Lies, Damn Lies and Climate Statistics

Ross [00:00:28] Welcome to Renegade Inc. It'll come as no surprise to you, our audience, that a recent poll indicated that economists are amongst the least trusted professionals. They've made blundering mistakes on everything from claiming financial crises can't happen, to not foreseeing the most obvious recessions. But all that pales into insignificance when inept economists get involved in modelling climate science - a recession we can recover from, but the breakdown of our planet, we cannot. We went to Kakanomics, the leading economics festival in Norway, to talk with the renegade economist, Professor Steve Keen. He asserts that mainstream economists have been peddling their ideology as scientific fact. So we wanted to understand the scale of the damage their blinkered ideology has done to the future of our planet.

Ross [00:01:29] Welcome to Stavanger. You are one of a few, a handful, if you like, of economists who predicted the great financial crisis. And now you've seen something else in a very different area that gives you alarm. What is it and why should we be worried?

Steve Keen [00:01:49] Well, its economists trying to predict the economic impact of climate change, which is a worthy thing to do. But they've approached it, first of all, by believing that it will have very little impact. So they've gone looking for data which supports their argument that it will have very little impact. And they've committed the cardinal sin of economics, which is making what they call a simplifying assumption, that I actually call a fantasy. There's many that they've done. But the most outrageous, is the fantasy that the difference between different cities in America, let's say different states in America in terms of temperature and GDP, which gives you a very weak relationship between the temperature of a state and its GDP per head, can be used to predict the impact of climate change.

Ross [00:02:35] You're not published in this area, you haven't addressed climate breakdown, your modelling has been in all sorts of financial areas, certainly not this. What gives you the right to talk about this?

Steve Keen [00:02:46] First thing, is one thing which has been left out of economics since the physiocrats which pre-date Adam Smith.....

Ross [00:02:51] Who are they?

[00:02:51] The economists in France, who being in a ruralist environment, argued that all wealth comes from the free gift of nature, which we would call energy today. And Smith came along and said, 'no, it all comes from a division of labour'.

Ross [00:03:04] Did the physiocrats see land as a unique factor of production?

Steve Keen [00:03:07] Absolutely unique, because that land is what receives that what they call the free gift of nature, which we would call solar energy. Of course, you put it with one sand of seed in the ground, you get a thousand seeds and a plant coming out of it, there's an obvious way that something has been given to you for free by the nature. You then harvest that which is where the wealth comes from and that gets distributed through rest of society.

They didn't call that energy because the word didn't exist when they were writing. But fundamentally, they're saying production is based upon the free gift of energy from the environment. We simply take that energy and convert it into useful work.

Ross [00:03:39] The neoclassical economist, which is the prevailing ideology today, has three factors of production - land, labour, capital. Do they take land. They must take land in as a unique form of production?

Steve Keen [00:03:47] They've left it out. They used to talk about it 40 years ago. But their fundamental model of production says production is the function of labour and capital - no role for land and no role for energy. And what I've done recently, which is why I've got into this field, is I've worked out in a very, very simple way, how you can bring energy in. And a simple insight that occurred to me as they were modelling output, as, you know, machines and workers together. And walking through a friend's house, which is full of sculptures one day, the insight occurred to me labour without energy as a corpse. Machinery without energy is a sculpture. To do work, they have to have energy input into them. And then that energy lets them convert that energy into a useful work, which we called income.

Ross [00:04:31] So they're blindsided to this, or is it selective amnesia?

Steve Keen [00:04:35] Blindsided, because this is being something which is not just neoclassical's that have made this mistake, post-Keynesians have, Marxists have, Austrians have. All schools of economics have omitted the role of energy. So it's a blindside which has been in economics for two centuries.

Ross [00:04:48] Why? I mean, because, you can get conspiratorial at this point and say, well, someone's funding economics so therefore we should actually.....

Steve Keen [00:04:55] No, it's actually just an oversight. It's ridiculously simple to bring energy in. Saying rather than labour working and producing output, labour has to have food to produce output, machines have to have energy input to produce output. It's a very simple mathematical insight, but that occured to me in 2016. You have to go back to 1770 when economists were thinking about it in the same way. And for two centuries we've been arguing over what produces wealth and value, leaving out the essential input of energy.

Ross [00:05:25] You've taken particular aim at an economist called William Nordhaus. He won the Nobel prize in economics. Why has he incited such ire?

Steve Keen [00:05:36] First of all, he is the individual who did most to disparage the reception of the Limits to Growth study back in 1972.

Ross [00:05:44] And what is that study?

Steve Keen [00:05:45] The Limits to Growth was the study by a group of computer scientists at M.I.T., putting together a modelling framework that lets you look at the feedbacks between different parts of the very complex system of the world in which we're in - things like the level of population, the level of output, the amount of food being produced, the amount of

pollution produced, the capacity of the planet to absorb that pollution, putting all those feedback effects together.

Ross [00:06:07] And they had that data?

Steve Keen [00:06:08] They used data from 1900 to 1970 to calibrate their model. So they had indexes for production, indexes for pollution and so on. They made sure their model reproduced, roughly speaking, the data from 1900 to 1970 and all those elements, and they simply ran it forward and saw what happened. And what that model predicted was that between 2030 and 2070, roughly in those periods, some form of crisis would strike - either a pollution crisis, a running out of irreplaceable resources crisis, one of multiple crises. Unless we, in the mid 1970s, decided to limit population growth, to put more of our energy resources into generating non carbon based energy systems, more work into controlling pollution. If we'd done all these controls, we could have sustained the planet indefinitely.

Ross [00:06:56] What happened, mid-'70s?

Steve Keen [00:06:57] Nordhaus wrote a paper called Measurement Without Data.

Ross [00:07:01] In the mid 70s?

Steve Keen [00:07:01] In the mid 70s. He wrote it in 1972. He criticized a predecessor of the Limits to Growth written by Jay Forrester, one of the world's great engineers, and that disparaged the whole study. So it had enormous impact upon popular opinion. It sold about 25 million copies. But it was disparaged and thrown out. And the economists rejected not just the conclusions of the study, but the methodology as well. Whereas the methodology - and I'm speaking having spoken to Randers, one of the authors here - they actually believe that economists would say 'thank you for producing this methodology, because this methodology lets us analyze the economy out of equilibrium. And we've been analyzing as if it's in equilibrium, which is obviously a fiction. So you've let us not have to make that stupid assumption of equilibrium. But thanks very much'. Instead, the economists said, 'get out of here. We're hanging on to our equilibrium assumption'.

Ross [00:07:51] And is that because they want these simplifying assumptions? Describe more these simplifying assumptions. How do they look? Because I've also heard you call them fantasy.

Steve Keen [00:07:58] Yeah. I mean probably my favourite fantasy is - there's many in economics - but a guy called Paul Samuelson. I imagine most of you have heard Paul Samuelson's name. He once wrote he doesn't care who writes the country's laws so long as he can write his economics textbooks. You've all seen the market supply and demand curve, the intersecting lines. Okay, to explain the demand curve, they have a model which explains an individual having a fall in their demand as the price of something rises. They prove that using a little model. But then they have to add up all these individual demand curves to get a market demand.

Ross [00:08:33] So they just extrapolate that out?

Steve Keen [00:08:34] Yeah, well, that's what they did. They extrapolated. And his argument was that inside a family, to actually get this extrapolation to work inside a family, you have to assume that money is redistributed within the family. So that - this is a quote from Samuelson - the ethical worth of everybody's last dollar is equal. So a family acts as one big happy family and shuffles all the money together. So everybody is equally happy and nobody inside the family complains about how many bananas one child got versus another. He said 'one only has to assume the same model at a national level'. So he assumes America is one big happy family. It is literally in one of his articles.

Ross [00:09:16] It is, isn't it? That's what they tell everyone.

Steve Keen [00:09:19] He called that a rigorous proof - rigorous rigour bloody mortis. So that that was the basis. Let's assume America is one big, happy family. And then we can explain a downward sloping demand curve.

Ross [00:09:31] So how do we relate that - because it's quite technical - to the layman, to help me understand that when it comes to climate breakdown?

Steve Keen [00:09:37] What they've done in climate change, they've assumed that the variation - the very weak relationship we can now find between income in some part of America and the temperature in the same part of America - that will apply as we increase the temperature of the planet.

Ross [00:09:54] Right. So your salary or median salary, across the state, plus climate change have been put together.....

Steve Keen [00:10:03] As though they are interchangeable. The way they put it was that we assume that the variations in climate and income over space, will occur over time. What they're assuming - like if you're in a mountain - and they're assuming that we've got data about the slope in the mountain going north to south. We don't have data going east to west. So we assume the slope is the same in both directions. What could be wrong with that? If you're an El Capitan, you'll break your neck finding out the answer. And that's what they have done. Now, it's an insanely bad assumption. It's a stupid assumption.

Ross [00:10:33] Do they not see the absurdity in this?

Steve Keen [00:10:35] Can I quote one of them at you?

Ross [00:10:36] Yeah, well, you can. But I mean, do they not see that this is positively absurd and rightfully people are laughing at it because of its other worldliness?

Steve Keen [00:10:45] You would think that they would have to be not that stupid. But probably the most prominent, aggressive defender of these views is a guy called Richard Tol. And this is quoting a tweet of him in a debate from just a few months ago, 10K, which is 10 degrees Celsius, is less than the temperature distance between Alaska and Maryland, about equally rich, or between Iowa and Florida, about equally rich. Climate is not a primary driver of income.

Ross [00:11:11] Okay, but let me chime in if I can. If you don't have an environment left.....

Steve Keen [00:11:17] You ain't got an economy either. Exactly.

Ross [00:11:20] Do they not see the absurdity of that?.

Steve Keen [00:11:23] They don't see it. And this is a product of living in a discipline where making absurd assumptions to get over logical conundrums, has become a way of life.

Ross [00:11:31] Is that because it's just easier. Or is it because these people want to stay employed? What is going on?

Steve Keen [00:11:35] I think a large part of it, is you don't need economists to have an economy.

Ross [00:11:38] Right.

Steve Keen [00:11:39] You need engineers to have bridges. If engineers build bridges the same way economists do, they'd be people crashing into rivers all over the planet, ok. And engineering would be rapidly revised. The economy can go on regardless of what economic theory is.

Ross [00:11:52] Because people are economic actors and....

Steve Keen [00:11:54] Yeah. If we don't have a theory of the economy, the theory still exists.

Ross [00:11:58] But then this army of thinkers - inverted commas , turns up and starts askew?

Steve Keen [00:12:02] Yeah, and unfortunately, they thought they were defending capitalism against criticism against socialism. So it was an ideological battle. And like in that sense, they won the battle. But they chose aspects of capitalism it doesn't have as the basis of their defence. If I was going to defend capitalism against socialism, I'd say capitalism generates more innovation, more variety. But equilibrium? - that's the last thing capitalism achieves. You want equilibrium, you go to Russia in the 1970s. Nothing changes no matter how much you try. So they chose a bad ideological basis of defending capitalism. And then that vision of it as a equilibrium achieving, smooth system became wedded into their vision of how the world should be. And they defend that against all comers, including the climate. Only the climate couldn't give a stuff about them either.

Ross [00:12:48] But so as you predicted the great financial crisis, the reason you're jumping up and down now, is because - using the same rationale, thinking about those models - is saying, actually, a financial crisis you can get over, however, a planetary crisis is something very different.

Steve Keen [00:13:03] We can't, We can't get over it. My problem is I can't see us doing anything to stop this until it becomes obvious that it's happening, even to economists, even to

climate change deniers. Humans don't respond before a crisis collectively, individuals do. The whole system, we continue the same old momentum. When it breaks down, we're going to have to know who is responsible as well as who not to listen to and as well as who to prosecute. And economists fall into that latter category. Not all of them, but those ones? Definitely. And I think that any mainstream economy, any any conventional economist should be shooting those guys down. You cannot allow them to make assumptions that are that dangerous, that bad. But because the whole history of economics is letting crazy assumptions be accepted, they let this stuff get published. It should never have been published.

Jorgen Randers (video clip) [00:14:04] The Limits to Growth was this small book that appeared in 1972. It's only one hundred and fifty pages, but its main content is twelve scenarios for the world from 1970 to the year 2100. Six of these scenarios are sad scenarios where if something goes wrong in the world in the 21st century - too much pollution, too little resources, too little food, too many people - that type of thing. Six of the scenarios are good scenarios, positive scenarios, where humanity manages to achieve some degree of sustainable well-being in the 21st century. At the time in 1972, we did not know enough to tell which of those 12 scenarios was the most likely one. So all we could say, and that's what we say in the book, that mankind please shy away from the sad scenarios. You know, try to aim for the good sustainable scenarios. Today, 50 years later, we know very much more about how to forecast global development. So we know very much more today about what scenario we are actually going to follow over the next at least 30 to 40 years. And we can see that humanity is actually on full move towards one of the sadder scenarios, namely the climate crisis scenario. The other thing we have learned over the last 50 years is that the human response to the warning from Limits to Growth has not been heeded very much. Yes, there has been some progress, yes, we now have environmental ministries and we have some NGOs that are fighting the good fight. But by and large, you know, we are still doing business as usual. The most obvious examples of non action during the last 50 years is the climate and the resource scene. You know, the world economy has continued growing, as has the population all the time since we published a book. And the burden on the planet at this point in time is very many times higher than what it was in 1970, in spite of our warning.

Steve Keen [00:16:30] We are putting roughly four times a load on the biosphere that we were back then. So to change direction now is far harder. The dangers are now far closer because we've already warmed the climate substantially and there is a momentum to this which they don't seem to understand. Or simply, in terms of population, back in the 1970s, we're talking about two billion people, now we're talking closer to eight. We're talking the increase in income, which was obviously China and India had to improve in income. But of course, improving an income means increasing in energy, means increasing waste and pollution also going into the environment. And in terms of the amount of the planet which is actually devoted to the human species alone, apparently - this is me quoting scientist research - the total mass of mammals on the planet, 95 percent of it is either humans or animals who have grown to serve humans. The other 5 percent is the the wild kingdom. Now we've taken up 95 percent of the space. And when you look at the burden we're putting on the planet, it shows how much the planet can renew every year, we passed the point where we would be taking out what the planet could do every year roughly 40 years ago. Now, according to what's called the human ecological footprint, which is one way to try to measure the impact we have on the planet, we're using 1.6 planets per year. Something has to break. Something

has to give. It isn't a case of, you know, this might happen in the future. But the financial crisis is approaching. We've already started to damage the climate on a grand scale. And they are saying that the impacts of a incredible increase in temperature is going to be trivial. So one of Nordhaus's predictions is that the ideal level of global temperature in terms of offsetting the cost of global warming versus the costs of minimizing global warming - balancing the two - the ideal temperature - and this was in his Nobel prize speech - is four degrees warmer than pre-industrial levels, about three degrees more than today. Now, that's what he calls 'optimal'. That's actually, you look in his chart, look for the Nobel Prize speech by Nordhaus in 2018, that his optimal trajectory has us peaking at a temperature of four degrees above pre-industrial levels by 2140. And when you look at what he says the impact will that have on GDP, he says GDP in 2040, if the temperature rises by 4 degrees, will be roughly 4 percent less than it would have been in the complete absence of global warming. So he's saying global warming is that trivial, literally, only worth a four degree decline in GDP in about 120 years.

Ross [00:18:58] Do you find it peculiar that it's always offset against cost? Because fundamentally, what we're talking about money, which is a man-made concept, this word cost. What do you mean by the cost of offsetting?

Steve Keen [00:19:07] Well, fundamentally what they mean is we put our resources into, rather than producing more waffle irons and coffee cups, we put the effort into technology which can mitigate climate change. So we put more money into nuclear power stations and solar power than we do into coal, maybe build scrubbing devices to take carbon dioxide out of the atmosphere rather than producing more mobile phones. So saying we're getting goods which are not produced for their consumption benefit but to reduce damages and that's what they see as the cost. And he argued the cost of, if we go down the route of minimizing global warming to only 4 degrees versus 6, which is what he thinks has happened if we don't do mitigation, then that will cost nineteen trillion dollars. Now, 19 trillion dollars is a lot of money, but it's about the size of the American economy will fall courtesy of a 4 degree increase in global temperature. You said if it rises by 6, it's 23 trillion, which is about the size of the US economy. Now, that's assuming there won't be an economy.

Ross [00:20:05] That's the killer point, isn't it? Again, it's angels on a pinhead. You can have all these debates. But the point is, that you trash your environment. And this is the hubris. It is an overreach, a Mad Max scenario and we end up walking around saying, 'who came up with these ideas'?

Steve Keen [00:20:22] Yeah. And that's the trouble is that we often blame people like the Koch Brothers and Exxon and so on for knowing what the likely outcome is going to be, and hiding it. As you'll see, there are court cases on that front right now. So these are people who it's in their financial interests to minimize the apparent dangers of climate change.

Ross [00:20:40] But where are you laying the blame?

Steve Keen [00:20:41] I'm blaming it on the economists as well. I'm not leaving the Koch brothers out of this or Exxon. But I'm saying it's the ideological belief that they have that capitalism can handle any disturbance. Their vision of capitalism is a system which is so flexible and so innovative that you can, you know, smash it with a baseball bat and it'll

bounce right back up again, nice and healthy. So they don't think there's anything you can do to capitalism which can damage it. And what they're talking about is raising the global temperature so much that civilization, I think, will collapse. What they don't seem to understand is many, many things. But we have been living through a ten thousand year period of relatively stable climate. The variation in climate between 10000 years ago and now is no more than 1 degrees Celsius. We're actually being on a cooling trend until until the industrial period. And that period meant we didn't have to move about as nomadic tribes all the time, getting away from changes in climate changes and animals, changes in crops and so on, caused by dramatic variation in the climate. That gave us time to develop, first of all Sumerian civilization, Egyptian, Chinese, etc., etc. The stability of the climate may have been, probably was, we can't run up experiment to find out, was a major factor in us developing the societies we have now which are fundamentally sedentary. We live in one place, we build in one place.

Ross [00:22:06] But the cynic would say to you - and they, by the way, call themselves pragmatists - what's wrong with this Steve. We'll just move. Alaska looks alright. We'll move up there. What do you think about that?

Steve Keen [00:22:14] Slight trouble. We'll move faster than topsoil gets created. Again, the level of unreality.

Ross [00:22:19] Detail.

Steve Keen [00:22:20] Detail. We need soil to grow crops, I ask you.

Ross [00:22:22] We need land now? We're back to land.

Steve Keen [00:22:23] Yeah, I know. And so when you look at these studies by the economists using the idea that you can use current GDP temperature data to predict what's going to happen with climate change, they then talk about the regions that are colder than optimal. And the optimal temperature, in their opinion is an average of 12 degrees. So how do you pronounce Stavanger? That'll be very nice because you're going to get warmer, you know, whereas Mexico City might do worse because it will get warmer and it's already passed the 12 degree average. And they'd simply say some parts that are colder than the optimum are going to get warmer and therefore improve, parts that are warmer, the optimum's going to get hotter again and fall out and overall there's going to be this trivial change. And when we look around the globe, the parts of the globe that are going to benefit, most, particularly Siberia. Now, I'm sure Vladimir is going to let us all move to Siberia. And I'm sure we're going to find plenty of topsoil there. Once the tundra all melts, then, of course, instantly there's going to be topsoil forming and it's gonna be just as deep as the top soil in Iowa. And we can grow all the crops in Siberia rather than Iowa. The lack of realism is just breathtaking. I don't know how anybody could read that stuff and say anything other than this is insane. But this had to pass referees and academic journals to be published.

Ross [00:23:34] I don't want to be conspiratorial, but is there another agenda?

Steve Keen [00:23:38] No.

Ross [00:23:38] Are you sure about that?

Steve Keen [00:23:40] I've been in economics departments as a profession for thirty years and as a student before that. They sincerely believe this stuff. And that's the trouble.

Ross [00:23:50] It's even more dangerous than if it was a hidden agenda. At least if they were being funded by someone, we could stop that..

Steve Keen [00:23:55] That's right. You can pay them if they don't believe it, you can pay them to say something else. When they believe it you can't pay them to shut up. And the trouble is, they're wrong, but they believe this with such zealotry, they fight anybody who comes on and criticizes them on the grounds of realism.

Ross [00:24:11] For people who sit here now and feel quite helpless, how do we then take on these people who genuinely believe they're sincere in their belief, they genuinely believe that they're doing the right thing, and we as householders sit here and have listened to your logic and think, yep, all right. I'm on board. What do we do?

Steve Keen [00:24:27] Unfortunately, it's a bit like asking somebody in the Titanic, what do you do when the captain thinks icebergs are nice, fluffy clouds that are going to clean the ship as you drive through them? You kill the captain.

Ross [00:24:37] Woah, woah, woah.

Steve Keen [00:24:37] You've got to have a mutiny. And that's why the extinction rebellion is a mutiny, ok?

Ross [00:24:41] Right.

Steve Keen [00:24:42] And for good reason, we trust experts. We trust experts and their disciplines, which indeed are experts - engineers. Quite a few in this room. I trust an engineer when I cross a bridge any day, ok? We've trusted economists. We've give the same thing to economists, believing they're experts on the economy. They're not experts on the economy. They're experts on a model of the economy, which is neat, plausible and wrong. And trying to break through them is just impossible. They continue reproducing themselves. And yet we hand over control and management of so much of this society to economists. And that's why we've got to this point where extinction rebellion has developed. So I think the only thing we can do is literally that vision of a mutiny against a captain who doesn't know what the hell he's doing.

Ross [00:25:23] And because the enemy is, as you've described it, so formless, where best to put our attention? Because I understand that extinction rebellion are doing what they're doing because it's a start. But not everybody, not every householder can go out and do that and get involved and stop stopping most cities. Where do you focus your attention?

Steve Keen [00:25:40] I would be focusing it on spending, putting as much of our resources as possible on the developing alternative energy systems. And I've been persuaded by my engineering friends that things like thorium nuclear reactors must be developed as solar. And

I've seen it. I've got the arguments whether solar can actually replace it. We have to drastically reduce our energy load on the planet. The transportation system would move away from individual vehicles towards mass transportation, minimizing travel in general. A drastic falling energy consumption of the planet I think is necessary. And it's not easy for an individual to do that. We live in a system where you simply have to slot into the manufacturing and distribution systems that currently exist. So it's not the sort of thing an individual can do. It's why a movement like extinction rebellion to change direction is necessary. So to me, the best thing we can do is get engineers to take over economics. But it's very, very late in the process of understanding capitalism.

Ross [00:26:35] How long have we got?

Steve Keen [00:26:36] Twenty years. When you look at the level of temperature rise and the feedbacks we're now seeing, there are some scientists who are saying that there is a what they call a period of tipping cascades that are going to happen. Past a certain point, the arctic summer ice disappears. We're getting pretty close to that. That could cause Greenland to melt completely. That could cause the West Antarctic ice shelf. That could change the thermal and circulation that is a major reason why Europe is as warm as it is. All these various massive elements of the climate are under threat. And what we should have done is look at it and say we evolved in this very stable period of temperature, it's our responsibility to manage the climate so it doesn't move outside those bounds. And it's also our responsibility to the other species on the planet to give them space. We've done neither of those things. And what economists are saying is, rather than paying heed to staying within that bound and respecting the other creatures, we should just continue growing exponentially. And the end result of that is crisis.

Ross [00:27:36] Steve Keen, thank you very much for your time.