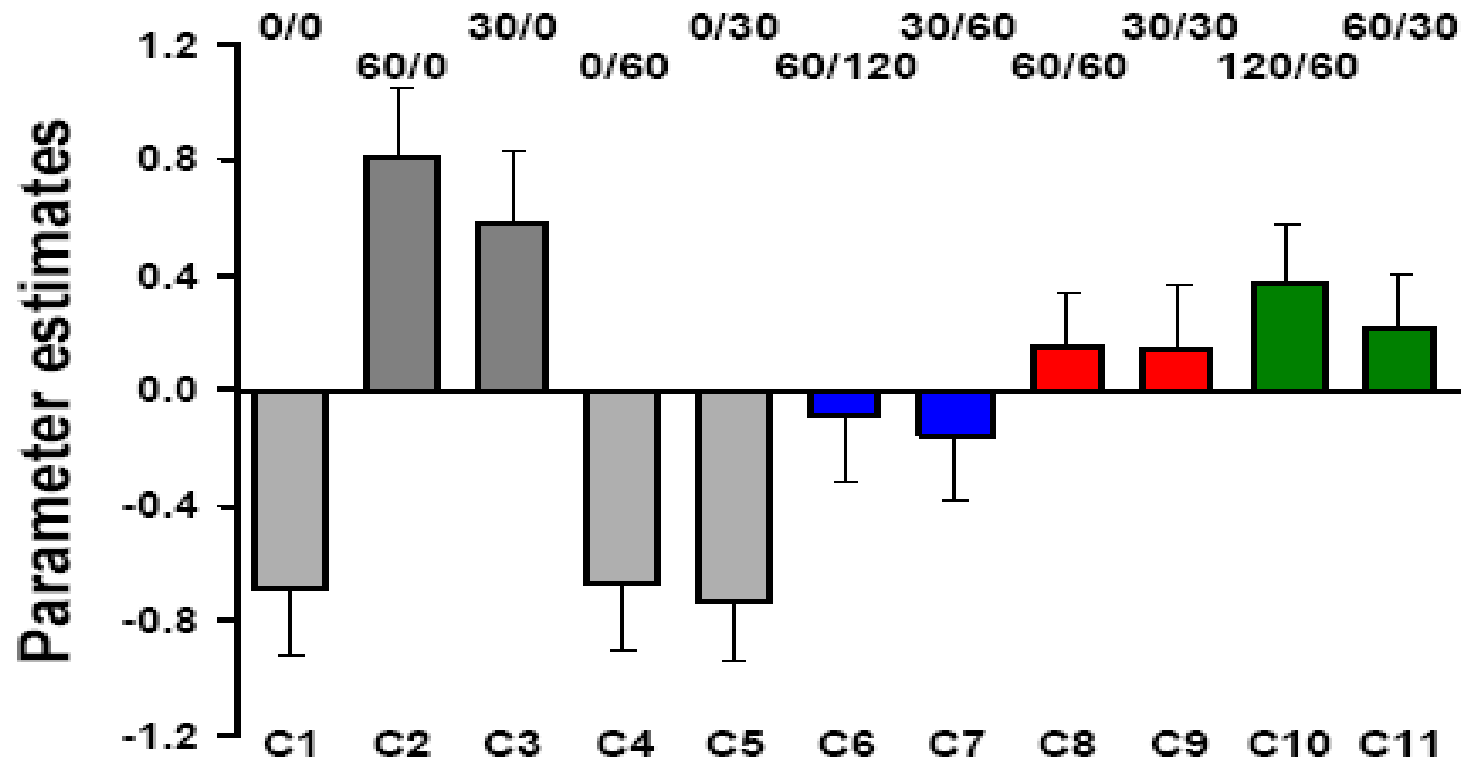
A variety of types of evidence then suggest that income comparisons exist.

So that inequality will affect well-being via relative income

What do we know about **normative** evaluations of inequality?

What do people say about the overall degree of income inequality, ***without*** making any comparisons to others?

Experimental attitudes to inequality

1) Trade off level of income to inequality of income:

- The "*hypothetical grandchild*";

The well-being of imaginary grandchilden in alternative societies which are characterized by different uniform income distributions (e.g., Society A ranges from 10,000 to 50,000 Swedish kroner, but Society B from 19,400 to 38,800 Swedish kroner).

Expected income higher in Society A

Choose the society that is best for your grandchild.

Respondents were also told that they **did not know their grandchild's position** in the income distribution, and that they should place equal probability on all outcomes.

The more inequality-averse the individual is, the more they are willing to trade-off expected income in order to achieve a more equal income distribution.

Individuals do exhibit a considerable amount of inequality aversion in these experiments

2) Do people even agree with the basic axioms of inequality measurement? Test the Pigou-Dalton transfer principle. The seminal book is this area is Amiel and Cowell (1999).

Verbal experiment:

"*Suppose we transfer income from a person who has more income to a person who has less, without changing anyone else's income. After the transfer the person who formerly has more still has more.*"

60% agree that this reduces inequality.

Consider two income distributions:

Society A = (I, 4, 7, 10, 13)

Society B = (I, 5, 6, 10, 13).

Only 1/3 agree that Society B is more equal than Society A (even though the "transfer" between the two corresponds to the Pigou-Dalton principle)

Individuals think of falling income inequality in Robin Hood terms (and perhaps also of rising inequality in Sheriff of Nottingham terms)
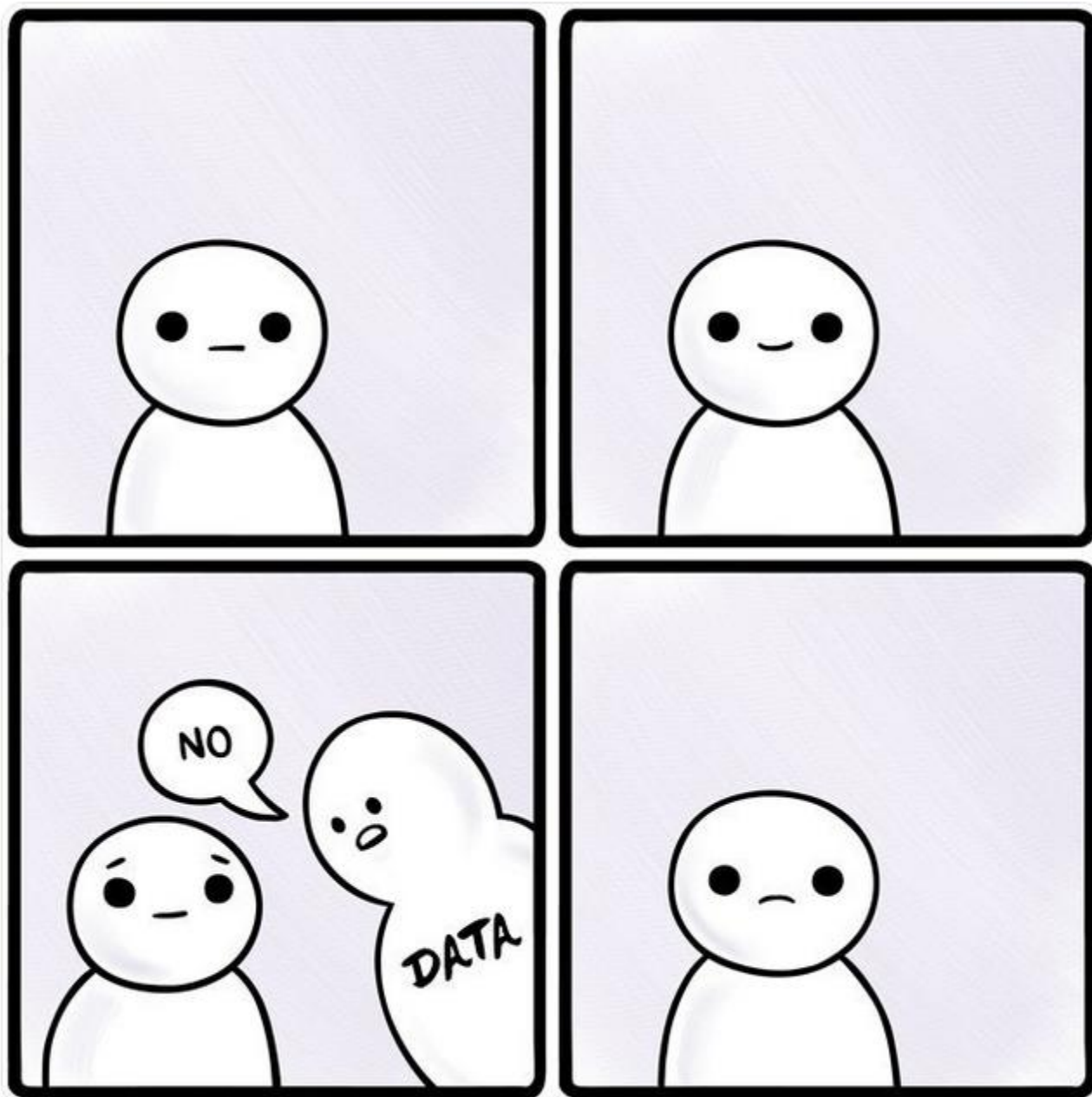
What is then the sum total of own income, income comparisons, and the normative evidence?

Inequality and well-being

There are many equations estimated such as:

$$W_{ijt} = \alpha + \beta Y_{it} + \gamma Ineq_{jt} + \varepsilon_{it}. \qquad (3)$$

The (real) scientific method.

Ineq here is almost always Gini.

Table 1 in our chapter provides a representative sample of estimation results for γ above.

There are 27 rows:
- In 14 γ is < 0
- In 5 it is > 0
- In 6 it is = 0
- In one we don't know
- And in the last, it is both positive and negative.

Probably fair to say that this is inconclusive (and beware of the Moulton correction!).

This empirical ambiguity is unsurprising if we believe that the correlation picks up the effect of own absolute income, own relative income and "pure" (normative) attitudes to income inequality.

Note 1

Is the Gini the "best" measure of the distribution for the normative evaluation? Gini moves relatively little over time, making multicollinearity a distinct possibility in cross-country work.

Others are possible, such as the income share of the top quintile, D9/D1, p95/p50, the percentage in poverty, or even rank in the income distribution.

Most applied work doesn't compare distribution measures

Note 2

Fairness and perceptions.

Above measures of income are objective: they measure what others in the society actually earn. This is of course not necessarily what individuals believe that others earn.

And their beliefs may not be correct

How good is your perception of your home country's income distribution?

The OECD's new web-tool Compare your income allows you to see whether your perception is in line with reality. In only a few clicks, you can see where you fit in your country's income distribution.

http://www.oecd.org/statistics/compare-your-income.htm

[Not telling you how well I did]

Note 3.

To whom do we compare?

Almost all of the survey literature assumes that everyone compares to everyone.

In the experimental literature, which can manipulate such things, comparisons to people richer than you matter more than comparisons to those poorer than you.

And we may well be altruistic with respect to some others.

Note 4.

Other outcome measures. We have looked at SWB and the desire to redistribute.

Other intriguing work has highlighted significant empirical correlations between (almost always) the Gini coefficient and:

- Agreeableness (Big Five):   -

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- Support for globalisation: **-**

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- Violent behaviour: **+**

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- Violent behaviour: **+**
- Self-enhancement: **+**

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- Agreeableness (Big Five):   **-**
- Trust: **-**
- Political Participation: **-**
- Support for globalisation: **-**
- Violent behaviour: **+**
- Self-enhancement: **+**
- Female Preferences for facial masculinity: **+**

Note 5.

Causality?

Let's just say that this has been treated in a pretty cavalier fashion in this literature.

Changes in income happen for a reason: could be that it is this reason that affects well-being, not income inequality as such.

Or that happiness causes inequality, rather than inequality causing happiness.

So all we need is an exogenous movement in the income distribution…

If only…

There is interesting work on the minimum wage.

Support for minimum-wage rises highest amongst minimum wage workers.

And lowest amongst those who earn just above the minimum wage (last-place aversion).

[Kuziemko, I., Buell, R., Reich, T., and Norton, M. (2014). ""Last-Place Aversion": Evidence and Redistributive Implications". *Quarterly Journal of Economics, **129, 105-149.***]

Final thoughts.

- There is no doubt that feelings of unfairness are a catalyst for well-being and behavior.

- This is something that we can observe currently.

- Are our objective measures of inequality the right ones?

- How are perceptions related to objective outcomes?

Final thoughts.

- Do we need a policy for distribution, or a policy for the perception of distribution?

- And if comparisons make us unhappy, can we learn to compare less?