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**Why Inequality Matters:
Lessons for Policy from the Economics of Happiness**

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DO CIGARETTE TAXES MAKE SMOKERS HAPPIER?

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MR. GRUBER: -- Can you hear me? I'll try and talk quieter now.

So basically they say the same type of real preference argument applies to what they call rational addicts, people who when they go to say buy a pack of cigarettes weigh the benefits of smoking against not only the costs in terms of the cost of buying that pack but also the cost in terms of the future health damage they're doing and the future extent to which they're addicting themselves to smoking.

So basically in their model the only justification for taxing addictive goods would be if there are interpersonal externalities to others beyond the traditional Ramsey sort of optimal tax kind of reasons.

But when we're debating tax policy towards addictive goods, policymakers often use quite a different framework when thinking about this. A classic example is smoking. Anti-smoking advocates claim that smoking is an unwanted habit and so by reducing consumption we're not distorting people away from what they want to do, we're distorting them away from what they don't want to do. So the classic quote here is, "Following a 70 cent tax hike in New Jersey one resident said he's not bitter about the tax hike. Anything that can motivate me to quit or motivate anyone else to quit is worth having."

So this I think is kind of a very typical policy argument about taxes on addictive substances such as cigarettes, but it's very hard to evaluate. The reason is because the existing evidence on behaviors such as smoking are consistent with both of these arguments.

For example, we know that cigarette consumption is very price-sensitive with a price elasticity of around minus 25 or minus .6. But the fact that higher taxes reduce consumption doesn't say whether that's a good thing or a bad thing. If it reduces wanted consumption, that's a bad thing. If it reduces unwanted consumption that's a good thing. So the very fact that cigarettes are price sensitive does not speak to these welfare consequences.

What we're going to do in this paper is propose a new

approach consistent with the spirit of this conference which is to look directly at the effect of cigarette taxes on well being. A key place where these models do differ is in the rational addiction model a higher tax on cigarettes should lower the welfare of smokers. The idea is look, if they wanted to quit they would have already quit so if you do something which makes smoking less attractive that can only make them worse off. Whereas in other models of the kind I'll describe later, a higher cigarette tax, other models which yield this prediction that smoking is an unwanted habit, a higher cigarette tax can make people happier because you're helping them break this unwanted habit.

So what we're going to do empirically is really pretty straightforward. We're going to look at the effect of cigarette taxes on the well being of smokers, actually as I'll describe later, predicted smokers, in our data and ask does it increase their well being or reduce their well being? Then we'll go through a series of specification checks to sort of firm up our main result. Our main result is that there's very strong evidence it increases the well being of smokers which is inconsistent with the rational addiction model, and then I'll conjecture at the end on what alternative models this might be consistent with.

So let me start with the data, can half these measures be trusted? As I mentioned before, I have the advantage here that my own co-author says no. My own co-author, Sendhil Mullainathan has written an article in 2000 saying that these subjective survey questions are prone to significant bias in many arenas as we all know. But the key point in that article is that this is measurement error on happiness, but there's no dependent variable that's ever been used in a regression economic that doesn't have measurement error in it. The question is is the measurement error pernicious or is it purely white noise? That is, is the measurement error correlated with the acts of interest?

So what I want to convince you of is that happiness regressions are legitimate ways to look at the kind of question I'm going to look at if two conditions are met. First, that the happiness measure is correlated with the true index of well being. Okay? And second, that the measurement error in happiness is uncorrelated with the acts of interest.

In terms of the first I think I probably need to convince this room that by basically any field's criterion these happiness measures are correlated with well being by physiological criteria, by sociological criteria, by psychological criteria and by economic criteria. Happiness measures are correlated with well being. So that first condition is met. Happiness measures do correlate with well being.

The key question is the second condition and that's what we'll talk about as we go through the empirical strategy. Is the measurement error in happiness in this context random with respect to the acts of interest? If it is, then this kind of argument of [Bertan] and Mullainathan does not apply here.

Let me talk about our data empirical strategy for this work. We're going to use the GSS data that's been mentioned already, a national representative survey of households in the United States, from 1500 to 2500 households. We're going to use the '73 to '98 data. We have this typical happiness question. And what we're going to do is use the fact that cigarette taxes have changed a lot over the period of our study. So the summary statistics for our paper in Table 1, let me focus on the first half of Table 1 for now, you see that if you look down at the real tax rate it's about 32 cents a pack with a standard deviation of about 16 cents a pack. So there's a lot of variation in the cigarette tax rate.

We see the means of happiness here, about 32 percent of the people say they're very happy, about 12 percent say they're unhappy.

What's interesting is right off the bat smokers are a lot less happy than non-smokers, and actually we even see this in Carols' work, we've seen this in other people's work, there's even holds up in fixed effects. People start or quit smoking. They become more or less happy. But nonetheless there are clear problems in heterogeneity associated with the smoking decision that make that sort of hard to interpret. But nonetheless the sort of casual evidence would suggest smokers are less happy.

So what are we going to do? Well, what we could do initially is just run a regression like equation one in the paper which is regress happiness on taxes with a set of [stater] year fixed effects. This would be very much like if anybody's read anything in the smoking literature, this would be just like the regressions we used to model the price elasticity of cigarette consumption but replacing the dependent variable with happiness rather than consumption.

So as cigarette taxes go up within a state relative to other states, because they're stater year fixed effects, are people in the state happy or less happy?

If you do that you find that there's not much of an effect, and what we do in this paper is we just run separate linear probability models. The same with probits, but these are easier to interpret. Separate linear probability models to the three categories to sort of lay the data bare.

If you do that there's not much going on. They're a little bit less likely to be very happy, a little bit less likely to be unhappy, a little bit more likely to be pretty happy, but basically there's not a significant correlation between cigarette taxes and well being in the state.

But as we argue in the paper, this approach has a number of problems. The first problem is that cigarette tax changes may not be exogenous to happiness. It may be that for example as we've seen in the most recent fiscal crisis, states raise their cigarette taxes in recessions and recessions cause people to be unhappy. So there's a lot of reasons why these state year fixed effects are not sufficient to take out that endogeneity.

A second problem is this money's not thrown in the ocean, it's actually spent. We have to consider the fact that there might be happiness effects to the spending of cigarette tax revenues as well as happiness effects to the raising of cigarette taxes.

The third problem is, I just regressed this for the entire sample, but of course we wouldn't expect in fact some people like me for whom smoking is completely irrelevant, maybe small positive effects from reduced annoyance of having to have smoke in the air, but for most people there's sort of an irrelevant change. I'm not even really aware of what the cigarette tax is. If I didn't do research on it I wouldn't be aware of what the cigarette tax is.

So we really want to focus on the effects of people we care about which is those at risk of smoking. I'll define that in a few minutes.

I want to be clear, this is the part of the paper which confuses people the most so I'll try to be as clear as possible on it, but do let me know if there are questions.

What we're going to do is follow this longstanding approach in labor economics which is to contrast the impact of taxes on those likely to be affected relative to those unlikely to be affected. That solves the first two problems because hopefully things like recessions and things like spending effects operate equally on those likely to be affected and unlikely to be affected by the cigarette tax changes. I'll come back and provide more evidence on that later. The idea of that is -- and then idea that addresses the third thing, by focusing in the group we care about.

So what do we mean by those likely or unlikely to be affected? One way would be smokers or non-smokers, right? You could say what's the effect of cigarette taxes on smokers and

non-smokers. That's the clearest thing one might do. The problem is you can't do this for two fundamental reasons.

The first is sample selection bias. When the tax changes the set of people smoking are different so you can't ask how does this happen as the smokers change before and after a tax change because the set of people who are smoking are different people. You can't compare them. You don't have true longitudinal data here, at least we don't in the U.S.. We just have repeated cross-sections. So you can't compare smokers before and after because they're different people.

The second problem is that the effect of taxes is not just on the current smokers. In fact we think probably the bigger effect is on people it causes to quit. So if you look at the effect of cigarette taxes on the happiness of smokers you'll miss a lot of the effect because a lot of the effect is going to be on people who have quit smoking in response to cigarette taxes.

So really what you want is the effect on current smokers, former smokers, and maybe even in some sort of hyper-rational model potential smokers because you're reducing the sort of temptation of starting smoking.

So what you really care about is the propensity to smoke that's of interest in our context, not whether you're a smoker per se but your propensity to smoke which is exogenous so it's not shifted by whether the tax changes and picks up all these effects.

So what we do is form a measure of propensity to smoke by predicting smoking as a function of a bunch of X's -- income, education, race, marital status. A really important one is religious attendance. One of the most important predictors of whether you smoke is people who go to church more smoke less. That's a very important predictor. But all of these are fairly important predictors.

The R-squared here is not bad as these cross-section regressions go -- .13 to .2. And we don't need it to be one, we just need there to be a strong predictive component and there clearly is. It's highly significant.

MS. GRAHAM: How about number of children? After you have a certain amount do you start smoking more?

MR. GRUBER: Number of children I don't remember. It doesn't have a big affect either way. I don't remember if the kids driving you crazy effect dominates the responsibility effect. Drinking might be a different story. I don't remember what number of children does. It's in the appendix to the paper if you want

to look at it.

The simplest way to think about this is say okay, let's say we just split the sample into those likely to smoke and those unlikely to smoke. So call those likely to smoke sort of the treatment and those unlikely to smoke the control. The idea being those likely to smoke pick up any of these effects of the tax that policymakers care about. Those unlikely to smoke pick up the effects of the revenue on the revenue side and other sort of cyclical effects of cigarette tax changing. That's in the first panel of Table 3 in the paper.

When we do that what we see is insignificant effects on very happy and pretty happy, but a marginally significant effect, negative effect, on being unhappy. So for those who have a high propensity to smoke, there's a reduction in their unhappiness, but for those who have a low propensity to smoke there's no effect in their unhappiness. So we start to see with this unhappiness measure some indication that higher taxes have the sort of non-traditional effect, that they reduce unhappiness. But this is still a very inefficient regression framework.

The last thing we do is sort of use the full information by estimating a model where we interact the tax with the propensity to smoke. So now the idea is the tax that coefficient Delta picks up the effects of taxes on those unlikely to smoke, the coefficient Gamma picks up the effects of taxes on those likely to smoke, and the coefficient Theta is predicted to smoke, but we can't really interpret that because that's just an index.

VOICE: [Inaudible]

MR. GRUBER: Absolutely, and I'll come back in a little bit. I can't say we know that taxes reduce smoking a lot.

[Inaudible]

MR. GRUBER: -- people who are likely to smoke, so that must be the set of people for whom tax is a reason --

VOICE: [Inaudible]

MR. GRUBER: They're getting happier on average. I can't pick out who's happy and who's not. You can't do that with this kind of regression approach.

VOICE: [Inaudible]

MR. GRUBER: That's right. And ideally you have panel data to help you tease that out, but I can't here.

But the point is, this is an instrument of variables framework. On that framework you're asking on average, when the tax goes up is the group happier? On average, do they smoke less? The answer to both of those questions are yes.

Now is it the people in the group who are happier smoking less? I can't do that within my instrument of variables framework.

So when you estimate this sort of --

VOICE: [Inaudible]

MR. GRUBER: The propensity to smoke. It's an index.

VOICE: [Inaudible]

MR. GRUBER: It's an index formed from all those coefficients. You can see the regression. It's basically I regress your odds of smoking on a bunch of X's. I get a predicted smoking based on your X's. That becomes an index number that I use in this regression.

VOICE: [Inaudible]

MR. GRUBER: Right. X's.

VOICE: So that's [inaudible].

MR. GRUBER: Right.

VOICE: [Inaudible]

MR. GRUBER: Yes. So this coefficient data on P smoke is not well identified. But the interaction coefficient still is.

VOICE: So everything is on the interaction.

MR. GRUBER: Everything is on the interaction.

So the right way to think about this, because this is confusing, imagine I just said I'm going to cut the sample into those highly educated and low educated. I'm going to ask do cigarette taxes have a bigger effect on low educated people than high educated people? I wouldn't care about the coefficient of education in the regression. Education happiness is neither here nor there for this project. What I care about is the interaction between education and smoking. I'm just doing that with many X's instead of one.

VOICE: [Inaudible]

MR. GRUBER: That's exactly right. So that would mean I'm understating the effect here, right? What I'm going to find is that it makes those likely to smoke happier relative to those not likely to smoke. So it's making those not likely to smoke happier too. Then I'm understating the effect. Unless the story is that it makes those not likely to smoke sadder, it's going to work against me.

VOICE: [Inaudible]

MR. GRUBER: I think most of the examples I've heard it makes non-smokers happier to have less smoking around. So I think that biases against the finding.

So what do we find when we do this? The key coefficient, as Rafael pointed out, is this interaction. We get positive effects on being very happy or pretty happy and a significant negative effect on being unhappy. That says that higher cigarette taxes make those with a propensity to smoke happier.

VOICE: Isn't there a logical problem here? Imagine a doubling of the cigarette tax that deters some people from smoking and encourages others -- and others cannot beat their addiction. You would think there is going to be a very disparate impact. You would think the people who have to pay a much higher tax, holding constant their income since more of it is consumed in paying for this one consumption item --

MR. GRUBER: Let me get to the numbers. You're absolutely right. This is the mix of the people who are happier because they're smoking less and people who are sadder because they're still smoking. What I'm arguing and what this will imply is that stopping smoking is incredibly valuable. Let me just right now see if this answers your question.

So what does this coefficient imply? Let me sort of walk through what this finding means. We care most about the sign, to be honest. We cared most about the sign and the significance, but nonetheless, there is a coefficient here. Let's talk about what it implies and let's make sure it's sort of plausible.

So we say a dollar rise in taxes reduces unhappiness by those who have a propensity to smoke by .16 times minus .156. So .156 is the coefficient. .16 is the difference in the odds of smoking between our two groups. So on that there's a 2.5 percentage point effect on those likely to smoke relative to those unlikely to smoke from a dollar increase in taxes.

Now there's two ways to gauge this effect. One is contrast that to other predictors of happiness. For example, this says

move from the bottom to the third income quartile in our regression, it raises unhappiness by about four percentage points. So this says that \$1.60 tax which is five times the sample mean, so an enormous -- it doesn't sound that big in New York City today. Remember the mean in our sample is 30 cents. So a quintupling of the real tax in our sample would be equivalent to moving someone with a propensity to smoke from the bottom to the third income quartile. So that's a big move, but at the same time it's a big tax change.

I find that comparison hard to think about. The one I like better is what are the results, which comes to the question, what do the results imply to the effect of reducing smoking on happiness? By my estimates a ten cent price increase off our sample mean reduced the amount of smoking in the U.S. by six percent. That same price increase would decrease unhappiness by 1.6 percent.

So if you extrapolate wildly, reducing smoking by 100 percent would remove 27 percent of the unhappiness of smokers in the U.S.. Or alternatively, the other way to think about that is reducing smoking by 100 percent would remove roughly two-thirds of the unhappiness gap between smokers and non-smokers which strikes me as plausible.

VOICE: [Inaudible]

MR. GRUBER: That's possible.

VOICE: You would expect [inaudible] to increase [inaudible].

MR. GRUBER: That's possible. This sort of comes to Gary's question which is we've got two groups here. We've got those made happier because they're reducing their smoking, and that could be quitting or it could be cutting back. We've got those that are unhappy because they still smoke at this higher price.

What these results are telling you, this is just a reduced form regression. All I'm telling you is the former group dominates the latter group.

VOICE: The burden of my question was wouldn't you expect that a bigger proportion of the people who have a constant propensity to smoke would be very unhappy because you have just reduced their consumption possibility set for everything except cigarettes.

MR. GRUBER: Right, but the difference is you've got to weight the number of people versus the intensity. I've reduced, by a ten cent price increase I've reduced their income a little bit, whereas if someone quits their entire life has been changed

so you've got to weigh those two things against each other. All I'm saying is the weight of the data.

I understand, you're right, it could have gone either way, but the weight of the data suggests that the one effect is dominating the other.

But given that, given the radicalness of this finding, we've done a bunch of specification checks to try to convince you this finding is real. Let me just go through a couple of them to try to convince you of the thing I'm most convinced of with this paper which is that this is a real effect. Let me do that in two ways.

The first way is let's go look at Canada. Totally independent setting, but we have the same kind of data set but let's just replicate this exercise. The Canadian GSS asked about happiness a number of years. There's much more significant change in excise taxes in Canada than there were in the U.S.. Canadians are happier, you can see in Table 1. Taxes are higher and also more variable.

Now if you look at Canada and do the same kind of analysis that we did in the U.S. you see even not interacting you start to get an affect of taxes on unhappiness, but this interactive framework you see a very similar effect of a significant reduction in unhappiness in Canada.

Here's what's striking. That affect size, when interpreted the same way I did a moment ago is almost exactly the same as the U.S.. That is a moment ago I said the U.S. results implied that reducing smoking by 100 percent would close two-thirds of the unhappiness gap between smokers and non-smokers. This estimate implies that reducing smoking by 100 percent in Canada would reduce 100 percent of the unhappiness gap between smokers and non-smokers which is very close.

So the bottom line is there's a very similar effect from a totally different setting. Different data, different policy changes, very similar effects. That was one thing we found comforting.

The other thing that quite frankly I found even more comforting is basically this question of are those who are not predicted to smoke a valid control group? So you might say look in some sense we're treating those predicted to smoke as the treatment and those not predicted to smoke as the control but they're very different people. And maybe they're not a valid control group. Maybe, for example, revenues are spent in a way which disproportionately goes to those likely to smoke.

So a story you could tell is let's say cigarette taxes are spent, revenues spent very progressively. And let's say low income people are more likely to smoke. Then it could be the smokers are happier not because taxes are higher but because they're getting more spending on them. So that could be the kind of problem you could have here.

But there's a very simple way to go after this. Just say well, if that's true it should be true for other taxes, too, especially other excise taxes. So what's replicated are our entire framework including additional taxes in the same framework.

So what we did is we collected for the U.S. and Canada data on the beer tax, the gas tax, the sales tax, and total revenues per capita. And included in our model that other tax and the interaction of propensity to smoke with the other tax.

Now if all we were finding was a revenue effect or a political economy effect or something like that then you should see the same effect in the bottom row as you see from the next to last row. That is the other taxes should also show reductions in unhappiness. This is all the unhappiness regressions. The other taxes should show reductions in unhappiness just like the cigarette tax does, but they don't. In fact these coefficients are uniformly positive except for the total revenue effect for the U.S.. In fact what they show is that for other taxes when they're higher the happiness of predicted smokers is actually significantly lower which makes sense. They're regressive taxes.

So it sort of makes sense, if you just ask me are poor people worse off when you levy an excise tax the answer is probably yes. And that's what you see for beer taxes and gas taxes and sale taxes, but you don't see it for the cigarette tax. So this result is fighting even more upstream in that sense and still holds up.

So I really feel like, and obviously we'll discuss this, but I really feel like in terms of this paper's trying to ask three questions, I view it as. The first is, is there a robust effect of cigarette taxes in terms of increasing the happiness of predicted smokers or reducing the unhappiness. I think the answer is really yes. That's the one I feel most strongly about. I feel like we sort of looked at it a bunch of different ways and it's there.

Now we come to the second question which things start to get a little more dicey. Do these results disprove the standard rational addiction model? So I've shown you the results which I believe pretty strongly. Now the question is what do we learn from this?

So the first question is does this disprove the standard model? Well, on its face it clearly does. There's no reason for rational addicts to be happier when the tax goes up. The tax goes up, they're worse off. If they wanted to quit they always could have quit so there's no reason for them to be happier when the government suddenly is taking more money from them. So on its face this result is inconsistent with the Beck and Murphy model. But there are two alternative interpretations that could rescue that model in this context.

The first alternative interpretation is within family externalities. Let's say it's not the smokers that are made happier but the spouses of smokers. Because remember, I'm not looking at smokers, I'm looking at predicted smokers. Spouses of predicted smokers will also look like predicted smokers. They'll be in the same types of families, all the same types of X's. So let's say all I'm finding here is that when cigarette taxes go up spouses are happier because they don't have to deal with smoke in the house anymore. That will be a very different kind of finding. It would be interesting, but a very different kind of finding.

I'm not going to go through it in too much detail but we look at this in two ways in the paper. The first is we split by marital status and gender. If this is true you should see the biggest effects on married females and the weakest effect on single people. You actually see a pattern like that in the U.S. but the total opposite pattern in Canada. So you don't see consistent evidence across gender and marital status.

But more generally we actually go at this directly because in the U.S. data we can predict whether your spouse smokes and include that in the model as well. What you find is quite interesting is that there's no effect on the coefficient of interest. That is predicted smoking times tax is just the same, but you do see a slight negative effect on predicted spousal smoking times tax. That is within family spillover effect does seem to exist. It just doesn't knock out our main effect.

So that was quick, but that's I think not the critical criticism and I think we've nailed it.

I want to spend a little more time on the more important problem which is I think the fundamental empirical problem, not in terms of the result of being there but in terms of interpreting it, which is the timing problem. Which is that the key prediction in the rational addiction model is that higher taxes should lower the PDV of utility. But that's not necessarily what happiness measures. We don't really know what happiness measures, right? But one good guess, it may measure the PDV of utility but a good guess is measuring how you're feeling today,

not the PDV of how you're feeling. So let's assume that's true because that's bad for us. Let's assume that's measuring how you're feeling today.

The problem with that is quitting smoking is like an investment. You go through pain today and you reap the benefits tomorrow. So for a rational addict the cost of quitting smoking is clearly negative and it clearly outweighs in the PDV sense all the future benefits of continuing to smoke, but in the future they could be happier. That is let's say the way it works is they're miserable for five years and then they're happier. Well, if you ask them five years later are you unhappier, the rational addict would say sure I'm happier because they're doing instantaneous answer, they're not doing a PDV answer.

So the problem is we are not getting -- What we really want here is we want to know what's the effect on the PDV of utility, but failing that, we'd like to assess the immediate impact of tax increases. That is a rational addict cannot be better off right away. If the next day after the tax goes up a rational addict is better off, then either quitting is unconsciously painful for 24 hours, or the model's wrong. It's implausible for a rational addict to be better the next day.

So if you had immediate data on what happens right after the tax changes, that would answer the question.

Fortunately in the U.S. --

VOICE: On the PDV argument, if you interacted with age, because older and younger people must view the PDV argument differently. Is there any scope for solving your issue there? A kind of technical point, but --

MR. GRUBER: I think the problem is -- That might be an approach. It's sort of like why I don't like the interaction with marital status and gender to solve it within the family externalities. There could be heterogeneity for other reasons than how these different age groups feel about it, so that might be suggestive but I wouldn't say it's dispositive. But that's something we should try. Absolutely, that's a good point. We should try that.

In the GSS we can't go after this problem because the problem in the GSS is we use this fixed effect specification. So the fixed effect specification gives you on average, when taxes are above their state mean, are people happier? That's sort of sum mish of short, medium and long run. It doesn't really answer the question.

What we really need to do, once again absent longitudinal

data, is to look at what happens with a change. When the tax goes up, what happens to happiness. Now we can't do that in the U.S. because the samples are too small, but those whacky Canadians only have ten provinces and they have a lot bigger data set so actually in Canada we have about 2,000 observations per province a year so we can actually literally turn this into a province year data set and look at changes.

So what we do is we divide the Canadian sample into those likely to smoke and unlikely to smoke, above the 75th percentile, below the 25th percentile. We get the province year means of unhappiness in taxes, then we do a changes regression of the change in unhappiness on the change in taxes. It gets sort of this true short run effect.

What you see is for the predicted smoker you get a coefficient of minus .044 which is quite similar to minus .048 we saw for Canada in the fixed effects regression, and you get an insignificant although negative effect for the non-predicted smoker. So casually just sort of taking the difference of these you get minus .035 which is about three-quarters as big as what you got in the fixed effect specification.

So that says that most of the effect is happening right away. The question is what does right away mean? Right away here means within a year. That's still not truly right away. So the defendants of the rational addiction model can and have come back and say look, that's not good enough. Your tax that you described, your wonderful tax was the next day. One year later isn't good enough. Quitting could be so bad over that year that rational addicts are actually happier a year later, but that intervening year was so bad that they still didn't quit.

Now we're going to come around to Gary's earlier question. I cannot rule that argument out but I think it's pretty implausible because I think it implies implausibly high costs of quitting. We actually do a calibration in the paper. Our estimates imply that quitting smoking would reduce unhappiness by about the same amount as moving from the bottom to the third income quartile, the rise in income by about \$15,000. Our estimates imply quitting smoking is an incredibly powerful improvement in happiness.

So what that means is that if your discount rate is five percent and you're going to get \$15,000 more in happiness every year starting next year, the consequent issue would have to be \$275,000 for you not to quit.

Now I can't rule out that the cost of quitting smoking aren't \$275,000 but it seems to me that it's pretty hard to use that as a basis for arguing that addicts are rational. To say oh, yeah, they're rational. They're willing to forego \$15,000 forever

starting next year just because quitting is that painful. I can't rule it out but it strikes me as kind of a hard calibration to match.

So the second piece of this is can this rule out the rational addiction model and I think the evidence is not dispositively but I think highly suggestive yes.

VOICE: [Inaudible]

MR. GRUBER: Right.

VOICE: [Inaudible]

MR. GRUBER: I agree.

VOICE: [Inaudible]

MR. GRUBER: Let's come back now while I talk about the alternative models because I think the answer is not that. I think the people are improperly discounted in the future, so let's come to that.

The question is, three goals. To admit to you there is an empirical result there I hope I have. To suggest at least strongly that it's inconsistent with the rational model. And the third goal is to ask is this consistent with any particular alternative. And here I'm not going to say yes, I'm just going to conjecture. We don't know. We haven't gone far enough. But the alternative I like is my alternative in the model I developed with [Botaw and Kazigy], which basically takes the Beck and Murphy stock addiction framework preferences and puts in time inconsistent preferences, the kind that David LaBeson and others have popularized in the savings and macro context.

So basically the Beck and Murphy model features exponential discounting. That is every period in the future goods are worth δ less to me as I roll forward. The quasi-hyperbolic formulation says that I'm that same exponential person starting next period, but I'm impatient about the entire future versus today. So that is starting tomorrow I look like the standard Ec 101 consumer, but that entire future I discount relative to today.

So the right way to think about this is the key feature of such a model is that such individuals have self control problems. They want to quit smoking but they can't. So this is, I'll start my diet tomorrow. Or in my context, it's I'll stop biting my nails tomorrow. These kinds of consumers have these self control problems where they would like to stop quitting. Their future self would like them to stop quitting. But their current says

I'll put it off until tomorrow and then tomorrow never comes.

Such agents can see an increase in the discounted utility if taxes rise. They're just like the person from New Jersey. They want to quit and can't. Given that an increase in taxes can increase their utility. This model is consistent with the findings, unlike the rational addiction model. This model is consistent with the findings because time against the consumers can be made better off because the government's providing them a self control device they want. They want to quite smoking, they can't. The government's providing them that device so that is consistent with these findings.

Of course there are other models that might be as well. There's a Burnheim and Rangle model. There's a Pessendorfer and Ghaul model as well. These models are a little bit less consistent in their basic form because these models essentially imply smokers aren't price elastic. I don't think that's right. I think smokers are price elastic and the evidence shows that. So given that I think, aren't price elastic in certain states. So given that, but you can tweak these models so they would have the same implication. But the bottom line is, so I don't think there's any alternative model that's proven here. Any model which has a self control problem, any model which has the feature that I would like to smoke less but can't, can be consistent with higher taxes making me happier.

The key point, however, is we're not, not knowing the model doesn't mean that we're impotent in terms of policy implications. A wide range of these models would have very radical implications for government policy.

On the rational addiction model there's no rationale for government intervention other than interpersonal externalities. However in these models, the internalities matter too. The fact that I sit off in a corner and smoke and kill myself doesn't matter in the rational addiction model. It does matter in models with self control problems because the government can fix a market failure essentially, can fix a failure in the market for self control, because the government has a commitment device the private market doesn't. There's no private market commitment device that can stop me from smoking. I make a bet with my friend, I can cheat on that bet. But the government has a device that, up to the level where smuggling starts to become a problem, can serve as a commitment device with just higher cigarette taxes.

So what that says, so Kazigy and I modeled this. The key point we've noticed in our work is that the internalities to smoking, this comes to Henry's point, are about \$35 a pack. That is you take [Kip Vasuczy's] numbers to the valuable life, and I

like using [Kip Vascuzy's] numbers where possible since he disagrees with the whole sort of go with the whole point of the research agenda, so I like to use those numbers when possible. So if you take his numbers of the value of a life, about \$7 million a life. You put it in life year terms. You take the fact that smoking shortens your life by six years. You discount those six years back to today and you divide by the number of packs you smoke over your life, thereby assuming average equals marginal, which you sort of have to do. You find that the damage of smoking a pack of cigarettes is about \$35 a pack.

The best estimates by my reading of the externalities from smoking are about 35 cents a pack. So this is about 100 times bigger than the external effects of smoking are the internal effects.

What that says is that any model -- my model, Pessendorfer & Ghoul, Bernard and Rangle, any of these models are going to have an incredibly radical implication of government policy because \$35 is such a big number that if any of it should count it adds up really quickly.

So for example [Bothand] and I do a simulation where we say even if Beta's .9, Beta one is the rational addiction model, so even if Beta's .9, the Alpha impact is \$1 to \$2, and if Beta is .6 which is what the laboratory evidence probably most consistently suggests, the Alpha impact is \$5 to \$10. That shouldn't be surprising given that we're talking about internal damage which can be \$35 a pack.

Moreover we also find in our recent paper that this has radical implications for the tax incidents. Traditional incidents of excise taxes suggest that excise taxes are regressive because the poor smoke more than the rich. However, our model says yes but the more price sensitive you are the better taxes are for you because the better they are as a self control device. And the poor are much more price sensitive than the rich. So in our models cigarette taxes are progressive because the way I describe it to reporters when I'm talking about this is look, the elasticity of smoking in the poor is minus one. That means when you raise cigarette taxes the poor spend no more on cigarettes and they're healthier, so in that they're better off.

So the bottom line is, in the state of rational addiction model that's a silly argument to make because they can't be better off if they would have quit. The model where they want to quit but can't, this is an implication you can have.

So let me just sort of wrap up with a few conclusions from this research.

The main conclusion is, as I've said, we have strong evidence that smokers themselves or these predicted smokers are made better off by higher cigarette taxes. We think this is pretty inconsistent although we have it nailed, we think it's pretty inconsistent with the state of rational addiction model, and more consistent with these alternative kinds of self control models that have very radical government implications.

More generally I think this sort of, in the context of this conference, this suggests sort of a different use for happiness data than it's typically been put to which is as a tool for welfare analysis of policy changes. A tool for thinking about income inequality or other things, but actually as a way of doing optimum policy analysis. We have many contexts where which model is right is critical for deciding whether a policy is a good idea or a bad idea and there's no empirical evidence to tease that apart. This provides an approach which might be useful for thinking about that question, or at least as part of the package of approaches for thinking about policy welfare analysis, it's actually examined directly the effects these policies have on people's welfare.

So let me stop there and take any questions.

MR. OSWALD: I don't know whether to worry about this paper because I like to drink claret and I'm trying to decide whether it's scary that this kind of paper might end up raising very indirectly the taxes on claret in the long run.

MR. GRUBER: Can I speak to that for one minute before --

MR. OSWALD: That was kind of meant as a joke. [Laughter] But yeah, you can speak to it.

MR. GRUBER: This is good because basically, maybe it's because this is a European crowd. But in the U.S. the version of that question is always do you want to take away my hamburgers?

You're talking claret instead. But the basic argument is the same which is isn't this a slippery slope argument? Is this a slippery slope argument towards taxing everything?

Basically if this is, I think some of you who should take it seriously to suggest things like alcohol and -- for alcoholism and obesity, we should think much more seriously about tax as corrective devices.

I guess the difference is I think smoking is a natural place to start for a couple of reasons. I feel much more strongly about smoking than other things for a couple of reasons.

The first reason is that smoking is monotonically bad. Every cigarette is bad for you and additional cigarettes are worse. With eating that's clearly not true, and drinking many people think it's not true, that the first few drinks may be good for you. So that's one reason that smoking is sort of easier in this context.

The second reason why I think smoking is different is for both drinking and eating the externalities are already so much larger than the tax that it doesn't matter which model is right. We're already taxing, at least in the U.S., we're already taxing alcohol and food -- well food's hard. Alcohol and body weight, let's say, so much less than we should given the external costs to society that even a rational addiction model would say taxes should be higher.

Smoking on the other hand, the taxes are above the externality, so deciding which model's right matters a lot more.

MR. OSWALD: Bruno, would you like to start?

MR. FREY: Yes. I quote you verbally, though you said a lot I still remember that. You said people who quit smoking totally change their life.

Is that really true? Smokers may be addictive in a much more general way. Namely when they stop smoking they do something else which is addictive -- drink more, eat more, drive in a crazy way, or take marijuana. So do you intend to go into this direction to study this effect? Because you relate to policy and if this is policy relevant you should be very careful to make people stop smoking when they do something worse.

MR. GRUBER: I think that's a very good question. Sort of the conservation of bad behavior model. Everybody's got a little devil on their shoulder and if the devil can't smoke the devil will drink or whatever.

It's hard to say. The only evidence on this suggests exactly the opposite conclusion which is smoking appears complementary and not substitutable with other substances. That is cigarette taxes appear to, higher cigarette taxes appear to reduce drinking and marijuana use as they reduce smoking. Which there's a model where they would be complementary. They're activities that are done together.

Now unfortunately, there's a whole set of other things which we haven't studied like risky sex or driving or crime or other things, and those I agree you need a full picture. I think it's very important to recognize, this is, it's the very start of the research agenda, not the end. This is very much a start of a way

to think about this. There's a whole host of other questions this raises. On other issues it's been raised, I didn't touch on here, is the whole political economy context which is I'm assuming a benevolent government gets it right. If the government gets it wrong then maybe a government control device is worse than a private sector device.

There's a whole set of auxiliary questions that are raised here.

But the point is really just to raise them. Although I have these very strong conclusions because that's the way I like to present papers, the point is really to raise these issues and to say not that the rational addiction model is necessarily wrong, although I think it is. But that alternative models should be considered equally. And that when we think about government policy we shouldn't as a default assume the rational addiction model but rather consider the wide range of models that might be right.

MR. OSWALD: Cliff on the end, if I have the name right.

MR. GADDY: Yes, thank you very much.

I want to ask a question and it may sound far-fetched but it seems, given the policy implications or recommendations that you're making here, it seems important to get this question out of my mind at least if not off the table.

You've been treating the tax as the proximate cause for the change of behavior with respect to smoking. An alternative interpretation might be that the tax is really, it's not the proximate cause at all, it's a signal of something more fundamental.

Now that I don't need to identify because I don't think I could, but let's just say it reflects a change in public attitudes which may show up and influence an individual in the form of an increased stigma, or perhaps just better information about the consequences of smoking.

In any event, I think it would, if that were the case, it would be precipitous to talk about raising the tax as a way of achieving the goals you do if you're not able to rule out completely or at least partially the possibility that you don't have to increase the tax at all, you merely have to find ways to influence the individual through these other mechanisms that I referred to.

MR. GRUBER: This sort of a larger question of is the tax really independent exogenous change or does it reflect other

things?

There are two types of answers to that. One is, does it reflect sort of a growing anti-smoking campaign? I think the thing to realize is the world we know of billboards by the highway, etc., that's very much a post '98 world when this sample ends. In fact before '98 there was very little of this kind of public, anti-smoking intervention. So I think it's not that there's an underlying correlation between tax and explicit advertising.

Now could it be an underlying correlation between tax and social attitudes? There's nothing I can do about that. I guess it's possible. I think given that we've seen the recent tax increase motivated much more by fiscal despair than by social attitudes towards smoking, I think that's unlikely to be the total cause but I can't rule it out.

MR. OSWALD: Andrew Eggers?

MR. EGGERS: Thanks.

I just wanted to see on the fundamental econometric setup whether I have this straight because I'm concerned that possibly what you might be detecting is not a negative effect of taxes on the likelihood that smokers are becoming unhappy, but rather you could be seeing a positive effect on the probability that smokers or people like to smoke -- non-smokers, people likely to not be smoking would be becoming unhappy.

To make that a little clearer, what I understand is you have a negative coefficient on the likelihood of becoming not happy.

MR. GRUBER: Your premise is not the point that was raised before. All my if's are relative effect. So if there's a story that cigarette taxes make non-smokers unhappy then that could be driving my result. I just don't know what that story is that there'd be such a huge effect.

MR. EGGERS: Is there a way of knowing that based on the fact that -- I'm wondering if there's a way you can get at that question because it seems like it's very fundamental to the whole results based on the magnitude of your propensities index or some other means.

MR. GRUBER: I agree it's fundamental, I just don't think it's plausible to go that direction. I think any story you can tell would say cigarette taxes are a good thing for non-smokers. It raises revenue on someone else's back. It reduces the environmental tobacco smoke. It's just hard to see why it would make non-smokers less happy in such a large way.

MR. EGGERS: Maybe you addressed this already but it could be the correlation of smoking taxes and other taxes.

MR. GRUBER: But we put other taxes in. We had revenue per capita. It didn't change the coefficient.

MR. OSWALD: I think I'll have to hold it there if I may. There are a few more questions. Would Gary like to go first?

MR. BURTLESS: I hate to sound like a broken record, but first I will make one comment about the claret. [Laughter]

As I understand it, going from zero to one is beneficial and going from one to two is also slightly beneficial. It's going from two to higher numbers that's not beneficial. I don't think that works that way in cigarettes.

MR. GRUBER: That was exactly my -- cigarettes are monotonic. They've got this nice feature that --

MR. BURTLESS: So I wouldn't worry too much.

It strikes me that there might be a way to think about your results within the range of data that you have. If at the beginning of the period 25 percent of the people were smokers and at the end 20 percent were smoking, then all of the tax effects have driven down the rate of smoking by five percent. We know that the 20 percent, four times as many people, are left who should be worse off by a measurable amount. We can calculate what their loss in non-cigarette consumption possibilities is. What is their decline in income for everything, and it strikes me, try to see how would this change the categories of people who are very happy, very medium and so forth, it strikes me a few of them are going to be pushed in to the very unhappy side.

So one thing we don't know is how much happier are the five percent who actually switch. Your results imply unless there's virtually no unhappiness effect on the 20 percent, tremendous gains for the five percent who switch.

MR. GRUBER: Let me make two responses to that. One is, one purely defensive response is look, once again we're talking about not that large a tax increase. It's small relative to the total. It's curvature. It's small relative to the total income of those still smoking whereas it's a big gain for the people who stopped smoking. So even if there may be four times as many people still smoking, their total sum of loss is small because it's small relative to total income, whereas the gains of those who quit are very large.

All I can say is it's not implausible prima facie.

But the second thing is it ties the entire conversation I've been having this morning which is the cardinality debate. Which is basically, all I've got is this one, two, three index. And basically, it could be that the people, it could be that I'm missing this because your people move from somewhat happy at the top to somewhat happy at the bottom and the people who quit move from very unhappy at the top to somewhat unhappy at the bottom, so to me it looks like a big win, but it's not really a big win if you truly had a 100 point index. There's nothing I can do about that. The bias could of course go the other way. So there's nothing I can do about that.

I don't see a reason to think it's particularly biased in my favor, but it's a problem with doing cardinal analysis with these data. I don't think you can get around that.

MR. OSWALD: Can we possibly fall onto Sandy Jencks?

MR. JENCKS: You found effects on whether people were unhappy and not effects on whether they were very happy and --

MR. GRUBER: It was the right [inaudible] statistically significant.

MR. JENCKS: But you passed on immediately, which was fine. I like the unhappy part of that question better than I like the other one.

But this recurs in a number of cases and I wanted to raise the question for the group as to whether -- Do we really think these are the same measures? We've been talking about this as though it was -- We've got one underlying dimension and we just want to know where the cut points are. But it's also possible that the difference between being very happy and pretty happy is getting at something different than the difference between those two things and not too happy as it were. And there's literature that could be invoked on either side of this. I just don't know enough to have an opinion. But it seems kind of important for --

MR. GRUBER: It is. I wouldn't overplay it too much. I do get the positive effects on very happy and somewhat happy and they're both bigger than the standard errors. They're just not twice as big as the standard errors. So I wouldn't overplay it too much but I think you do raise, the whole cardinality, and I think it would be great going forward to start doing surveys that have different levels of detail on the happiness question. Maybe randomly assigned across the population to see how as the index expands from three categories to 100 it affects the answers. It would be interesting.

MR. JENCKS: One point to support this is if you look at the unhappy and the very happy questions with respect to income, the unhappy question is both more strongly related to income just in terms of the slope and it's also got a lot of curvature.

The very happy question is practically a straight line. So if that's all we were worrying about, you say income distribution and redistribution would buy you hardly anything on the very happy part but it buys you, assuming for the moment that the buy [inaudible] this is true, it buys you a lot in reducing unhappiness.

MR. OSWALD: as the time constraint is starting to bind, can I give Michael and then Roland and then Bob 60 seconds each?

MR. HAGERTY: I'm not sure I can get an answer in 60 seconds but I can ask it in 60 seconds.

You said that we should ignore the model specification because you only cared about the sign, but then at the end you did an awful lot of calculating based on your parameter estimate. I just have to ask you if there's any evidence to support this linear probability model instead of one of the more familiar non-linear alternatives?

Also I worry about the propensity to smoke because over the period from '73 to 2000 the effect of education goes from, on smoking, goes from positive to nil to negative, and do you have time-varying coefficients there?

And finally, what if it is the quantity as it is in the medical research, rather than the binary smokes doesn't? Will that affect you? Those are three elements of the model.

MR. GRUBER: Three quick answers. Totally insensitive to using probit. In terms of the second question we actually do separate year by year predictions for all the years that have smoking data. In terms of the third, I agree, I've been speaking as if the happiness effects come from quitting. They could equally well come from cutting back and this doesn't speak to that at all.

MR. BENABOU: [Inaudible]

MR. GRUBER: I did not mean to say I thought it was flow. I was trying to say flow is the worst case from that perspective. I'm not the expert, I'm sure people know better than me in this room. I think we have no idea. I'm happy to hear more on that but I have no idea. I was just trying to use the worst case for us.

MR. FRANK: ?? [Inaudible] -- large relative to the direct effect. Is your price elasticity estimate a long-enough run to implicitly encompass of that? Are we going to get an even bigger bang if we add that?

MR. GRUBER: There are two issues. One is sort of both long run and then within time peer effect. There may be peer multipliers. My price elasticity is to total price elasticity. So --

MR. FRANK: ?? So you'd catch any of that --

MR. GRUBER: There's a long run/short run issue. There's some debate on that in the literature. I don't think the long run elasticity is much larger than the one year short run elasticity. The short run is like .6, maybe the lone one is .7 but it's not a radical difference.

MR. OSWALD: Thank you very much, Jonathan.

We're going to have a 15 minute cigarette break now.
[Laughter]

[Break]

MR. FRANK: Okay, we'll stick to our threat/promise to begin sessions when announced. We've got Ed Diener in this session to talk to us about the psychology of why inequality might matter, or not.

THE PSYCHOLOGY OF WHY INEQUALITY MIGHT MATTER, OR NOT**Ed Diener, University of Illinois**

So when they asked me about this I began thinking why would it be psychologically that equality would matter? Do we have an equality module in our brain that would figure this out and make us happy or not if we were equal? Or why would it be?

I thought of two reasons that have been stressed in the literature. One is the social comparison reason, but social comparison of a particular type. Namely based on contrast effects. So if you look up, you're unhappy, people are better off than you; and if you look down you're happy because people are worse off. As we'll see in a moment, those are not the only kind of social comparison effects that occur.

The second one was from Michael and others that status somehow is a good thing. That having the respect of your group is a good thing, no matter what. And so let me show you a little bit of data on life satisfaction that we've collected from around the world. These are some groups, and their life satisfaction on a one to seven scale, this is actually a five-item scale and this is the average. My son and I have collected most of these data. You see that the Forbes list of richest Americans stands at the very top of the list, but not too far behind that are the Masai. The Masai are a tribal people in Africa. They have no electricity, no running water, no toilets of course. They have houses made out of dung. If you've ever visited the Masai you know that their houses in the rainy season are very nasty because it's raining and their houses are made out of manure. The Amish, the Inahuit.

Now let me show you my son's name for a moment, Robert [Biswas] Diener. This is relevant because he and I have together a review on income and happiness. And so if you want to see a review of the studies from about two years ago backwards -- longitudinal data, the lottery data, etc., you could look for my name and his name and pull this review up. But Robert has been collecting all these data.

For example, the Masai branded him in a rite of manhood. The Inahuit where he also -- right now he's in Israel collecting data among Palestinians. He's been called the Indiana Jones of psychology in terms of data collection. The Inahuit live up as far north in the world as anybody in the world lives. This is where there's water only about two months a year because it's so cold. It's dark six months of the year and so forth. But you see that their life satisfaction is in the positive zone. Because you see here anything above four where it's a neutral point is positive. Cloistered nuns, nurses, etc.

But now let me show you the groups that are not positive. This is interesting from this morning's talk. Sex workers -- they used to call them prostitutes but now they have a new PC name -- sex workers. Here, Detroit. The lowest group we've ever gotten. Mention in-patients, prisoners, and homeless.

Now notice that there's something common to all these groups. With the possible exception of college students in Uganda. That is they are people who are not respected. They are people without status who the society says is living badly. They may be addicted to drugs, they have mental problems.

California homeless, we were not surprised that they were dissatisfied, but what we were surprised is why. It's nothing about food. They said we have a great food shelter here. We eat as good as you do. We mostly have nice weather here and when we don't we usually have places where we can go. Why we're unhappy is there's nobody we can trust, we're cut off from our families, etc. And society doesn't respect us. So it's a very different picture that emerges between these two groups.

You see the Masai are extraordinarily poor by our standards and yet they're positive in life satisfaction. Why is that? They think they're better than us. They think they are prettier than us. They think they are better than the other tribes around them. They have a lot of respect for themselves and so forth.

In my talk today I want to start here and then carry this out and make several new points about why happiness may be affected.

First of all I want to point out to you that there's more standards than just, and we talked about temporal comparison this morning and I'll talk about that. Not only are there more standards than just social comparison, but there are so many attributes that we can compare on. And when I think about that it leads me to the conclusion that I come to over and over, that culture values competitiveness and salients become key to whether equality is going to matter. I think this comes out in some of Carol's work as well.

Inequality definitely influences different types of utility, so if we measure subjective well being in different ways or think about different types of subjective well being, they will be differently influenced by equality perhaps. Therefore the measures will get different effects for inequality.

Beware of causality. We'll talk a little bit about how the causal direction sometimes can go in the other direction from some of the data that you're looking at. For example we find, and

I can show you a lot of data, happiness can cause success. So we have to be careful when we see that, inferring inequality causing unhappiness, and I don't know if I'll get to the last point. Superior others can actually be beneficial to us and help us in some ways.

So let's look at some various standards that psychologists talk about in influencing subjective well being. Temporal. That means change over time. We've talked about that a little bit. Let me show you a little bit of change over time in reference to a social factor in your life. The German Socioeconomic Panel data. Here are about 250 widows. We found them before they ever knew they were going to be widowed, so these data go from 1985 now to 2002. We found women who during that period would become widowed. Put them here at year zero. You can see they start to become less satisfied with their -- They start out slightly above the sample mean here and they drop about 1.2 points on this 10 point scale. Once their husband dies -- these are all widows -- they start to come back. And after five years they [inaudible] here but they don't come back to quite where they were before.

Does inequality matter here? Does social comparison matter? Maybe it matters a little bit but my argument would be this is a big temporal comparison. I was used to him, I was addicted to my husband, if you will, and now I'm going through withdrawal because I don't have him around.

Within person comparisons. What are those? I compare myself to other things that I'm good at. So because I'm bad at athletics I'm more satisfied with how smart I am. We know that from Herbert Marsh's data in Australia where he shows if you're a kid who gets 750 on the SAT you are more satisfied with that score if you get -- say on the math. You are more satisfied with that score if you got 700 or 600 on verbal than if you got 800 on verbal. If you got 800 on verbal, you're not as satisfied with the 750.

So we can make comparisons within our selves. We can make comparisons to our ideals. Here is an example of that. Danny Kahneman won the Nobel Prize, fortunately he's not here so I can talk about him. And I said to him this must make you really happy. He says, but you know really, this is one of the things he said, the Nobel Prize isn't that big of a deal. Somebody gets it every year. [Laughter]

So if you have this very high ideal, I'm going to be like Einstein, the greatest mind that ever lived, then winning the Nobel Prize is not that impressive, right? And it doesn't matter if you're better than all your buddies or smarter than most people in the world or what have you.

Desires and goals. This is the one that we think is really

the key and we think it's also the key to social comparison. That is to say if you want something and you got it, you're moving forward towards it, you're making progress towards it, you're happy.

So we did a number of studies showing this, but one that's relevant to social comparison, we said imagine that you live in the future and you make about \$150,000 a year. Rich people at that time make about two million a year. And \$150,000, you have a three story house, you get to travel where you want when you want, in other words sort of like an upper middle class person nowadays. But we told them that the rich people in one condition had things that we knew from a pre-study to be what college students would think was very desirable, namely they had things like they had a transporter like on Star Trek. They could zoom from here to Africa in a second, so you could go home immediately for lunch, right? In London. They had youth drugs to keep them young. They had drugs that made their children smarter. There was a whole number of things.

In the less desirable condition they had things that were also expensive, that you could not afford, but we knew that college students did not think these things were as desirable. You have a sports robot that can play tennis with you or throw the ball around or whatever; you own a cruise ship, a castle, all these kinds of things.

What happens then is when we say how satisfied are you with your life or your income? We see that these people are much less satisfied. Meaning that the social comparison effect really comes through what you desire and influencing what you desire. We have other data like that that are based on what you actually own and what you actually desire and how satisfied you are with your life. And in those data most of the social comparison effect then goes through what you desire.

So if I have a neighbor who makes a million dollars a year and he says come on over, and I look at something and I'm like whoa, I wish I could afford that. Now the social comparison is going to matter. On the other hand, if that neighbor, or my brother in my case, has lots of things but I really don't want them, then the social comparison matters much less.

What do we think about social comparison? We've found that it doesn't always have an effect, and in fact we found this in a lot of studies in that it sometimes has an effect. But one study for example where roommates were randomly assigned at the beginning of the year, so it's a true experiment. You had a roommate who had great grades, you had a roommate who had terrible grades, you had a roommate who was good looking, etc., etc., we found no social comparison effects. We found only one

reverse effect. If your roommate was really socially skilled it helped your social life. It didn't hurt your social life.

So we started getting skeptical that social comparison automatically worked in a contrast sort of way.

One of the reasons for this is that you may identify with people who are above you. So one thing that happens, for example, if you look at a servant. Say you're a person that works for Bill Gates. You ought to be terribly unhappy, but in fact you may identify and say I work for Bill Gates, I'm the greatest. You feel sort of like you're Bill Gates.

Shelly Taylor at UCLA has shown that social comparison effects can be assimilation effects, not just contrast. So for example if you have a woman who has cancer, breast cancer. You're going to look up and see somebody else. Do you want to look up and see somebody else who's better off than you or worse off than you?

So you look up and you say hey Mary, she just finished chemotherapy. Her cancer's in remission. Or do you want to look down and see Joan whose husband just left her and the chemotherapy's not working?

So you're going to take the positive social comparison. You're going to want to look up because you're going to gain some hope from looking at a higher person.

So if in our society the equality effects can go in that direction. If you feel like you can be more like, maybe not Bill Gates but somebody who's well off, then you may say that's good.

We find, for example, that Asian-American students much more than European-American students want to look up. Who is the highest kid in the class? I want to be like that kid. I want to beat that kid. So they want to look up. They don't want to look down in social comparison.

Related to that is this Robert Kennedy business that came up this morning. I said okay, what are the things you can compare yourself to others on? I made a partial list here. I could actually make 100 of these pages. Here's all different factors about wealth and physical attractiveness, how sexy are you, how muscular you are. I've been watching all of you today to try to figure out where you stand on this. [Laughter] Intelligence. How much do you know about motorcycles, for example? Sports ability, are you good at sumo wrestling, playing steel drums? Your social skills. How agreeable are you? I've marked somewhere I didn't think this group was going to score so high. [Laughter] Not narcissistic, humble in terms of the virtues -- We have a lot

more virtues than this. Your knowledge of the Bible, social relationships, your dancing ability, bump and grind, etc.

Now you'd say a lot of these things are trivial but I bet we can find somebody for whom each one of these things is terribly important. And in fact many people in the United States do not think that wealth is the most important thing, that one of these other things is terribly important to them.

In this way I think we have the possibility, why is it that most people in America and most people in all these studies except the really down and out people -- the prostitutes, and the people in terribly poor countries are where things have gotten -- a revolution in Eastern Europe. Why are most people happy?

I have an evolutionary argument for that but I think you can also say because it's always possible to be the best at some things. And each of us in here, I mean how many of us worry about the fact that we're not the richest person? It's not a big deal.

Why? Because we think oh well, we're real smart and we know lots of things and we're good at some other things. Just like the Masai. We're not the richest people but we're real good at certain things.

Besides the idea that it's possible then to come out on top because there are so many attributes is the idea, and here let's say we have all the thousands of things we could compare on and all the different standards, and economists are only going to deal with a couple of these and then they're going to deal with a few others, how straight your teeth are, for example. And that might be correlated with wealth.

But the point here is that we're not computers then that go through and add all this up, but rather I think what happens is ideology, salience, cultural values come into effect, and influence which ones of these matter and which ones of these are really salient to us.

So in thinking about what is it that affects salience, because I think that's it. There are just too many things. We can't be worrying about equality all the time. I came up with several different things that could affect salience. One is situational. At the moment. And Norbert Schwartz has shown over and over if you ask people about something in a survey it makes it salient to them.

So if you ask people how do you compare with other people in income, or you even ask people about your income, it might be -- oh, how do I feel about my income?

Then you take into account how other professors are and so forth. That's very different, as we'll see, from thinking about your income in terms of experience day to day.

In the German data we found that in fact people who's income increases very slowly over time, which is the norm in those data, do not change in happiness. They're a pretty happy group all along.

But if your income changes dramatically like it doubles or doubles down, then your happiness changes. So it's this sort of dramatic change. Something like the lottery may grab your attention because it's something unusual. So it may be more salient to you than simply making a little bit more money every year.

Chronic salience. Your goal. You have a goal to out-compete other people. You have a goal to be the prettiest person around, to be a model or something, then this particular attribute becomes terribly important. It's also the type of attribute. So some attributes have internal standards. We don't need to ever compare to other people. So I'm eating, eating, eating. I look around, everybody's finished eating and I say gee, I ought to be full, right? No, I'm still hungry because I have an internal norm that says you've got to eat a lot of stuff to be full. Or sex, the same thing. People don't care if other people on their block are having sex more than them or less than them. They sort of have an internal norm. And for young males maybe this competitive standard makes a difference, but for many people it's an internal standard. Is it a competitive area like grades, like money for some people? Then competition, equality, and so forth matter.

Ideology. What does our labor union tell us? What does our ideology tell us about the importance of equality? That can make something salient where the group makes it very clear to you that you ought to be equal or more equal than you are and so forth. Then when we start measuring happiness I think it can become quite important whether we're equal.

Point number three, different types of utility or different types of happiness. So Danny Kahneman was talking about predicted happiness and retrospective happiness and on-line happiness, and you can talk about choice as one measure of utility. We talk about life satisfaction or happiness is another measure, etc. All these different measures. And Chris has talked about the different types of utility, if you have a joint versus a separate experience. I think most of you know this. Work by Lowenstein and Chris and others where we say hey, how happy are you? If everybody else is getting paid \$12 and you get \$10 and you say oh, I'm not too happy. That's bad. How happy are you here? Well, you're getting \$8, everybody else is getting \$8, and a college

student says fie. They say which do you choose? Then you choose this one. So we have an intransitivity in this experience because \$10 is better than \$8 but you feel bad when you only get this.

I was thinking about this in terms of sex and I thought okay, take this example for a moment. Put aside your morals. I said you can either have sex with Tom Cruise or with Paul Newman, and you're going to choose. Or depending on your proclivity, with Michelle Pfeiffer or Demi Moore.

So you start out let's see, Demi's more muscular, but Michelle's a blonde. Tom is a young guy with a cute smile, etc. Okay.

Now we send you over and you have sex with one of those individuals. All that stuff doesn't matter at all. What you think about, and I won't get into X-rated details, has nothing to do with whether they're blonde or anything else because you're focused totally on something else in that experience.

So we know then that different types of utility, different measures of utility are going to matter differently. Our own research shows this.

Here are some studies where we find this. If you ask people how satisfied you are with your life, for example, does that map onto how happy you are? Now we've been beeping you in the experience sampling method, and we beep you five times a day randomly, and you pull out your palm pilot and you fill out a little mood form, and you can do it in about a minute. You answer about 20 questions. So it says how happy are you? One to seven. AS soon as you touch that it says how much sadness do you feel? So you touch that. How angry are you? You touch that. Then what are you doing?

Then we find out how satisfied you are with your life. Does one predict the other? The answer is yes, but very differently for different groups.

So for an individualistic, European-American student, how happy they are strongly predicts how satisfied they are with their life. However, for the Asian-American student, the hard working student who's spending all the time in their library, how happy they are only somewhat predicts how satisfied they are with their life. And what predicts strongly is whether they're doing what their parents think they should be doing each day. So they're going to the library, they're not having much fun, they're not saying they're happy, but they're satisfied with what they're doing. We find this pattern over and over.

So there's a dysjunction between satisfaction and what we've

been -- The reason that I like the term subjective well being, because it includes, if you think of happiness as a thing like joy, pride, positive emotions, and then we separate that from fulfillment meaning in satisfaction.

Okay, let me tell you about another couple of studies of that type. Danny Kahneman said look, you've got to use the experience sampling stuff. You've got to have the on-line because that's real happiness. All this other stuff like life satisfaction and seeing how happy you were in the last month, it's all biased and the real on-line stuff is what counts.

So I said yeah, but that other stuff's interesting from a scientific perspective because after all if people think they were happy or they are satisfied, maybe it's biased in some sense but it's still interesting scientifically. But in our studies now we show something even more interesting than falling back to science, and that is that actually it's the memories sometimes that predict, not the on-line experience.

So the study goes like this. You're going to go on spring break in one month. We hire people to be in our study, to take the palm pilot, who are going to go on spring break and they're going to go to the Bahamas or whatever. These are students. How happy do you think they're going to be during spring break? Answer -- How much of each of these emotions on average you're going to feel. Positive emotions, negative emotions.

You go on spring break, take the palm pilot. Only one or two people didn't do it. Everybody else did it. They answered the thing, they bring it back, we put it in the computer, it's a cradle, set it in there, it downloads -- so handy to collect data. Then two weeks later we say now we want you to recall how frequently during that time did you feel positive emotions -- joy, interest, etc. A bunch of them. How frequently did you feel each of these different emotions? Sadness, anger, etc. Then a week after that we e-mail them and say a one to ten scale, how much would you like to go on that spring break again? What predicts whether you want to go on the spring break is the memory.

Once you enter the memory for the spring break in your emotions, the on-line experience does not predict at all. Furthermore, the memory is predicted both by the on-line experience, you enter that first in a regression, but by your expectancy also. So both of them predict significantly and enter in the regression equation.

So it looks like what's happening is that you want to go on spring break again and it's weighted by the actual experience but your memories are also weighted by your expectancies which make

sense because that would be evolutionarily sound, not to let just one experience have the total weight.

So I told Danny Kahneman about this study. He says, well the economists will never believe it. They won't like it. I can't present it over there in Stockholm because it's based on a hypothetical choice, namely whether you want to go on the spring break again.

So we went out and we got some other data, quite different data, that are based on something real that happened in a person's life and that was dating. These people were doing the palm top and they all had romantic partners. The study was actually about something else, about relationships. They all had a romantic partner.

We did the same thing though. We found out all the times when they said they were with a romantic partner what their mood was.

Two weeks later we said how do you feel when you're with your romantic partner during that time we beeped you, of these different emotions? They recalled it.

Then we contacted them, again by e-mail, six months later. We said are you still dating and going with your romantic partner? So it was kind of real behavior -- you're either dating them or you're not.

What predicts whether you're still dating that person is your memory, not your on-line experience. This is interesting because what it is is if you mis-remember in a positive direction. You thought you were happier than you were when you were with your partner, then you're very likely to be going together later.

If you're very accurate, yeah, I was miserable some of the time and happy some of the time, you're much more likely to have broken up.

So what we're saying is that your retrospective memories then, unlike what Danny was saying, can be quite important. Recalled utility.

Let's apply that for a moment to the issue of equality.

VOICE: [Inaudible]

MR. DIENER: Yes, exactly what we found was this. If we want to predict whether you're still going together, one or zero. You're either broken up or your not. Once you enter the memories,

the on-line experience with your partner, and it's the positivity of the memory. So it's positive emotions minus negative emotions when you're with your partner. Predict, and in a regression this actual experience drops out completely.

Furthermore, at the mean level the mean level difference between these two, the higher the mean level difference is, and nobody thinks they're less happy, right? You're either accurate or more inaccurate in a positive direction, that you're more likely to get together.

It relates to what I call the Gottman ratio, where if you're with your wife and you want to criticize her you've got to say six good things to make up for it. If you think well I criticize you one and then I praise you one, or I kiss you and then I tell you you're overweight, etc. It doesn't work. You can't be at one to one. It's prospect theory.

In the real world of marriage, and in this case, you have to experience more positive events to start with to have a more positive relation, many more --

VOICE: Sixteen or six?

MR. DIENER: Six. [Laughter]

VOICE: [Inaudible] [Laughter]

MR. DIENER: Sixty isn't bad, though. Keep it up.

VOICE: [Inaudible]

MR. DIENER: I think experienced utility is important myself, and we've been doing these studies for 20 years.

I would say one of the reasons is it can be measured more accurately with fewer biases. It does, after all, influence retrospective.

VOICE: [Inaudible]

MR. DIENER: Yes. But what he would say is if you want to know how happy a life is, all you have is ongoing happiness. You mean that's all you want to know?

VOICE: [Inaudible]

MR. DIENER: Yeah, but then you would say your memories ought to make you happy at the moment too. So if your memory is sitting there and you're not using it it has no effect on your happiness. And if you recall it, you remember I was talking about that

Lassie movie and all that. Well we're getting off-track.
[Laughter]

But the point is he was saying the Lassie movie, sure, it's hypothetical, it's not real, but people all over America were crying. But it really influenced their mood right now so therefore it did come in. Your memories are like that. They should then, when we beep you, if you're remembering it, it should influence your memory.

So he's arguing that it's more real. And of course Norbert has shown that these life satisfaction judgment can be biased by your current mood and by what happened just before and how the questions are asked and so forth.

Danny's answer to that is partly this, that maybe these kinds of on-line reports are less biased.

VOICE: Did you find biases in the vacation study or the romantic study between on-line and memory? Did you find systematic biases?

MR. DIENER: You mean where people over-estimate?

VOICE: Yeah. Did they over-estimate?

MR. DIENER: I can't remember about main effect biases. I can tell you in another study we found, but it has not always replicated, that happy people mis-remember more good things than actually happened to them.

VOICE: There's actually a test about whether Danny's right, to say that the on-line is what counts and the rest is full of mistakes. You actually have data on that?

MR. DIENER: So I think both are important and important in different ways.

VOICE: But it may be that the mistakes are random or certain people are prone to one or another. It would be very interesting to know.

MR. DIENER: Yeah. That's what we think. Extroverts, for example, will remember more positive events happening to them and neurotics will remember more negative events. We know that.

MR. OSWALD: On this mood and experience issue, I suppose there are always reasons, we think of there being reasons for good moods and bad moods, and in a sense when I recall my memory I adjust for the reasons. You might even call memory regression adjusted moods, if that jargon makes any sense to you. So I guess

it's quite natural that memory would be a broader and more balanced report than mere mood. Do you see what I mean?

MR. DIENER: Right. Of course I came to that for a different reason, thinking that it would make sense for you to have, it's like an attitude and you have it weighted, and just because somebody else says something new right now it doesn't pull you all the way there. I only pulls you part of the way there. Your experience would be the same way. If you think you're going to the Virgin Islands and you think wow, I love the beach and I'm going with my girlfriend, I'm going to have sex, all this kind of stuff and then you think it's going to be great and then it's pretty good, maybe it would make sense still to think that it was a little better than it was in terms of mis-remembering it. Because over time we would think that your ideology and expectancies would catch up with reality, but in the mean time they provide a kind of anchor that gives you a longer-term perspective.

VOICE: I don't remember the fact exactly, but the temporal pattern that Danny finds in his experience, utilities matter. It's the peak you remember or the end relative to the beginning. In some sense could your findings on the dating and the vacation be a temporal issue rather than a memory versus continuous issue? That is, if you answer a question the next day versus two weeks later, would that have the same effect? Or is it that you're picking up the very end when you ask it two weeks later and that's what matters? You're taking sort of the average otherwise.

MR. DIENER: Yeah, the peak end stuff does not work in these studies. We have other data that show peak end effects where you look at life and how your life ends that last day or last year makes a huge difference in people's evaluations of a life.

But in these data the end, and it may be because they're coming back on the airplane or something that they discount. Maybe the end doesn't count and we need to move back.

VOICE: [Inaudible]

MR. DIENER: It could be because we're asking them to --

VOICE: I guess the question is when you say, it's fascinating, the memory knocks out the contemporaneous. Are there different moments in the contemporaneous that survive so if you put in either the end or the peak or the middle, do they all get knocked out by the two week later memory? Or is it just like some average that the contemporaneous think it's knocked out?

MR. DIENER: Yeah, and I don't know that.

VOICE: That I think would be relevant to this resolution of sort of Henry's question of gee, maybe this is bad news to the contemporaneous measure. If it turns out they all get knocked out I think that is pretty bad news. But if it turns out that maybe this is telling us which elements of contemporaneous matter, that would be kind of interesting.

MR. DIENER: Right.

One of the things that we found in our happiness reports in general is that they very heavily weight frequency of the moods. It's almost opposite of some of Danny's stuff, and intensity enters second but much weaker. So that when a person says I'm happy, people who are happy 90 percent of the time, even at a low level, will still say I'm an eight on a ten point happiness scale. Whereas a person who's moods are up and down and they go way up, will not say they're happy if they're happy half the time, but intensely happy.

VOICE: You touched on it a moment ago when you talked about extroverts recalling things differently from neurotics. Is it possible in your relationship study what you were tapping was not how good the relationship was when you asked them to recall, you're tapping personality which is a good predictor of whether people will stay together rather than some measure of happiness?

MR. DIENER: It could be, and we could look -- I can't even remember if we did look at, because we do have extroversion and neuroticism measures in most of these studies. And look if you pull that out so that it's really a selection of people rather than actual the mis-remembering. That would be good to do.

VOICE: I'm not surprised about your results on the dating because it seems to me that when you ask people how happy they were in the past or what their past experience was, you're getting in their response what's been happening in the interval between that point in time and the point at which they're answering. So if their experience with their partner was improving then their recollection of how the past was is likely to come out better and be a better predictor of their future than if the reverse is true.

So the reports of the past that people currently give are systematically biased by the experience that has intervened. In general, past happiness is under-estimated by people because their experiences improved and they tend to evaluate their past in terms of the conditions that they've now become accustomed to.

MR. DIENER: Right. But in the spring break study notice that we had that a month before they left, the prediction, which also seemed to influence it. So it adds to that. It's something about

your mental framework for the event, not just the intervening things that happened after you got back from spring break and so forth.

Let me just sum this up by saying now if you take equality then, I think if you ask for global satisfaction with your income it's quite likely that you're going to compare your income to other college professors, whereas if we take on-line experience I think all of a sudden whether you have bills you owe, whether you can meet your daily needs, all of a sudden a bunch of experiences come in whereas your comparisons to other people maybe aren't quite as important.

If we take recalled utility I would guess that perhaps your on-line experience comes in, but in addition your ideology, your expectancies about, like if you have a labor union that says you're not making enough, all of a sudden that's also going to enter into how happy you think you are in terms of your income.

Then finally if we have a choice like Chris talks about between two jobs, you're going to compare the two incomes in those jobs and which is higher. That's going to be a very straightforward absolute sort of judgment.

So what I would guess is that we could get different effects for equality of income on happiness depending on how we measure happiness.

Let me talk about number four, causality because I do want to show you some data and so forth. Henry Aaron, we had a conference a Princeton five or seven years ago and he said all this stuff is underdetermined that you're talking about with happiness. It's all cross-sectional, correlational and so forth, underdetermined meaning to me you can't tell which way causality goes. So let me show you some data here. This is from the German study.

[TAPE CHANGE]

-- before they were unemployed you see they were actually slightly happier than the mean for the sample of these individuals. They got fired from their job, they got a new job back. This is five years later now. They're now making 90 to 95 percent of what they made before and they're also working again, and yet Andrew Clark and I talk about the fact that they've been scarred. Their life satisfaction has dropped here. Why is that?

Well, one reason could be they've dropped in status, in security, in their feelings about themselves. But another reason in terms of this under-determination is, maybe they were fired because they took up alcohol or they had some other mental

problem and they got fired and now they're less happy. So what would be nice is if in these data we also knew other things that were happening to them in addition to whether they were fired. I'll show you some data about that, but in terms of causality, let me just talk about a story from my life in terms of does happiness make you unequal, or does inequality lead to happiness?

So I have, besides Robert, the adventurer, I have four daughters. I have a replicated study here because I have identical twins and then I have two younger kids who are adopted, hard to place kids who we adopted when they were ten.

I'm going to tell you about daughter number one, one of the twins. As I say, they're both professors and so forth so they're almost identical. Then I'm going to talk to you about number three, then I'm going to show you some data to suggest this.

Daughter number one's a college professor in California. She works hard, she has one child, she's married to an attorney. She's about 33, she's up for tenure. They've paid off their house. She jogs every day, she doesn't smoke, she doesn't drink hardly at all -- maybe she should drink slightly more. She does all these things. When somebody gets sick she's checking the internet, she's telling you all about what all these things are, etc. So she's very very careful. She and her husband make, I would guess, \$125,000 or so a year, right? One's an attorney and one's a professor.

Daughter number three they placed in our home because she scored extraordinarily high on all standardized tests. Her IQ's over 150. She had never been in any school for more than three months but yet she scores at the 99th percentile on all those tests, so she's very very bright but very very impulsive.

VOICE: How old was she when she --

MR. DIENER: Ten. She was taken away from her mother who was a drug addict by the state. They decided to put her in our house because we're college professors.

Now what's happening to her? She's overweight. She's very overweight. Smokes really a lot, gets no exercise. Her kids were just taken away by the state from her because she has been living with a guy that was an ex-prisoner and he was in prison for being a child abuser. She won a \$40,000 lottery about a year ago and spent that money in three days, so she was out of money again. She's constantly coming to us for money. She gets jobs and immediately they start promoting her because she can learn it fast, she's very smart, and then after about a month they fire her because she has to start borrowing money from the work place, from the cash register. So it's sort of a sad story, but I'm not

asking for sadness here. But just contrasting the two.

Notice that one's income is probably 12 to 15 times the income of the other one. There's great inequality here.

We sent Kia, the younger one, to college. She stayed three weeks. She could have made it through college but she's very impulsive, irresponsible.

So the point is here, what's Marissa? Marissa's going to live to be 90 or 95 probably. Right? Kia is probably going to die when she's 60 or younger because of all these bad habits versus good habits. So it would be very easy then for us to attribute these effects out there to inequality or whatever or poverty, whereas in fact they're really due to personality.

Now I don't want to say that all inequality or all poverty is like that. Certainly it is not. But the problem is when we have data, we have a lot of inequality that's due to one thing, but then we have some other inequality, some poverty and so forth that's due to something else, and we can't figure out how to pull these two apart.

So I'm going to show you some data --

MS. GRAHAM: Didn't you argue, though, that they had a very unequal early childhood experience.

MR. DIENER: Sure, but that's irrelevant for the point here. And they may have unequal genes in terms of impulsiveness genes. But the point is that you find, oh wait, Kia has bad health outcomes and Kia has poor income and Kia's unequal and Marissa's got all these positive things. It doesn't matter where they came from to begin with, but you're going to attribute them to inequality and poverty and really they're due to personality or something else.

I want to show you some data to show, and I think other than anecdotal data this makes this thing real, that happy people do better in life. And here is some data that Danny and I have where people at age 18 when they enter college say they're not cheerful, slightly cheerful, etc., a bunch of in between steps, to most cheerful. They come from poor families, average families, or upper income families. These are all kids that got to elite colleges like University of Michigan and Princeton and so forth.

Here's how much money they make at age 33. The most cheerful, if their parents were poor, make \$6,000 more. If their parents were average, make \$11,000 more. And if their parents were upper income middle class people they make \$25,000 a year more. Huge effects. Now we don't know why, but all I'm saying is

that this can make the thing more complicated.

Let me show you marriage data. We all know that married people are happier on average. But here are German data and what these show is, these are unmarried women. This is HLM, so we smooth out these lines. Actually I drew this by hand, of course. But here's the thing. Women who are going to get married, long before they get married, this is years before, are happier than women who never get married.

About a year and a half to two years before their life satisfaction goes up. It peaks out when they get married. They adapt back. And on average they come back to where they were before. They're still happier.

Now obviously some people do not adapt completely. They have a great marriage. Some people come down here and they have a terrible marriage. But on average, what does this suggest? It suggests that gee, maybe marriage is not the fact that's causing this thing, but happiness is causing you to get married.

The last one I want to show you has to do with health. Some of you have heard of the nun study. It was picked up in USA Today and New York Times and so forth. It's a study I didn't do but I published in JPSP as the editor.

In the nun study they found out how happy these nuns were at age 22. This was in a biography that they wrote when they joined the convent. They said I love God, I want to serve God, I want to be close to God, whatever they said. That's why I'm becoming a nun and here's what my life's been like.

They coded this for the number of positive affect words and what I'm going to show you is the highest quartile, the happiest quartile in terms of longevity and the least happy quartile in terms of longevity.

So the measure was at age 22. Started following these nuns when they were age 75. Here's the survival rate at age 85 and 94. They're still going on. These nuns are about 96 now, so the study is not complete. Happiest quartile, 90 percent of them were alive at 85, over half of them are still alive at 94. The least happy quartile, as you can see, a dramatic difference. Eleven percent are still alive at 94.

What's the effect? We learned today that the effect of smoking -- it depends on if you smoke one pack or two, but let's give it six years. The effects of heavy drinking, alcoholism, seen years. The projected curve on this is 9.3 years for being in the most happy versus least happy quartile. So we have a very dramatic effect of happiness on these nuns.

Now you may say well we're not nuns. That's right. [Laughter] So can we generalize? But the nice thing about it is this sort of distills out the effect. Because it's true, the nuns aren't smoking much and they're not heavily drinking much and they're not driving their cars fast and so forth. So a number of things have been eliminated from their life that might kill the rest of us in here. So this really shows I think what the effects of positive affect could be.

Why would that be, that happiness would matter? These are some of the things that happen when you induce positive affect in the laboratory.

You do an experimental induction, you show people a Cosby movie, you get them to write about their life, you play happy music, whatever it is. You'll see their self confidence increases. In many circumstances, not all, altruism increases, whether they'll donate part of their earnings for the experiment to a charity. Activity level increases. Flexible thinking. Some people call it creativity. Complex problem solving. Not simple problem solving. Sociability without a doubt increases when you increase positive affect. Leadership, of course that goes with the self confidence. And in some measures health -- blood pressure and so forth.

So if you have all these affects going on then at least in our society these affects seem to lead to some positive outcomes.

I'm going to skip the possible benefits of inferiority so we have a little bit of time for discussion and just say in conclusion then that I think this is a really interesting area and hopefully I've given you some ideas that can take your research in some new directions.

Questions?

MS. GRAHAM: I have sort of a more general question but a couple of comments.

On your causality stuff, rather than going into it, a lot of what our paper shows tomorrow is very similar. That the causality runs in both directions and it does complicate stuff.

There are two points that you made that I think are particularly relevant to the whole inequality and happiness theme, and I'd like to see if we can bring the discussion there a little bit. One is this whole issue of recent change and how recent change in distribution for example can all of a sudden put the whole issue back on the agenda. I think a lot of my work in countries where there's a lot more economic change and

transition, and often you'll find that a very small recent downward change will wipe out ten years of positive economic benefit in terms of life satisfaction. So people don't fall all the way back, they fall back a little bit. But that has tremendous negative effects on their happiness. It works a lot with changes in the distribution.

But the other point you raised that I think really is relevant to the whole inequality/happiness policy debate in this country is the salience point. You said people don't usually think about inequality unless it's in a survey or it's in a question. And certainly it's not in our political debate at all. It just doesn't enter in at all. Why it's not, I'm not so sure. I'd be interested in Tom Mann's views or Cass' views or people that think more about sort of the political sides of things. Why isn't it on the U.S. political agenda?

Then related to that is the whole issue of social comparison. Do we look at people ahead of us in a good way or a bad way, and the sort of standard accepted thing in the U.S. is at least the sort of attitude thing, is that most Americans look at Bill Gates in a positive way, not in a negative way, so they look at Bill Gates and they don't say wow, he has more than me. They say, maybe I'll be like him or maybe my kids will be like him. But it can't be all Americans that do that and there's got to be some section of Americans that look in a negative way.

I think here this may be linked to race. And maybe in our political debate race is more of a proxy for inequality than inequality itself. And just one of the findings that struck us along this line is Angus' finding on race and health and how that outweighs the inequality issue.

So I just think this whole issue of salience. Are we thinking about inequality differently at all in this country politically? Or maybe we really don't think about it.

MR. DIENER: One just brief comment and reaction to that is in terms of race. If you're talking about race you're probably talking about African-Americans. You're not talking about Asian-Americans who are quite different, I'm convinced, and so when you talk about African-Americans you have an external locus of control that what's going to happen to them bad or good has been influenced traditionally by the central government. What's happening in my life is not due so much to what I do but whether people are discriminating against me and especially whether the government has intervened on my behalf. Then equality becomes quite important because all of a sudden it takes on a very different meaning, that somebody else is responsible for it. If I'm not caught up to them it's because somebody's doing something wrong. It's not because I haven't worked hard enough or long

enough to get there, so I don't know, it's off the cuff reaction to that.

VOICE: [Inaudible] I think it helps to have a clear view of why we're interested in this, and therefore what is the thing which we're really concerned with. I'd like to put in a word for Jeremy Bentham since he isn't here. [Laughter] Which is we should be concerned with how people feel throughout their waking lives.

So the sum of instantaneous happiness is the only thing that matters. I mean memory may be something that contributes to how you feel at different times as you mentioned, but I think unless we have an idea of what is the, as it were, the output of the social system that we're interested in. We get confused because we keep on moving from one consideration being important to another. So that being the case, I think some of these sort of ambiguities are less problematical than perhaps they might have seemed from what you were saying.

Obviously there's a tension between that and whether we, how much of that instantaneous happiness we attribute to what's going on in you, as it were. I don't mean what's going on in you. To your own input to the situation and to the input to the situation from the external world.

I was wondering, it seems to me if we're focusing on utility and how you feel, it's incredibly important, this question of how other people relate to you as well as how you relate to them, and whether we couldn't somehow have more systematic studies of the impact on people of the norms, if you like, to which people, that are held by the people in respect to each other, member of society, and then how our own reaction to other people is itself affected by the norms. I'm thinking fundamentally.

The age-old question as to whether society can make people who are less bothered about living up to the expectations of other people and more comfortable with themselves because they allow themselves to be themselves.

But the psychologists have they really addressed these issues of the social impact of the value system?

MR. DIENER: If you look at these data it looks a whole lot like how people think about you, it makes a big difference. But I will say the psychologists recently have gotten a little worried about making people feel comfortable with themselves no matter who they are, and for about 20 or 30 years we did that, namely the self esteem movement in the U.S. where self esteem was the number one thing and we were going to boost your self esteem no matter what.

All of a sudden Roy Baumeister and others said boy, you better have self esteem that's based on something because we find that criminals have high self esteem, and is that really a good thing? And so the point is that we want you to have high self esteem but we want it to be based top some degree -- Now we want to allow individual latitude and of course I think we have that in America of how you get there. But that you're doing something positive and good for society and that's why you have self esteem, not simply that everybody like Carl Rogers or Mr. Rogers said we love you just for who you are, no matter who you are and how bad you are.

So psychologists recently have reacted against that.

In terms of the amount of respect, though, I think there are data that show that, and you all know that data better than I do, that it is related. If you're a kid in a school who's doing better on whatever dimension, you're going to have higher sociometric ratings and you're going to be a happier kid and so forth. So we do know that I think.

VOICE: [Inaudible] -- change the valuations that people put on status and the extent to which people are forced into a situation where status is a very salient feature of life. Isn't this a key issue for --

MR. DIENER: Right. And of course one evolutionary thing would be statuses built in so we're going to do it. And I don't know if that's true.

But what I was trying to point out is you can have status. You can have an award-winning dog and you walk in this room and we don't know who you are. You walk in another room and they say whoa. This is our hero. This is the most important person in the world. We love you. And I walk in somewhere and they don't know who I am. Then I go to my grandsons, they think I have high status.

So I think that depending on what group you're in, what you're talking about -- We live in a multidimensional world and it's not all just built on income. It's built on all kinds of things that individuals in a pluralistic society value.

So it is okay. And I know people who are lower middle class, working class people, who think they're great because they sell more jelly at the street fair market than anybody else. You say oh, that's trivial, but they don't think so. They think it's important.

MR. OSWALD: We've managed to get into a time bind again. Andrew suggested that we call for very succinct questions, the

few who are left to ask questions. I'm going to start by seeing if Andrew can pose a succinct question.

MR. EGGERS: All over the Western world government policy focuses on what people do and what they have. Should it focus on their expectancies? Should it manipulate aspirations and comparisons?

VOICE: [Inaudible] [Laughter]

MR. DIENER: And I wanted to avoid the answer so I figured I'd hear all the questions. Yes.

VOICE: I always find Ed's work so stimulating and his talk was so stimulating, you hardly know where to start.

I feel like a lot of what you talk about is sort of like the economist and the psychologist passing each other in the dark because you're talking about all these individual things and about why persons, individual persons are happy or not happy. Your anecdotes are that sort.

When the economists look at income and happiness they talk about income groups. If you take what people want, basically the things that are important are income, family relations and friendships, health, and lower down the list work utility. These are the things that are important.

MR. DIENER: Possibly spirituality.

VOICE: Yeah, you can lump that in with the family and friendship thing.

But these things are important across the board for people at different income levels. And there are real differences in the attainment of these aspirations by income level.

So I think there is a real relationship here in saying well, some people are interested in being the best soccer player or something doesn't get at sort of what economists are trying to understand about the mechanisms that are at work.

My other comment is I really am bothered by this German study that says that marriage doesn't have any effect, or that what's happening is only the people that are happy are getting married because it's directly contradicted by the General Social Survey. So if you take a cohort of young people before they're married and you look at the happiness of those who are never married and then you see what happens to that cohort as they age from 18 to 29, you find that the people who are married are happier than the people who are not married. Number one.

Now if what was happening was that you were selecting out from these who were never married the people who were initially happier, then the never-married group should get progressively less happy as more and more of them exit the never-married group and get married. But what happens is the never-married group remains at the same level of happiness from ages 18 to 29.

That means there is not a selection going on in favor of people who were initially happier getting married. But what's happening is marriage is having a positive effect on happiness. That continues over a period of at least ten years.

Now why does the German study come up with different conclusions?

MR. DIENER: And we have another study that shows it goes both ways.

VOICE: Let me just make one observation about that, okay? You keep saying you're using longitudinal data, but you're not looking at the same group of persons before marriage, during the honeymoon period around the time of marriage, and after marriage.

MR. DIENER: No, no. We are.

VOICE: Those are overlapping groups. There are some people -

MR. DIENER: No, these are --

VOICE: -- common but they are not the same.

MR. DIENER: No, you're wrong on that. These are identically the same people that we followed the whole time. They start with --

VOICE: I looked at the study very carefully.

MR. DIENER: We have the data.

VOICE: They cannot be the same people.

MR. DIENER: They're coded with a subject number and you match the subject number --

VOICE: Are you saying the same people averaged at every single point on that graph?

MR. DIENER: That's right. And that graph I showed you are the people who are in there for all the points.

Now you can look at it with missing data points and so forth. No, the 30,000 people are followed all through, and not every person answered at every response time. But these are panel data. These are longitudinal data.

Now we have data to show that the marriage thing and happiness and selection goes in both directions, a much smaller study. So I don't know why this study is different from the GSS. And that's not the point of whether marriage really makes you happy in the long run. Maybe it does. Our analysis show that it does make some people happier in the long run and some people less happy in the German data.

That's not the point. The point is that here you have to be very careful when you're examining causality. These data suggest that you better be careful about examining causality when you're looking at cross-sectional data because it can go in either direction.

So I'm not trying to say that there's no marriage effect because we do have a marriage effect in another data set. But there's another effect going on there and it's a selection effect. The selection effect is pretty clear. These are panel data. And these are the same subjects for the same time.

MR. FRANK: We're going to move to the break now. If we can take a little bit shorter break than the scheduled 15 minute break we can hope to end closer to the scheduled stop time for the afternoon and have more time free to talk afterwards.

Thanks very much, Ed, for a nice presentation.

[Applause]

[Break]

MS. GRAHAM: Without any further ado let's turn it over to Bob Frank.

ARE POSITIONAL EXTERNALITIES DIFFERENT FROM OTHER EXTERNALITIES?**Robert Frank, Cornell University**

Thanks, Carol.

I was telling a friend in France, the meeting I was going to, and I got back, just after getting back after spending a month giving lectures there [inaudible] on inequality and happiness [inaudible]. That must be a very unusual group of people. I said, yeah it is in fact an unusual group and the one clear piece of behavioral evidence I've noticed is I don't think I've been to a conference in the last three or four years where none of the speakers in day-long presentations used Power Point. Every single speaker so far has been [inaudible]. [Laughter]

I'm going to quickly make a few points. I don't think most of the points will be controversial to this group. People care about relative consumption. I think you've seen lots of that already. I'm going to show you some evidence that suggests that concerns about relative consumption lead to expenditure arms races that focus on particular categories of expenditure. I'll describe this as the process of expenditure cascades. I'll describe for you some evidence or at least refer to some evidence by others that these expenditure arms races have as one of their consequences that of diverting resources away from categories that would have an impact on subjective well being and loading them up further in other areas where clearly there's not much additional subjective well being achieved by across the board increases.

This is all material I've discussed at some level in past work, although I can show you some very interesting new work that I'm doing with some students that I think bears directly on the question of whether inequality is the source of some of these expenditure cascades.

But the main question I want to approach today is that of whether it's legitimate to try to rein people's expenditures in in some way because of the harmful effects they seem to have. I'm going to try to think about that in the most restrictive framework that I think exists in terms of [inaudible] and thinking about [inaudible].

John Stewart Mills criteria, this is a classical libertarian government. You can't tell me I can't do something unless it's to prevent me from harming somebody else. There's no other legitimate reason for the state to [inaudible] what I do.

[Inaudible] can show that I harm somebody, then you can

regulate me. That's necessary. But there are many things we allow people to do that do result in harming others. The alternative would be worse.

So I think I can persuade a neutral observer that here's a case to be made for restraining expenditure in the interest of preventing the kind of harms that are caused by these expenditure [inaudible].

The traditional neoclassical model suggests there's a simple answer to this non-experiment that you have to choose between two worlds once and for all, World A where you'll have a low relative position but ten percent higher absolute than World B. You ought to choose World A because absolute consumption is the economically relevant determinant of satisfaction. Most people, though, seem to need to think about which world they would choose. These are two worlds where the incomes are different only because World A is more productive than World B. There's no inflation [inaudible].

People think about that and they wonder which would be best. They seem embarrassed that in the end they choose World B, which is what most people do choose when they're given that experiment. But they don't seem to think it's odd that they chose it. The idea of having high relative income is advantageous, seems transparent to many people. This comports very closely with data that we have from the subjective well being or happiness literature which economists often don't like because of the subjective nature of much of the evidence. You can argue happy or not. What can you possibly learn from that? But there is lots of objective evidence in this literature too. Richy Davidson [inaudible], the brain waves are heavily loaded [inaudible]. People like that are much more likely to say they're happy when the surveyor comes around. But behavior [inaudible] correlates very closely.

Happiness is something that [inaudible] measure fairly well and it seems like a good thing. If you could get more of it that would be good. If you didn't have to give up any important [inaudible].

VOICE: Just on that example, when I thought about it because you used it in Luxury Fever, and the more I thought about it the more I thought it's not just an example of relative, choosing less absolute income. It's not just an example of relative position in the sense that you're more likely to have the room with the view if you've got --

MR. FRANK: Yes --

VOICE: So you get absolute benefits.

MR. FRANK: So yes, there are very real resources at stake in terms of where you stand in the queue of the income distribution, absolutely. It's not just relative. This is the classic line [inaudible]. There are so many [inaudible]. So yes, there are real things at stake. That doesn't make the issue of position any less interesting. From the perspective of a traditional economist that makes it somehow more real.

VOICE: Except it does reconcile the absolute consumption thing. Right? What Michael just says means that if your utility depends only on what you get, that choice is a perfectly rational one if that's what people are thinking.

MR. FRANK: I didn't mean to say it was an anomalous decision.

VOICE: You said people's utility depends on their relative income. The relative consumption, I'm sorry.

MR. FRANK: Yes, it does.

VOICE: No, but that example does not show that for the reason that Michael --

MR. FRANK: I didn't say that that example showed --

VOICE: Surely you say price is a constant. It does show it. Price --

MR. FRANK: -- won't be the same [inaudible].

I'm going to take this given the two basic findings that di Tella talked about this morning. I'll have my own spin on why it is that the happiness line is flat while the income level is so sharply rising. My take on that is that if we've been spending our income across the board in equal proportional amounts on all goods, that we ought to expect happiness to rise with income. In fact we've reallocated our income away from certain kinds of goods towards others, and the reallocation is not random. It's quite systematic. And that we've in effect been loading more of our income onto goods that don't have much bang for the buck and in the process taking [inaudible].

Here is the relative income versus satisfaction. This [inaudible] Ed Diener's piece of research. The psychologists sometimes characterize this finding incorrectly I've noticed in many of their writings. There's a fairly wide commentary in that literature that income doesn't much matter for happiness, relative or absolute, and I think that last statement seems to be based on the fact that if we look at the scatter of individual

points in this diagram rather than the group value, where these dots are, you'd see just a blur of noisy data, and if you did an analysis of variants you'd find that the relative income scale variable explained about two percent of the variants [inaudible] so not much [inaudible] poor people who are pretty happy or [inaudible] people who aren't very happy.

I think [inaudible] difference the way psychologists think about data and the way economists do. Analysis is very in favor of this kind of [inaudible] psychology whereas we in economics think much more in terms of regression coefficients and so forth.

Here just a peak at the scatter diagram shows that the effect is very large. If you move from the bottom of the [inaudible] scale to the top of the [inaudible] scale, there's a huge increase in average [inaudible]. The way to think about that is if you were an unhappy poor person the best thing you could do would be to get more income. You'd still be an unhappy rich person but you'd be a lot happier than you were as an unhappy poor person. So it's the effect of the change in income that we focus on as economists, and that's a huge [inaudible].

VOICE: [Inaudible]

MR. FRANK: If there were [inaudible]? These are just points on a scale.

VOICE: [Inaudible]

MR. FRANK: Angus would want to [inaudible] deform that axis all we want by [inaudible]. But such as the variant isn't happiness, rich people are at the high end of the scale and poor people [inaudible] low end of the scale.

There's big literature suggesting that there are sort of fundamental elements of brain chemistry that seem focused on relative position. [Laughter] -- capture the idea that these reactions sort of come unbidden. They're not [inaudible] conditioned. Nobody trained [inaudible]. It's easy to imagine that [inaudible] she seems to be. It's [inaudible] visibly calling to her attention that there is something that would be nice to have and she doesn't have that, and [inaudible] setting.

In fact we train our children not to get upset in those situations. Just to stay cool, don't think about what other people have. Pay attention to your own business.

I'll describe for you an experiment I did with my two oldest sons when they were young.

The first day I poured each of them a full glass of orange

juice. David was seven, Jason was two years younger. That was fine. They drank the orange juice without comment.

On day two I cut them back to half a glass each. There was no complaint, hey, how come you cut our ration back from a full glass to a half a glass? They both drank their half glasses without comment.

On the third day I gave David 7/8ths of a glass and Jason 3/4ths of a glass, a just noticeable difference. I put the glasses there beforehand just to see that I visually could detect that they were different. Jason, my five year old, he was sort of looking back and forth between the two glasses. I could see he was sort of trying to inhibit the reaction that was building up within him, and then finally just burst out, that's not fair, he always gets more than me. [Laughter]

I said stay calm, there's plenty of orange juice. Just ask for it, don't worry about it.

We in cultural terms go to great lengths to try and suppress this reaction. It's a good thing that we do that. If you are sort of too attuned to these kinds of differences you're just going to be miserable your whole life long. You'll always find somebody who's glass is a little fuller than yours. So we're sort of conditioned to accept responsibility for turning our gaze in a different direction.

That's a very important cultural lesson, when I think about policies dealing with consumption [inaudible].

But I want to sort of make the point first that this idea that we would be sensitive to contacts in those ways is not anything that is either abnormal or something that we should be inclined to apologize for. If you could sort of fine tune your kids' temperaments, it's not at all clear you'd want to strip the sensitivity [inaudible] couldn't function if the brain weren't very highly sensitive to [contacts] in ways that make these kinds of reactions I think uninhabitable.

Which vertical line is longer? These two people in every psych lab where it's ever been done answer in high proportions that the one on the right is longer. If you ask them why they'd say it looks longer. Which it's supposed to look longer. In the context in which it sits it's sort of doing a little bit more work in the gap between the other two lines than the line on the left, nearly that same length. I made them both from the same same original segment that I drew on my computer.

If your brain sort of looked at that picture and said they're obviously the same size there would be something the

matter with your brain. Psychologists would want to get a section of it to find the lesion that caused you to get that wrong if you thought they looked the same. They shouldn't look the same so you don't need to apologize if you get that wrong.

You need a coat when you go out if it is a cold day. Well, I grew up in Miami. On a 60 degree day we knew the answer to that question was yes, of course it's cold. You go to a high school football game on a 60 degree day, you bring your coat. We're huddled together.

In Montreal on a 60 degree day in February they know the answer to the question too, but it's the opposite answer as in Miami. It's obviously a warm day. How could you be so stupid as to ask is it cold on a 60 degree day in February in Montreal? People are celebrating how warm it is.

Context has to matter in those ways just because the answer to the question that's relevant to what you decide to do depends almost entirely in many cases on [inaudible].

How should you feel about your living space? This is a category of consumption I'm going to come back to several more times. You're an executive of a company in Greenwich, Connecticut. You're about to receive potential clients to discuss a project over drinks in the evening. How do you feel as you anticipate their arrival in this 500 square foot house?

It would be plausible to have a little nod of anxiety as you are waiting for your clients to arrive. Naturally you're concerned, what are they going to think about the kind of company I've got going here if I live as the CEO in a 500 square foot house like that.

That's not a psychopathology to be a little apprehensive in that situation. It's totally normal under the circumstances to have that feeling.

If, however, you're going to receive them for drinks at the Greenwich Marina on your 500 square foot yacht, the floor plan shown here, you wouldn't feel that same knot of anxiety. In the context of a house that floats that's actually a vast amount of living space, a very impressive space within which to receive guests. If you look at this slide, the bedroom on that yacht, it's 10 feet by 10 feet. That's by the standards of American middle class houses in the year 2003 a small bedroom. We have a 12x12 bedroom at our house and one of us thought it was way too small so we knocked out a wall and now we have a much bigger bedroom, almost twice as big, and yet it still doesn't seem big by the standards of our community. If we had been living on a yacht, though, we would have experienced --

[TAPE CHANGE]

-- contractor to do anything it would be to put a wall down the middle of the bedroom and rent part of the 12x12 bedroom out to somebody else instead of building a bigger bedroom. All hinged to the context in which you find yourself.

Smith wrote about this. Smith wrote about how it was impossible for even a lowly day laborer to appear in public [inaudible] didn't have a linen shirt. If he didn't have at least a linen shirt then he must have been really guilty of some [inaudible]. -- the minimal rules of the game, he'd have been able to afford at least that.

It's the same now. What's required in order to be able to function without a sense of shame depends on the level of community, the consumption standards that exist where you are in the time and place where you happen to live.

The New York Times Bureau Chief in Chicago did a nice piece in 1998. He spent a few days with the Williams family in Dixon, Illinois which is a suburban community in western Illinois, very [inaudible] community. The Williams family lived just outside of Dixon in a trailer park called Chateau Estates. I've since seen several other trailer parks called Chateau Estates. The family earned a living above the federal poverty threshold by not a big margin, but both parents worked at low wage jobs. They had meals on the table and everyone was clothed. But the experience of [Wendy Lathe] living in that community was in many ways psychologically difficult for reasons that I think most people would not blame her for experiencing that.

She mentions a conversation where she asked the girl where did you get that shirt? It's a nice shirt. She knew it was out of her price range [inaudible] small talk. The girl turned and asked her, why would you want to know? As if to say you couldn't possibly [afford] such a shirt.

It describes that she spoke with pursed lips to hide a slight overbite that she had. She asked her parents to take her to the orthodontist, they couldn't afford to do that. The kids at school were [inaudible]. So she had an experience there that children in Adam Smith's day would just not have had with the same teeth. In 1750 to have perfect teeth or an overbite just wasn't a marker of social position because not even rich families could afford to do anything about that condition. It didn't really attract attention in the same way it did in that particular community.

Do you know what it's like, asked Wendy's mother, to have a

daughter come home and say mom, the kids say my clothes are tacky and then [inaudible].

I think this is not about vicious envy, jealousy or resentment, any of the standard negative emotions that [inaudible]. This is the kind of reaction I think I would expect my kids would feel despite all I've done to try to train them not to worry about it. I always tell my kids, those are kids that aren't worthy of your concern, anyone that would say such a thing. I think they would agree with me. They understand. But it would still give injury to my kids to experience that, and I think it would be the totally exceptional kid who could internalize that advice and walk away with no trace of psychological injury in an experience like that.

But I want to say still that probably in the end the proper posture for us as a society is to encourage people to become more thick-skinned in response to their experience with injuries of that sort. To say well, you're entitled to live a life free from injury of that sort is just a condition that we cannot afford to provide people, and the very best posture we can strike as a practical matter is to say get used to it. Try your best to adapt.

VOICE: Is it important that we think about what's the origin of the allocation rule as it were? In the example of the orange juice, maybe an [inaudible] kind of difference between the two glasses show that you prefer one of the two boys. Or for example, I don't know, maybe in America people don't care about this sort of [inaudible] because they think they are due to effort. Whereas in Europe if they think wealth doesn't come from effort, or it comes from something else --

MR. FRANK: It makes an enormous difference where you think these differences come from. Whether you think in the end they're justified, how injured you feel by them. Absolutely. If time permits I'll talk about some [inaudible] speak directly to that.

I think these psychological costs are real costs. That's not my point.

[Inaudible portion of tape]

VOICE: What about the risks? The risks on the job? You said people are picking riskier jobs?

MR. FRANK: There's some evidence that, aside from the regulation of risk, where we constrain what risks people are able to take, that people are choosing a little more risk given the menu of choices they have.

VOICE: Michael Marmot and I sit on a panel together and we were looking into this. In the last 12 years the risk of injury and death on jobs has gone down like a third.

MR. FRANK: And so has the risk of being killed in an auto accident gone down. Even though there are those big vehicles. So there have been simultaneous changes [inaudible].

[Inaudible portion of tape]

VOICE: [Inaudible]

MR. FRANK: It's a big number and I don't think land prices [inaudible].

VOICE: Actually can you flesh out your point, Angus? So given that it's control in the median, why is it that the convex would explain the inequality coefficient given the median is held constant?

MR. DEATON: If there's a fixed amount of land which we're trying to [inaudible] --

[Inaudible portion of tape]

MS. GRAHAM: -- maximum of ten minutes for questions. Maybe we can collect them all.

Sandy Jencks?

MR. JENCKS: Help me to understand about the way this works for the median household. I understand why if I'm in the second percentile my costs might go up because I want to live near people who are in the first percentile. If I'm in the median household and I was going to a school district in which the median income was that of the median household and all these changes occur, it's unclear to me why it is that either the house price in that district or the cost of living in that district has changed or would change.

MR. FRANK: The story I'm telling is for a new community where everybody is building a new house, so I'm not -- In the story I told I geared it to house size. When you've got an existing stock of housing then location becomes the issue. There are good neighborhoods and bad neighborhoods. The gains in income at the top bid up the prices of houses in the best neighborhoods. That means the second best neighborhood then becomes a more costly, you want to live in the best area but you can't afford to live there now so you live in the next best neighborhood, so the demand goes up for those houses, and down the cascade --

MR. JENCKS: Let me recast it and then don't answer because we were going to collect them. The way you described it, it sounded as though economic segregation could solve all these problems, and I want to know whether you think that's true.

MS. GRAHAM: Richard Reeves and Richard Layard.

MR. REEVES: Thanks for the paper, Robert. I think you bring us, for me anyway, to the heart of the issue which is whether what we know about the effect of relative income on happiness legitimizes restriction on consumption without unacceptable violations of liberty.

I have one technical concern which doesn't keep me awake at night and one philosophical concern that does.

The first technical one is I wonder whether actually economic inequality may reduce the cascading effect for precisely the segregation reason that has just been mentioned. The evidence in the U.K. at least is that rising income inequality has been related to rising geographical segregation. So to the extent that people's comparison groups are local, if inequality makes the local areas more homogenous than they were before, that makes your cascade less cascady than otherwise. That's the technical question.

The philosophical one which worries me more is the legitimacy of restricting consumption through taxation or some other mechanism. And this seems to me to depend on how you define harm in the sense of Mill or other philosophers.

I think there is an important distinction and we don't know what Mill would think about this because I'm pretty sure he was talking about straightforward physical harm, but we could argue about that. I think there is a distinction between social or psychological harm and physical harm. So if you like, an extreme example is the purple shirt that offends you and homicide which deprives you of your life. There's clearly a distinction between depriving me of my liberty to wear this shirt and to kill you.

I actually think that in the example that you use in the paper about free speech you kind of recognize the distinction between social and physical harm. It is not allowed to shout fire in a crowded theater, and I think there's a good reason for that. If you shout fire, you can cause a stampede. People can be physically harmed by the resulting stampede as a result of you doing that. You can, however, shout boo, or rubbish during a Shakespeare performance. Now that may be unpopular --

VOICE: That's required. [Laughter]

MR. REEVES: It's required.

VOICE: [Inaudible] drive that [inaudible].

MR. REEVES: And no one would restrict that because of that social and psychological harm and not physical harm. My fear is that consumption and spending by the rich falls into the category of social or psychological harm, whereas carbon dioxide which you use as an analogous situation constitutes physical harm.

Social harm depends on what Ed Diener said about attributes. I am only socially harmed by your possession of something if I care about it, so as he said it's what we desire that makes social comparison important.

So if for example what mattered was how you looked, then it seems to me there's no philosophical distinction between what you're suggesting and compulsory surgery to make good looking people less good looking as in the famous novel Facial Justice actually happened, because you being good looking is making me less happy because I'm less good looking than you.

We may say that status is defined by being better educated, better read, having a beautiful spouse, being good at football or whatever it is, and then start redistributing on that basis. Just because it's income doesn't seem to me to philosophically allow you to start redistributing it and instead we should change the social ethos that promotes it.

MR. FRANK: I tried to stake out a fairly radical position against [inaudible] by saying [inaudible].

[Inaudible portion of tape]

MR. FRANK: -- not the same as the psychological costs aren't legitimate, but just to say if we recognize those as the basis for compensation then we [inaudible].

MR. REEVES: It doesn't seem to me that being able to put a dollar value on it means that you move it out of the category of psychological harm. After all you put a dollar value in your paper on someone wearing a purple shirt. I could put a dollar value on how upset I am that someone shouted boo in the middle of a play.

MR. FRANK: If I put you in a position of total inequality you're going to work longer hours and drive longer distances between your work and your home and you're going to have a higher probability of dying [inaudible].

MS. GRAHAM: We have two more. Richard and Josh.

And let me just throw into this same sort of set of concerns just to mull over, to talk over dinner or whatever. I wouldn't necessarily make this argument but I think there are many people who would make the argument that in the end you're talking about inequality of outcomes that then have some effects that you are measuring as costs. But there are people that would say the inequality of outcomes are due to inequality of effort so shouldn't the people that made -- the reason that people have the money to buy the bigger houses is because they work so much harder and they put forth more effort and therefore -- How do you deal with the argument of where the inequality came from if people believe that the outcomes are just? I'm not saying I do because I think there's a lot in inequality of initial conditions, but a lot of people that wouldn't buy your argument would make that case.

MR. FRANK: [Inaudible]

MS. GRAHAM: Richard and then Josh has the last word and I think we'll just respond over dinner if that's okay.

MR. LAYARD: Just a quick observation. We have always made the distinction between pecuniary externality and technological externality and said that pecuniary externality affects other people through the effect on prices. Or not a problem, it's only when there's a direct affect on utility.

I'm not sure that you've not started to bring in pecuniary external analysis where they shouldn't be brought in. I mean certainly this house price affect, the commuting affect, some of these things I would have thought pecuniary externalities and we shouldn't be ashamed to make the main case on the direct effect on utility. That's what the case actually is primarily.

MR. FRANK: [Inaudible]

MR. LAYARD: If somebody gets -- There's no inefficiency in somebody having to commute further because somebody is spending their income in some particular way as a result of their income having gone up. That works through the price mechanism and has the ordinary efficiency properties of the --

MR. FRANK: [Inaudible] make that separation.

VOICE: [Inaudible] consumption is only a valid tax if it's a non- [inaudible] as opposed to a pecuniary account.

VOICE: With respect to housing, [inaudible].

MR. LAYARD: Sorry?

VOICE: As far as zoning. We do have policies at least [inaudible] growth which is an attempt by a community to expressly slow sprawl and [inaudible].

MR. LAYARD: If I can just say, you deal with each distortion directly. You shouldn't deal with a land use distortion through an income redistribution.

VOICE: I'm not disagreeing with your point. What I'm saying is that to the extent this problem exists there are instruments that are available --

MR. LAYARD: Right.

MS. GRAHAM: Let's have the last comment from Josh and there's plenty of time to discuss this over dinner and tomorrow, but I do think some people are going to want to break at least in between the two.

MR. EPSTEIN: Not all the examples [inaudible] at all. Every [inaudible]. My real question is how do you respond to [inaudible]? How do you describe or [inaudible]? [Inaudible] physical duty [inaudible]. [Laughter]

MR. FRANK: After this [inaudible] seems to suggest that if everyone worked a little less they'd be [inaudible]. It doesn't seem like a good pattern for the individual to work a little less. [Inaudible] We'll end up not achieving a lot of the [inaudible].

MR. EPSTEIN: [Inaudible]

MR. FRANK: I argue that that's why we have policies like that. That's why we have annual vacations, [inaudible]. If you leave individuals free to decide how much time to take off, they won't take much time off. Even though when you ask them to vote in a survey how much time they think everyone ought to take off they give [inaudible].

MS. GRAHAM: Speaking of time off, health, and happiness, let's all reconvene at Restaurant Norah at 6:30. It's at 21st and Florida. Depending on how healthy you think claret is, I'm sure there will be some there.

[Applause]

[THE CONFERENCE WAS ADJOURNED]