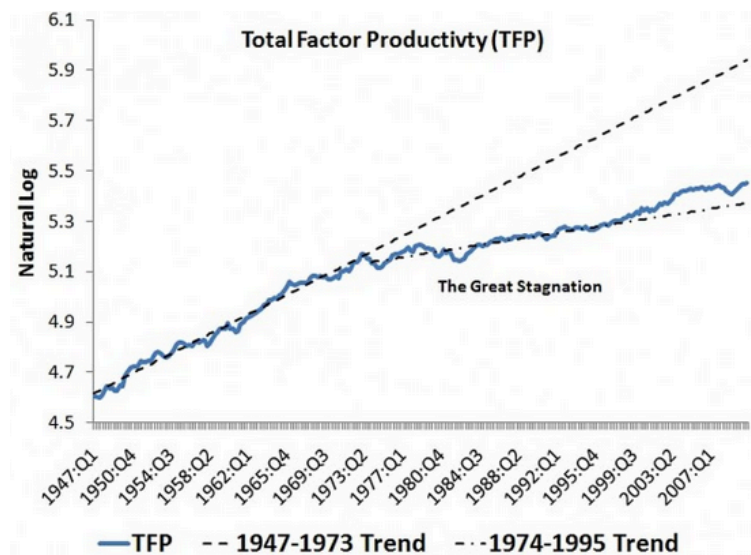


## Welcome to the Great Stagnation

Tyler Cowen first released his 2011 book “The Great Stagnation” in electronic format only.<sup>1</sup> In his own words he was being “impish”, and trying to make a point about the extent to which innovations pass through to the common household. The fact that within a few months customer demand led to an old fashioned hardback release seemed to underline his point. This report confronts Cowen’s argument, and considers how it relates to some specific questions relating to the UK economy. In particular, why has productivity nose-dived since the recession? And are lower growth rates, and lower interest rates, part of a “new normal”?

### *Stagnating innovation*

Real output per worker was growing at around 3% per year after the Second World War, but fell to just over 2% in the 1970s, and then down to 1% in the 2000s.<sup>2</sup> Cowen’s starting point, and central thesis, can be found in this chart:<sup>3</sup>



At some point in the 1970s total factor productivity (i.e. changes in output that cannot be attributed to labour or capital inputs) began to stagnate. The steady rise that occurred through the early part of the 20th century seemed to run out of steam. According to Cowen, it was because innovation stalled.

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<sup>1</sup> Cowen, Tyler 2011, *The Great Stagnation*, Dutton

<sup>2</sup> See *The Economist*, “Innovation pessimism” January 12<sup>th</sup> 2013

<sup>3</sup> “Wonkblog: Economic experts explain 2011 in charts” *Washington Post*,

Following *The Economist's* 2013 briefing on “Innovation pessimism”,<sup>4</sup> we can list three arguments for why the world had reached a technological plateau. Firstly, is diminishing returns. According to Cowen the global economy, and America in particular, reaped the rewards of low hanging fruit in the form of (i) free land; (ii) new technology; and (iii) smart, uneducated kids. For each of these the early gains will be larger than subsequent ones. The second piece of evidence is that less invention is taking place.

Some measures suggest it peaked in 1873. We can provide a rudimentary list:

Innovations pre 1940	Innovations since 1940	Innovations since 1980
Artificial fertilisers, Electricity, Internal combustion engine, Mass production, Skyscrapers	Silicon chip, Contraceptive pill, Shipping container <sup>5</sup>	Personal computing (and the internet)

When put this way, the stagnation thesis is compelling. Perhaps it's misleading though. It may under represent the importance of the internet, given that it enables so many other technologies. It may also be easier to identify and label the specific technological breakthroughs a long time after they've appeared. It may be that more recent innovations (possibly because they are focused more on integration) are hard to spot because they are so ubiquitous. It may also be jumping the gun. As Martin Wolf points out, we can imagine that another surge in productivity is possible.<sup>6</sup> This may centre on innovations such as:

- Biotechnology
- Nanotechnology
- Materials technology
- 3D printing
- Driverless cars
- Drones for delivery of consumer products
- Virtual currencies and mobile payment methods
- Home drug tests
- Distance learning

However it is telling that when asked to list recent innovations people tend to resort to wishful thinking, rather than actual evidence. According to Cowen the internet is a technology that predominantly benefits (i) the intellectually curious; (ii) with large networks of loose acquaintances; (iii) who wish to absorb information quickly (p.46). That sounds like well-educated, socially introverted people interested in ideas. In other words you and I may be overestimating the benefits of the internet because we are the biggest beneficiaries. And increases in communication make it more likely that any technological breakthroughs that would benefit us, we're aware of.

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<sup>4</sup> *The Economist*, “Innovation pessimism” January 12<sup>th</sup> 2013

<sup>5</sup> See “Boxing clever” *The Economist*, March 1<sup>st</sup> 2014

<sup>6</sup> Wolf, Martin, “Sinking into the ‘great stagnation’” *Financial Times*, December 21<sup>st</sup> 2011

The technological marvels of the 21<sup>st</sup> century are predominantly focused on entertainment and comfort. Even innovators such as Amazon and Starbucks are based on marginal improvements to existing technologies (be it logistics and inventory management, or customer engagement and experience). 3D Blu Ray is awesome, but I recently returned one that cost £119 because the operating system was offensively antiquated. Whilst the scenes of snow falling in *Hugo* took my breath away, so too did the *Wizard of Oz* as it transitioned to colour. My current favourite gadget is a portable battery to ensure that my phone never dies. The irony is this is a solution to an existing technological inefficiency (i.e. high battery drainage).

As incredible as it is for someone in a rural village in Africa to be able to watch videos from the best universities in the world *for free*, distance learning is nothing new. Many of these “gamechanging” business models take existing ideas and “just add tech”. And whilst the capabilities of the internet are unfathomable, much of the actual use is less impressive. The biggest YouTube channels tend to be video game or music related (i.e. about consumption and entertainment rather than production and development of human capital). Ultimately the internet is a means to watch cat videos. The iPhone is a way to watch cat videos on the bus. And iPad is way to watch big cat videos on the bus, in high definition. Perhaps. Maybe we’re only just starting to touch the surface of the potential “cognitive surplus” it can produce.<sup>7</sup>

Cowen points out that what is especially concerning is that innovation is becoming increasingly private. Whereas the gains from the 19<sup>th</sup> century had positive externalities and high spillover effects, Cowen argues that a lot of recent “innovation” involves rent seeking and activities (such as in finance) that may even be publicly harmful. To some extent this is a critique of national income accounting, but also raises the interplay between innovation and government. *The Economist* briefing concludes by saying that “the main risk to advanced economies may not be that the pace of innovation is too slow, but that institutions have become too rigid to accommodate truly revolutionary changes” (p.23). The extent to which we can enjoy distance learning, or home drug kits is a function of regulatory approval and existing interest groups. We can see with Bitcoin how *potentially* transformational technologies will not automatically escape government censure.

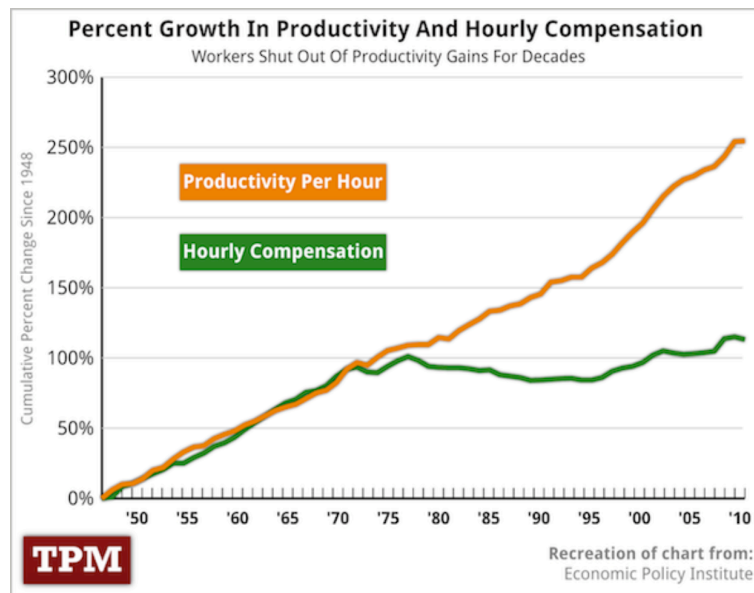
The third piece of evidence that *The Economist* provides is anecdotal. It uses the imagery of a typical kitchen from the 1900s, 1970s, and present day. The leap from no refrigerator to refrigerator is monumental in comparison to the leap from refrigerator to refrigerator with ice dispenser in the door.

*Stagnating median incomes*

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<sup>7</sup> Shirkey, Clay, 2010 *Cognitive Surplus*, Penguin

In a *Financial Times* article called “The crisis of middle-class America” a familiar and depressing narrative is employed.<sup>8</sup> Hard working families, with decent jobs, are struggling to pay their bills. The stagnation in living standards of the average worker is commonly heard. There’s evidence to support it, too. If we discount the richest 10% of the Americans, then annual incomes have only risen by about 10 percent since the early 1970s. And yet over the same period incomes of the top 1% rose by 300 percent.<sup>9</sup> So one problem is rising income inequality. And another is the link between productivity and wages. Charts like the one below summarise the idea that average workers are not getting the benefits from productivity gains:



There are several counter arguments though, that suggest this picture is too bleak.

#### 1. *Median* income is the wrong measure

The reason we use the median income rather than mean is because it is more robust, and a better estimate of a typical value when a distribution has outliers. But just because the mean is inappropriate, doesn't mean that the median *is*.

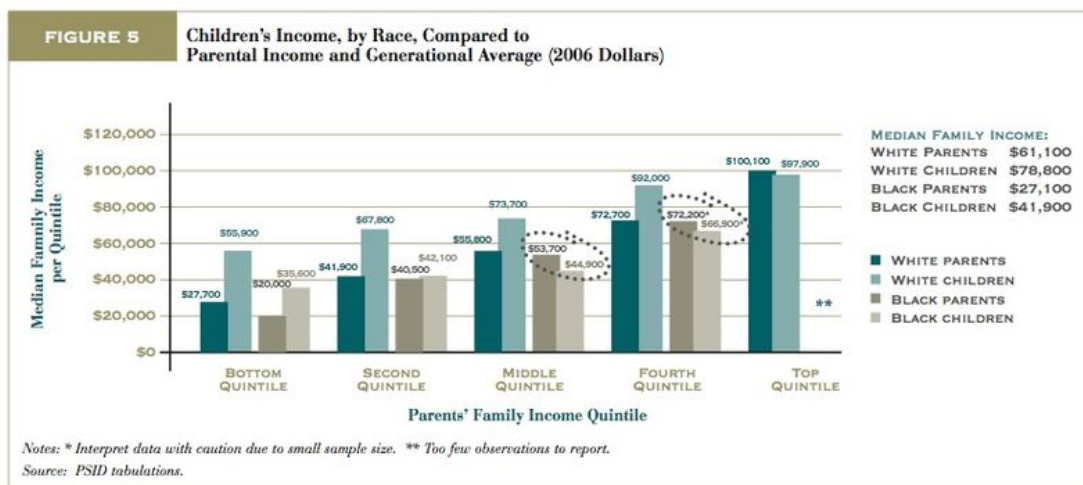
Changes in median incomes can mask changes in the composition of households. Russ Roberts points out that an increase in divorce rates (as occurred in the 1970s) will reduce median incomes if it means that a two person household with 1 job between them becomes two one person households with 1 job each.<sup>10</sup> Typically the additional job will be a below median one.

<sup>8</sup> Luce, Edward “The crisis of middle-class America” *Financial Times*, July 30<sup>th</sup> 2010

<sup>9</sup> Luce, Edward “The crisis of middle-class America” *Financial Times*, July 30<sup>th</sup> 2010

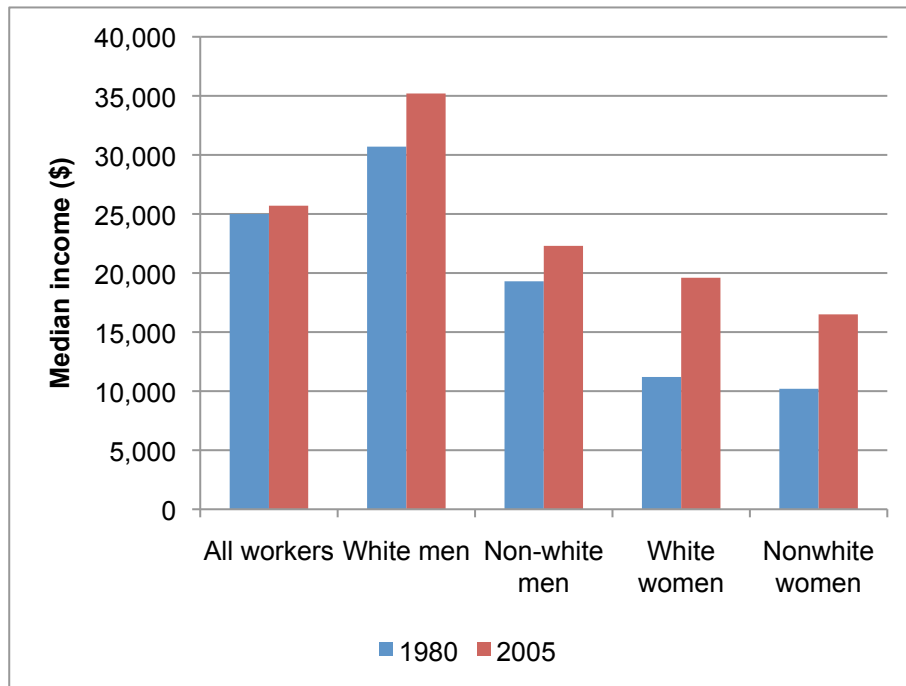
<sup>10</sup> Roberts, Russ, “Inequality and stagnation” *Café Hayek*, February 16<sup>th</sup> 2012  
[<http://cafehayek.com/2012/02/inequality-and-stagnation.html>]

The key point is that time series data on median income gives the impression that we're seeing what is happening to people's incomes over time, but it doesn't. It shows what happens to various income groups. This gives a misleading impression if the composition of those groups is changing. It's like looking at Euston station during rush hour, and noticing that there are almost always 400 people on the concourse. This doesn't mean that no one is getting home; it just means that for every train that departs, more people arrive. Immigration will continue to top up the lower income group, such that median incomes appear stagnant. But this is a positive demonstration of the dynamic effects of the economy. It's a strength, not a weakness. Studies that look at how the same person's income changes over time suggest that income mobility is increasing.

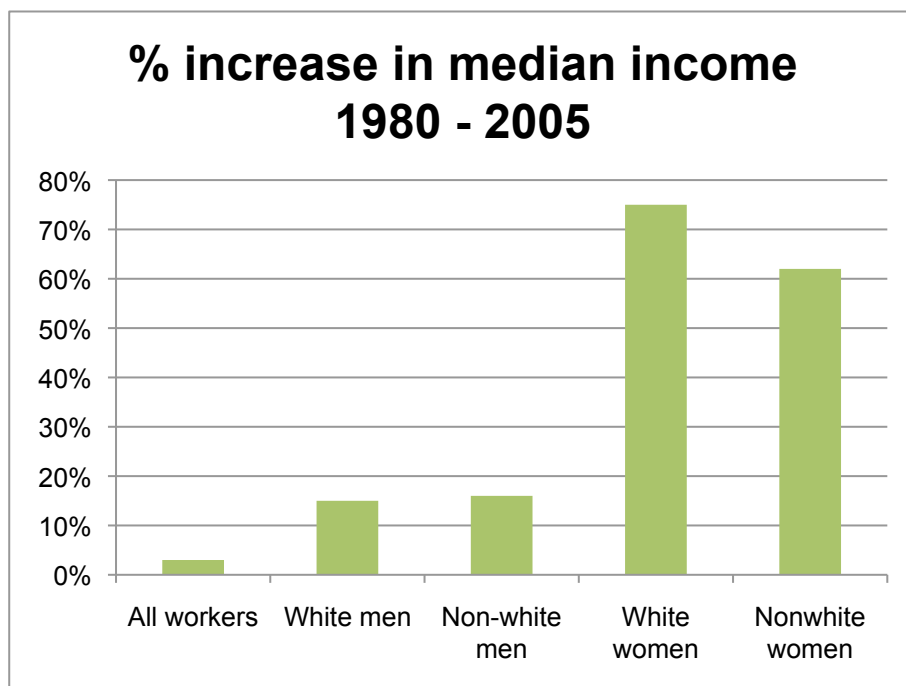


In an absorbing article Steven Landsburg shows that median income for all workers rose from just \$25,000 in 1980 to \$25,700 in 2005.<sup>11</sup> But he also provides a breakdown for different groups:

<sup>11</sup> Landsburg, Steven, "The Numbers Racket" *The Big Questions* July 30<sup>th</sup> 2012  
[<http://www.thebigquestions.com/2012/07/30/the-numbers-racket/>]



Across all workers median incomes only rose by 3% from 1980 to 2005. And yet when you provide a demographic breakdown median incomes rose dramatically – around 15% for men, and above 60% for women.



As he says, “there’s been a great influx of lower income groups — women and nonwhites — into the workforce. This creates the illusion that nobody’s progressing when in fact

everybody's progressing".<sup>12</sup> Foreign-born workers represented less than 6% of the US labour force in 1970, but in 2011 it was 16%.<sup>13</sup> The station of prosperity seems to be working.

2. Median *income* is the wrong measure (of compensation)

Measured income is just one form of employee compensation, and as Steven Horwitz points out, health benefits and pensions should not be ignored.<sup>14</sup> Don Boudreaux and Mark Perry argue that "This is no small matter—health benefits, pensions, paid leave and the rest now amount to an average of almost 31% of total compensation for all civilian workers according to the BLS".<sup>15</sup>

3. Median *income* is the wrong measure (of living standards)

Ultimately the reason we go to work is to be able to afford to pay for goods and services that enrich our lives. Surely consumption, rather than income, should be the focus of attention? Indeed income is more volatile than consumption, and therefore distorts our attempts to ascertain whether quality of life is changing. Consumption data is less prevalent than income data, but indicate less inequality.<sup>16</sup> On top of this, if the cost of those goods is falling, lower incomes can coexist with rising living standards. It is real consumption that matters, not nominal. Indeed, "the CPI overestimates inflation by underestimating the value of improvements in product quality and variety".<sup>17</sup> It may also be the case that poorer people face lower inflation rates than richer people.

4. Tax changes

According to Alan Reynolds, changes in tax rules and tax reporting create significant measurement errors.<sup>18</sup> Even if his conclusion – that income inequality is essentially a myth – is a strong one, it demonstrates the amount of discretion involved in constructing the measures.

5. A shrinking share of a growing pie

Steven Horwitz covers a lot of ground in his article "Contemporary Economic Myths".<sup>19</sup> One point he makes is that even if the share of income going to middle America has fallen, we also need to factor in the total amount. From 1975 to 1997 the lowest 20% saw their share of total

<sup>12</sup> Landsburg, Steven, "The Numbers Racket" *The Big Questions* July 30<sup>th</sup> 2012

[<http://www.thebigquestions.com/2012/07/30/the-numbers-racket/>]

<sup>13</sup> See "What's causing income stagnation in the US?" *The Liberal Order*, July 30<sup>th</sup> 2012

[<http://www.liberalorder.com/2012/07/whats-causing-income-stagnation-in-the-us.html>]

<sup>14</sup> Horwitz, Steven, "Contemporary Economic Myths" *Personal webpage*

[<http://myslu.stlawu.edu/~shorwitz/Good/myths.htm>]

<sup>15</sup> Boudreaux, Donald and Perry, Mark, "The myth of the stagnant middle class" *Wall Street Journal*, January 23<sup>rd</sup> 2013

<sup>16</sup> See Meyer, Bruce D. and Sullivan, James X. "Further Results on Measuring the Well-Being of the Poor Using Income and Consumption," University of Chicago, Harris School Working Paper Series 07.19, August 2007.

<sup>17</sup> Boudreaux, Donald and Perry, Mark, "The myth of the stagnant middle class" *Wall Street Journal*, January 23<sup>rd</sup> 2013

<sup>18</sup> Reynolds, Alan, "Has U.S. Income Inequality Really Increased?" *Cato Institute Policy Analysis* January 8<sup>th</sup> 2007

<sup>19</sup> Horwitz, Steven, "Contemporary Economic Myths" *Personal webpage*  
[<http://myslu.stlawu.edu/~shorwitz/Good/myths.htm>]

income fall from 4.4% to 3.6%. But their absolute income rose by \$207. Rises in income inequality may result from the rich getting richer and the poor getting poorer. But they could be because the rich are getting richer by more than the poor are getting richer. A smaller share of a growing pie may be better than a larger slice of a shrinking one.

#### 6. More leisure

Baldy Harper makes the point that as we get more productive we may voluntarily choose to consume more leisure.<sup>20</sup> Writing in 1957, he says, “if we were still working 70 hours a week with present productivity, the total weekly income would have increased the same as the great increase in hourly productivity. But instead, the work week has declined to about 40 hours” (p.88). Income is a proxy for work, and work is bad. Provided it is voluntary, a reduction in work is beneficial.

Donald Boudreaux and Mark Perry suggest some alternative measures, including life expectancy, or the quality of consumption. They say,

“Today, the quantities and qualities of what ordinary Americans consume are closer to that of rich Americans than they were in decades past. Consider the electronic products that every middle-class teenager can now afford—iPhones, iPads, iPods and laptop computers. They aren't much inferior to the electronic gadgets now used by the top 1% of American income earners, and often they are exactly the same”<sup>21</sup>

In a far-reaching study on economic inequality, Will Wilkinson emphasises the importance of the “lived difference”.<sup>22</sup> Does a fridge that costs ten times the price of another one deliver ten times the pleasure? He says “The IKEA model will keep your beer just as cold as the Sub-Zero model” (p.6). Given that poor people spend a greater share of their budget in consumer durables (i.e. furniture, televisions, appliances, cars) the improvement in the quality of those goods matter more. It leads to a “compression in material experience” (p.7).

By contrast, richer people will spend more of their budget on services, especially those reliant on local labour. Wilkinson lists home cleaning lawn care, psychotherapy and yoga classes. He says, “because the prices of such services are relatively unaffected by the rise of competitive global markets or advanced in manufacturing and distribution technology, these landmark developments in recent economic history have done less to improve the bang of a wealthy person's buck” (p.8). He goes on to say that “today's Gilded Age income gaps simply do not imply old-style Gilded age lifestyle gaps”

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<sup>20</sup> Harper, F.A., 1957 *Why Wages Rise*, Foundation for Economic Education

<sup>21</sup> Boudreaux, Donald and Perry, Mark, “The myth of the stagnant middle class” *Wall Street Journal*, January 23<sup>rd</sup> 2013

<sup>22</sup> Wilkinson, Will “Thinking clearly about economic inequality” *Cato Institute Policy Analysis*, July 14<sup>th</sup> 2009



(p.9), and uses Apple as an example of a company that widens income gaps precisely *because* it is so successful at narrowing lifestyle gaps.

We can tie this into the concept of “Baumol’s cost disease”, which states that some parts of the economy find it harder to raise productivity than others. The classic example is a Mozart concert, which cannot be any “quicker” to perform than in previous years. As *The Economist* explains, there is competitive wage pressure across all industries, so...

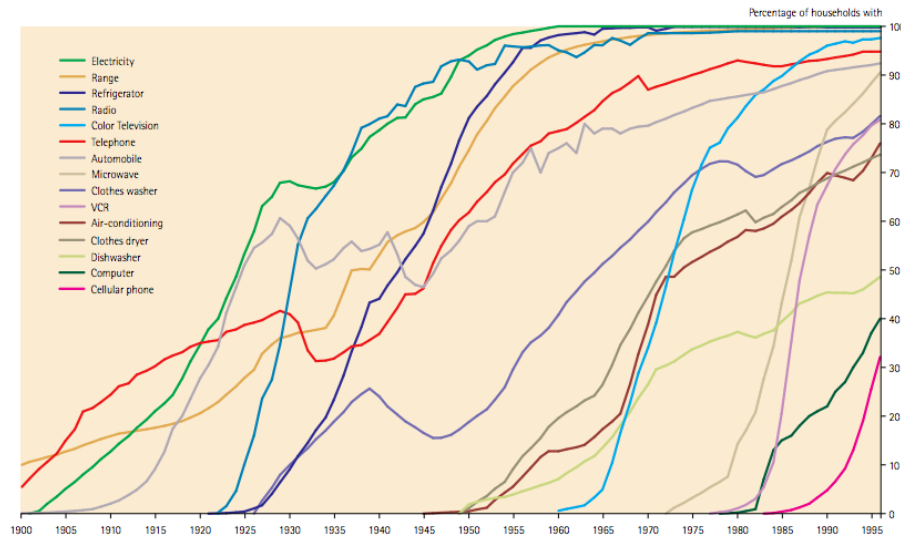
“although output per worker rises only slowly or not at all, wages go up as fast as they do in the rest of the economy. As the costs of production in stagnant sectors rise, firms are forced to raise prices. These increases are faster than those in sectors where productivity is improving, and faster than inflation (which blends together all the prices in the economy). So prices of goods from stagnant sectors must rise in real terms. Hence “cost disease””<sup>23</sup>

Baumol’s cost disease is often used to explain why productivity gains in industries such as health and education are hard to come by. And it’s dangerous to assume that this is simply because they’re publicly provided. Indeed the problem with using consumption as a measure of inequality is that although poor people have the same type of phone as rich people, they may not be able to afford health insurance. But entertainment industries such as performing arts are perhaps even greater exhibitors of cost disease, and this leads to a more egalitarian outcome. It supports Wilkinson’s claims about the lived difference. Ultimately, who cares if income inequality is rising, if consumption inequality is falling? Many of the technological advances of the last 30 years have been about the routinisation and accessibility of procedures that were pioneered a long time ago. You used to have to be very wealthy to get a hip operation, laser eye surgery, or heart surgery. These are becoming standard procedures now. On top of this there’s evidence that innovations that do take place have faster penetration rates. It will always take time for new technologies to become available for all. But modern inventions find their ways to more households faster than ever.<sup>24</sup>

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<sup>23</sup> “An incurable disease” *The Economist*, September 29<sup>th</sup> 2012

<sup>24</sup> Source: Dallas Federal Reserve Bank, 1997 Annual Report



The flow chart below shows us gradually approaching the phenomena we really wish to understand:



A key element of Cowen's thesis is that gains in utility can coincide with declines in national income. You can be a utility optimist whilst simultaneously being a GDP pessimist. We have become better at consuming technology, and lead richer and more fulfilling lives. But these choices don't always translate into economic growth. Environmental protection is an example of a deliberate trade off between quality of living and wealth creation. It means that we enjoy life more, but sacrifice future growth to do so. As populations age these decisions may become more common. NIMBYism and a general "affluent conservatism" are about locking in an accustomed living standard (for some) at the expense of future growth and the proliferation of privilege.<sup>25</sup>

The reason that this extends beyond a mere critique of GDP measurement is because economic decisions are made based on growth expectations. Choices about public finance depend on growth

<sup>25</sup> Cowen makes the counterintuitive argument that the rise of the state has inverted traditional political groups. In the UK government spending has become such a large share of GDP that the left have now become conservative (attempting to preserve the status quo of large welfare state, publicly funded health service etc) whilst the right are seen more as radicals (i.e. the "Tea Party" fringe of the Conservatives). Choosing to become anti materialistic (i.e. trends for home made products and localism) is increasingly dangerous. It gives the impression of "making stuff" but without the value creation. It is capital consumption under the guise of sustainability. And yet there is nothing less sustainable than privileged youth pursuing their hobbies, mistaking leisure for "business".

projections. We are demanding ever-higher government spending, leading to increasing public debt burdens. And at the same time switching our activity from innovations that generate revenue, to those that generate pleasure. As Cowen points out, the internet means that recessions become more tolerable, but also more severe (p.78). Technological gains will increase the value of leisure, without generating economic output. This is good. But has big political implications.

### *Stagnating state*

One reading of Cowen is that the industrial revolution prompted massive gains in productivity and we foolishly decided to spend much of them on bigger government. He claims “big government was one of the final creations from these new technologies” (p.61) and points to the manner in which transport; industrial production; communication (and the cult of celebrity); and scientific management (i.e. bureaucracy) are all necessary conditions for a large state, and that the rise of the state is a large cause of subsequent stagnation. Since GDP figures measure government spending at cost, it overstates its value. And diminishing returns means that the more government spending we have, the bigger the extent to which GDP is misrepresenting living standards. When we look at health we see massive increases in spending, but mostly on making care more comfortable (p.36). Education has seen increases in spending, better facilities, but scant evidence of better results. In the US at least government consumption, health and education have reached 25% of GDP, and according to Cowen (p.41):

- The fastest growing sectors....
- are hard to measure value creation...
- and difficult to bring accountability.
- Rent-seeking is rife...
- we overstate the quality...
- and there is bad value for money.

In the UK real wages of public sector workers rose faster than in the private sector in the build up to the crisis, but even if wages were stagnant, it is possible that higher job security, better working conditions, and higher barriers to competition were the ways in which health and education employees engaged in rent seeking.

Peter Boettke argues that *The Great Stagnation* is a subversive libertarian argument, because,

“The Great Stagnation is a condemnation of government growth over the 20th century. It was made possible only by the amazing technological progress of the late 19th and early 20th century. But as the rate of technological innovation slowed, the costs of government growth

became more evident. The problem, however, is that so many have gotten used to the economics of illusion that they cannot stand the reality staring them in the face”<sup>26</sup>

In a comment on that blog post, Daniel D’Amico pushed this point even further,

“The economy is becoming more digital and more knowledge based in part because these forms of wealth are less subject to the unintended consequences of government meddling than the older more tangible sectors of the economy.

The cool thing about our new technological world is that the ability to hold alternative stocks of wealth in the form of social networks and social capital has become easier. The tragedy is that our regulatory, tax and monetary policies have labotomized the entrepreneurial spirit of our younger generations. There is almost no real opportunity to convert the stock of value held within online social networks into real consumable value or financial profit.”<sup>27</sup>

This is an emphatic indictment of government intervention, and a full-blown admission that new generations are devoting their brainpower to the attainment of personal pleasure rather than wealth creation.

### *Stagnating productivity*

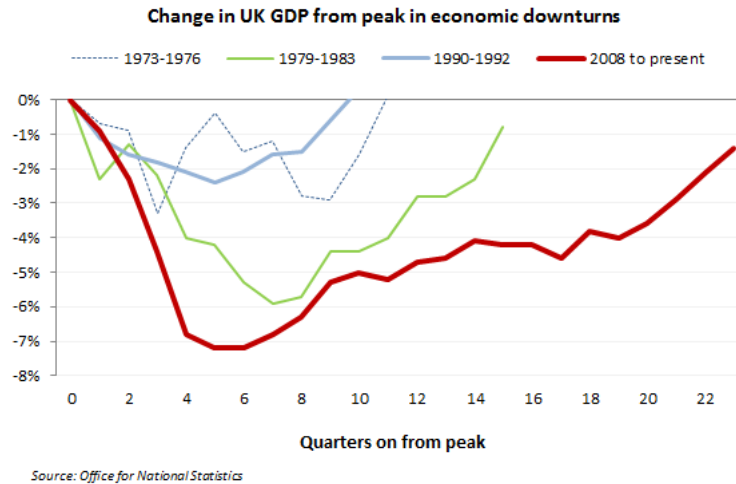
In a typical recession a reduction in aggregate demand will lead to low inflation and low output. Firms will lay off workers with the largest marginal productivity, and in doing so the average productivity of remaining workers will rise.<sup>28</sup> In the UK the recovery has been different. Relative to previous downturns GDP has been slow to grow:

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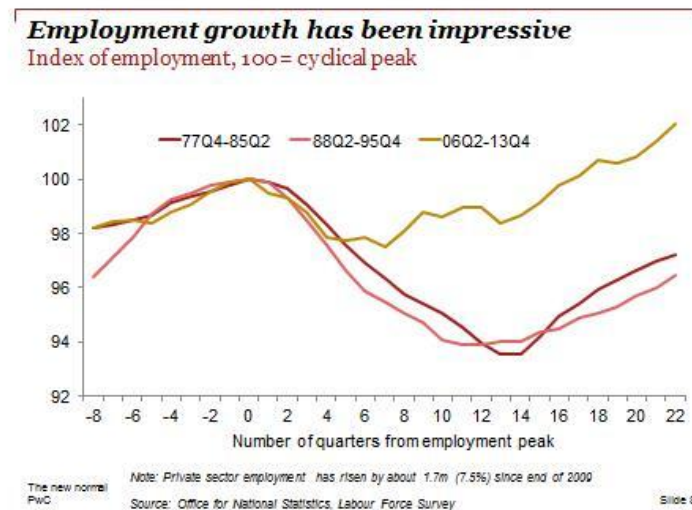
<sup>26</sup> Boettke, Peter, J., “Why The Great Stagnation Thesis is the Most Subversive Libertarian Argument of Our Age” *Coordination Problem*, July 15<sup>th</sup> 2011

<sup>27</sup> D’Amico, Daniel, J., “Comment on ‘Why The Great Stagnation Thesis is the Most Subversive Libertarian Argument of Our Age’” *Coordination Problem*, July 15<sup>th</sup> 2011

<sup>28</sup> See “The price of getting back to work” *The Economist*, February 1<sup>st</sup> 2014



And yet employment growth has been strong:



The good news is that more people have jobs that one would expect. The bad news is that this implies we need the same number of workers to produce less stuff. Instead of firms doing more with less, they're doing less with the same. In other words productivity has fallen. The Office for National Statistics offered the following explanations:<sup>29</sup>

- Switch from full time to part time work
- Low wage inflation (i.e. the cost of labour has remained low)<sup>30</sup>
- High cash flows

<sup>29</sup> Patterson, P., "The productivity conundrum, explanations and preliminary analysis" *Office for National Statistics*, October 16<sup>th</sup> 2012

<sup>30</sup> There's an interesting debate to be had about whether wages are low because productivity is low, or if productivity is low because wages are. The latter view actually supports an NGDP target that would allow inflation to spike, and act as a shock absorber, in the face of a negative real shock.

But they concluded that these were insufficient. The “great stagnation” thesis provides an alternative, partly by switching attention from cyclical to structural considerations. We can think of several underlying factors:

- Not enough immigration
- Aging population
- Skills mismatch
- Technological plateau
- Eroding competitiveness
- Reduction in North Sea oil
- Restrictions on land use (and planning to enable homes to be built in areas with high productivity jobs)
- Bank capital requirements
- Increases in regulatory barriers
- Increase in size of the state
- High marginal tax rates on families with children

If there’s been a gradual reduction in the potential growth rate of the economy, masked by high aggregate demand in the build up to the crisis (and that much of the output produced prior to the crisis was bubble activity), this not only explains the reduction in productivity we see, but also why inflation went up, rather than down. It’s not that output per worker is stubbornly low right now, but that it was artificially high before. And much of the activity we were measuring – for reasons Cowen explains – may in fact be negative value. According to Allister Heath,

“a lot of output we thought existed during the bubble was actually mere froth. When it vanished, we suddenly all realised that we were poorer than we thought – and now, slowly but surely, the purchasing power of wages is falling as we adjust to our new, straitened circumstances”<sup>31</sup>

The new normal may be rearing its head. Lower growth rates and low interest rates are not policy errors, to be “corrected” at all costs. They are the long overdue confrontation with economic reality.

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Kaleidic Economics is a business roundtable that meets each quarter in London. For more information: <http://kaleidic.org>

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<sup>31</sup> Heath, Allister, “Why Britain’s productivity disaster is costing workers dear” *City AM*, April 19<sup>th</sup> 2012