The Great State of the Human Condition:
There has Never Been a Better Time to Be Alive

Reject your inner Chicken Little and embrace the great state of the planet earth
We live in the age of worry. Maybe it is just an American or perhaps a Western phenomenon, but we have become hand wringers of the first order.

We worry about a plethora of concerns both large and small; things that matter and things that do not. But largely we worry about things that seem big and scary that, in the final analysis, will not impede the march of human progress.

For while we are wringing our hands, the human condition continues its upward arc and, truth be told, the human condition has never been better, both in quality and in quantity.
Part One: Excessive Worry

What exactly are we worried about? Here’s a short but representative sample:

- **Over Population.** This is shorthand for a whole host of other worries including the threat of mass starvation, resource exhaustion, pollution, overcrowding and, just a generalized angst that humans are out of control and about to ruin everything, including and especially the planet itself.
- **Terrorism.**
- **Climate Change.**
- **The Economy.**

In reality, though, the list is much longer. Perhaps a more comprehensive and succinct list of our worries comes down to pantophobia. Those who remember Charlie Brown Christmas will recall that Charlie Brown visits Lucy who is offering psychiatric help for 5¢. While

---

*World Population Growth 10,000 BC to 2013. Not much going on for thousands of years and then astounding growth. World population grows by factor of 2.5 growing from 2.8 billion to 7.2 billion in last 63 years.*

---

Source: Various including Guinness Atkinson Asset Management. Main source and more information can be found at: http://www.digitalsurvivors.com/archives/worldpopulation.php
trying to discern the particular phobia that be-devils Charlie Brown, Lucy, listing a series of phobias to Charlie Brown, asks if perhaps his phobia isn’t pantophobia? “What’s pantophobia?” asks Charlie Brown. “It’s the fear of everything,” answers Lucy. “THAT’S IT!!” is Charlie Brown’s unequivocal response. Indeed that is it: we’re suffering from mass pantophobia.

In a moment we will examine the hand wringing history of each of these worries, but first it might be helpful to take a moment and review the history of human population from 10,000 BC to present.

World population in 10,000 B.C., estimated to be five million, was enough to populate a largish sized modern day city. The population grew very slowly for thousands of years, creeping up to seven million by 2,000 B.C. Around 1,000 years B.C. we start to see some added momentum such that by the time of Christ the population has surged to 243 million. It took approximately 1,575 years to double to approximately 500 million. Then, things start to get interesting as the population more than triples to 1.6 billion in 425 years and then more than triples again in the next 100 years, reaching 6 billion in 1999.

The last 50 years of the last century, a time when virtually all of our readers will have been alive, saw the population more than double, adding more than three billion people in a period less than the global life expectancy.

Put another way, in the space of one lifetime more than an additional three billion joined the planet. On or around October 21, 2011 the population officially reached the seven billion mark.

This population growth is nothing short of astounding. To many, this growth is in and of itself evidence of disaster. The polar opposite is true: this growth is clear evidence of the great improvement of the human condition and should be acknowledged as such.

Worrying about Overpopulation

The modern version of overpopulation worries begin with Reverend Thomas Malthus who published (anonymously) his essay, Principle of Population, in 1798. His view of population growth was both diabolical and beguiling: human population would grow rapidly, based on existing food supplies, until the population would overwhelm the food supply resulting in mass starvation.

Global population at the time of publication in 1798 was approximately one billion, one seventh of today’s figure.

The Malthusian disaster has been a constant worry ever since the publication of Principle
And, we’d be remiss if we didn’t mention the proposed cure for the overpopulation problem cited in the April 25, 1928 NY Times article. As it turned out, war was on the horizon, but it didn’t put a dent into the overpopulation “problem.”

Much of the worry about overpopulation is really about the developing world and fast growing population groups, in particular, China and India. (And as we will see later, the population explosion is not a function of high birth rates.) A February 11, 1934, headline in the New York Times trumpets “Overpopulation is Problem in China...Birth Control Now Urged by Committee on Maternal Health.”

At the time of publication China had a population of 450 million. Today, China has a population of 1.36 billion, nearly three times the 1934 level. Further, living standards in China have never been higher than they are today.

Above: Predictions of a Malthusian disaster are not new. The original thesis was published in 1798.
A similar problem was predicted for India, which was forecast in 1936 to have an over-population problem within 25 years. At the time India had a population of 441 million. Today India’s population is nearly three times that amount at 1.22 billion.

One of our favorite headlines, which was an obvious case of moon landing fever from July 28, 1969, indicated that the moon cannot be used as a backyard. The article asserted that the moon “…Can’t Solve Earth’s Problem of Waste and Overpopulation.” The Onion couldn’t have featured a better headline!

We’ll finish this section with a quote from a New York Times article dated October 2, 1969. A Dr. Hudson Hoagland from the Worcester Foundation for Experimental Biology is quoted as saying, “…competent scientists believe the world cannot indefinitely support the 3.5 billion people we have on earth today, let alone the horrendous numbers anticipated in the relatively near future.” Reminder: today’s population is twice 1969’s 3.5 billion.


**Terrorism Worries**

We like to think of terrorism as a modern day problem, but that thinking is wrong. Like worries about overpopulation, worries about terrorism have been with us a while.

Here are some of the headlines from the *New York Times* dating back to 1884:

“**The Terrorists of Europe,**” March 15, 1884. Russian Nihilists commit murder in London, a bomb smuggler is arrested in Trieste, Italy, and in Pesth, Hungary raids on anarchist haunts.

“**138 Arabs Taken as Terrorists,**” July 25, 1939. This short story could easily have been dated in any decade since.

“**138 Arabs Taken as Terrorists,**” July 25, 1939. This short story could easily have been dated in any decade since.

“**138 Arabs Taken as Terrorists,**” July 25, 1939. This short story could easily have been dated in any decade since.

“**138 Arabs Taken as Terrorists,**” July 25, 1939. This short story could easily have been dated in any decade since.


“**Jury Asked to Find Terrorists Guilty,**” June 16, 1954. Puerto Rican terrorists went on a shooting spree in the House of Representatives on March 1 of that year.

“**Irish Terrorist Slain in Clash,**” July 3, 1958. A brief description of a border clash (including gun battle) between Ireland police and terrorists.


“**Quebec Terrorist sentenced,**” June 13, 1964. Quebec terrorist is sentenced to four years for placing a bomb in a Montreal office building.

“**Terrorist Bombings Go On In Hong Kong,**” July 27, 1967. One killed and 10 injured in “...another day of Communist-led anti-British violence.”

“**Terrorist Attack in Miami,**” May 27, 1968. Cuban exile group, Cuban Power, attacks a hotel, restaurant and home of the Mexican Consul-General.

“**Croatian Hijacking Leader Takes Full blame for Seizure and Bomb,**” September 18, 1976. This headline relates to an incident in December 1975 that involved a bombing at the
Climate Worries

Perhaps the biggest long-term worry of the day is global warming. The observations that follow are not to suggest that global warming is not a genuine concern. However, it is useful to understand the context of climate worries.

As with overpopulation and terrorism, these worries have been with us a very long while and we have a number of New York Times articles that are illustrative of our propensity to worry about the climate. Our first citation is dated 1888.

“Is Climate Changing,” March 25, 1888. This article raises the possibility that the climate may have changed sufficiently to impact English wine production and includes a brief mention of a change in mean temperature over the last century.

What lessons might be drawn from these headlines? First, terrorism isn’t going away any time soon. But, the actors and “causes” will change. Second, over time the terrorists lose. Nihilism, anarchy, Mau Mauism, Quebec separatism, Croatian separatism, Cuban Freedom, Irish separatism etc. may or may not be dead issues but the terrorism behind them is largely or completely dead and in many cases the terrorism and cause are long forgotten. Destruction and violence are not good ways to achieve a political end.
“Is Our Climate Changing?” February 3, 1889.
References the “...much talked about change in our climate.” Also mentions an 1812 publication referencing climate change.

“Sees Glacial Era Coming,” October 17, 1912.
“...mankind will someday have need of all its knowledge to combat the perils of encroaching ice.”

“MacMillan Sails North...Explorer Hopes to Determine Whether New “Ice Age” is Coming,” July 4, 1923. Cites the advances of glaciers in the last 70 years and the sailing to the Arctic to determine if another ice age is forming.

“An Ice Age Passes,” May 5, 1935. Relates an address at the American Geophysical Union, the main theme of which is that “...there can be no doubt that in a measurable period the great rivers of ice that have been slowly creeping to the sea for at least 30,000 years will ultimately disappear. The truth is that we are still in the throes of the last Ice Age.”

“Weather Cycle Changing?” February 23, 1936. This article, written by the chief of the Division of Climate and Crop Weather at the US Weather Bureau addresses the question of recent warm years reverting to the “...reputed cold Winters of ‘granddad’s day’ years ago.”

One point of note here is the quick about face between a return of the Ice Age and the end of the Ice Age. As recently as the 1970’s the climate worry was about global cooling, not global warming.

Economic Worries

We won’t parade a series of historic headlines regarding economic worries. It’s not that there are not any; it’s that they are too common. Even in good times there are headlines and stories about economic worries. In fairness, some of the worries are well founded, including one headline from 1927 about an...
impending economic crisis. Not surprisingly, economic worries are particularly prevalent at the moment. Here are four of our favorites, all from late 2013:

Ignore the headlines, This was a very bad jobs report

Poll: Pessimism over the economy

The Fear Economy

Many Americans feel economy isn’t improving

We’ll have more to say on the economy in a bit, but for now, suffice it to say that economic worries are ubiquitous in good times and bad.
Part Two: The Good News

But wait. While we’ve been wringing our hands and gnashing our teeth, a lot of good things have been happening around the globe, including,

- The world’s population has surged
- Life expectancy has increased greatly
- Infant mortality has decreased greatly
- Per capita incomes have grown greatly
- Literacy rates and education have increased
- The Internet has connected much of the world’s population

We’ve already discussed the population explosion, but there are a number of interesting points surrounding this growth. Counter intuitively, the global fertility rate (by which we mean the average number of births per woman) has declined enormously since 1965.¹ Between 1965 and 2010 the rate dropped over 50% from 4.94 to 2.45.²

---

¹ We will add here that this is not due to a global increase in the rate of abortions. Globally abortion rates have fallen, at least since 1995. See http://www.infoplease.com/science/health/global-abortion-rates.html
Over a similar time period, 1960 to 2011, global life expectancy surged, rising from 52.62 years to 69.92 years. That equates to a 33% increase in life expectancy.\(^3\)

The infant mortality rate has declined from 152.92 per thousand in 1968 to 51.40 per thousand in 2011, which represents a 66% decrease.\(^4\)

Taken together these statistics lead to two conclusions. First, regardless of whatever might be said about healthcare, humans are healthier than ever before.

Second, and not as obvious, is that the population explosion is not about a growing birth rate—indeed the birth rate has fallen dramatically—it is all about extending life expectancy.

Despite the oft cited statistics about a population surge in the youth segment (particularly in Asia), the over 80 age group is more than holding its own.

From the UN’s World Population and Ageing 1950 to 2050, “For most nations, regardless of their geographic location or development stage, the 80 or over age group is growing faster than any younger segment of the older population.”

It will be clear to our readers at this point that we regard the booming population as a good thing, not a bad thing. But to those that disagree, the issue isn’t with birth rates; the issue is declining infant mortality rates and longer life expectancy.

This is to say, anyone who is concerned about overpopulation needs to question their individual role; if you’re reading this, you’re part of the “problem.”

Notwithstanding the exponential growth in population and the accompanying doomsday predictions, there is good reason to believe that the human population will likely level off. We can see from the drop in the fertility rate that the planet is (slowly) approaching zero population growth.

Historically there is a very strong correlation between per capita income and fertility rates; the richer a country becomes the closer to zero the population growth rate becomes. This isn’t obvious from the population graph that shows the exponential growth in population but, remember, as income increases so does access to food and healthcare and that, in turn, helps increase life expectancy.

To date, the impact of the increase in life expectancy has had a more immediate impact on population growth than the drop in fertility.

---

3 World Bank via Google Data https://www.google.com/publicdata/explore?ds=d5bncppjo8f9_&met_y=sp_dyn_le00_in&tdim=true&dl=en&hl=en&q=global%20life%20expectancy

4 World Bank via Google Data. Note this is the probability that an infant will not survive to five years. https://www.google.com/publicdata/explore?ds=d5bncppjo8f9_&met_y=sp_dyn_le00_in&tdim=true&dl=en&hl=en&q=global%20life%20expectancy#ctype=l&strail=false&bcs=d&nselm=h&met_y=sh_dyn_mort&scale_y=lin&ind_y=false&rdim=region&ifdim=region&tdim=true&tstart=-62870400000&tend=129412800000&hl=en_US&dl=en&ind=false
Making predictions about future population growth is very difficult as it entails estimates on future increases in life expectancy and fertility rates. The graph at right from the UN shows their estimates of future population growth given three different scenarios. We have no idea which of these scenarios best represents the future. We offer these scenarios to illustrate the point that it is extremely unsound to simply look at the population graph that has gone exponential in the last two hundred years and assume that population growth will continue its straight up trajectory.

Before we conclude the section on Living, we think it bears repeating that taken as a whole the population growth and longevity statistics can be summed up by saying that more people are alive—and importantly—living longer than at any point in human history. And that's a good thing.

---

5 We may have no idea but that won’t preclude us from offering a guess: We’ll take the middle scenario (~10 billion in 2100) and, further, believe the 16 billion scenario is very unlikely.
Connections

It is difficult to talk about the impact of the Internet without getting caught up in 1990’s hyperbole. Conversely, we’re so accustomed to continuous interaction with the Internet that we often take it for granted.

That said, we believe the Internet is having a huge and beneficial impact on the human condition. Before we get to some specific elements, it might be useful to look at the growth in global Internet usage.

The chart of worldwide Internet users looks a lot like our population graph; flat for many years and then a sudden exponential upward surge.

At the end of 2011 2.2 billion users had Internet access. That’s nearly one-third of the world’s population, and of course, we know the number is growing rapidly. In particular Asia has seen explosive growth in Internet usage and now accounts for close to 50% of all Internet users. It should be noted that much of the growth has occurred since the bursting of the tech bubble in 2000; indeed usage has grown by a factor of five since the Internet became passé in the US.

It is meaningless to speak of the Internet without mentioning some of the more beneficial uses. We are particularly interested in the ability to use the Internet for educational purposes. The Massachusetts Institute of Technology is spearheading an effort, called OpenCourseWare, which includes 280 different universities offering over 20,000 courses available in many different languages online.

By course we mean video and audio lectures, lecture notes, online textbooks, student work, assessments and interactive simulations. At present the site receives more than two million visits each month. Visitors include educators, students, parents, teachers and self-teachers.

6 World Bank via Google Data

Source: World Bank
students and self-learners, among others.

Electrical Engineering and Computer Sciences, Biological Engineering, Calculus, Anthropology, Spanish, and Architecture are just some of the courses offered.

In short, if you want a college education and have a computer with Internet access then the education is available. Best of all, it is free. Note that we said education and not degree. MIT and the other universities in the program are not in the business of providing free degrees, but surprisingly they are in the business of providing a free education.

This raises an interesting question regarding what a student wants from a college education and what is the value of college: is it in the knowledge or is it in the diploma? Ideally a student gets both, but, what if you’re poor and/or live in an emerging country and cannot gain access to a paid university education and a degree? Clearly the education itself is the true value and OpenCourseWare offers easy access to what was until recently the domain of a select few. And, there is nothing to suggest that these institutions cannot also offer some sort of credential.

In addition to benefiting students on line, the program is benefitting students without access as well. Nine percent of the users of this program are themselves educators meaning that educators around the world have access to world class teaching materials and lectures.

Beyond education the Internet offers many around the world the ability to enter the global marketplace. Companies throughout the world (particularly small tech and media companies) are able to hire individuals on a project basis to assist in building websites, writing software, creating content, and doing graphic design.
just to name a few examples. This is bringing millions into the global economy.

It is understood that the Internet has the ability to produce profound change culturally, politically and economically and it is understandable that we have become so accustomed to the idea that it has lost some of its excitement. But we should not discount the idea that adding billions of users to the system means more of the world involved politically, socially and economically. We believe that’s a very good thing.

**Literacy**

The ability to read, which in a developed nation is taken for granted, was until relatively recently quite rare. Globally, literacy rates were only around 10% as recently as 1850. It is hard for us to even imagine a world where nine in ten couldn’t read or write. Global literacy rates have improved dramatically since 1850 and by 2000 approximately “…80% of adults worldwide can read and write at some minimum level.” This rate is estimated to reach 86% by 2015.

We’re not the first to advance the idea that the great advancements in the human condition can be tied to the advent of movable type. Access to books and literacy go hand in hand and the advent of moveable type made books much more widely available. Until moveable type was invented most books were laboriously produced and controlled by a small minority of the literate elite.

**The World Economy**

Historic per capita GDP figures can be a bit fuzzy (there are issues with present day GDP comparisons due to currency rates and cost of living adjustments) but we do know per capi-
ta income has, like many of the other factors we’ve detailed here, grown geometrically and the current chart has a nearly vertical slope.

Per capita GDP was essentially flat for thousands of years and around the middle of the 19th century began to grow and that growth exploded throughout the 20th century. This distribution of this growth was rather uneven at first as Western Europe and the US got a head start on the industrial revolution. However the rest of the world is quickly joining the party and in virtually all parts of the world per capita GDP growth is growing rapidly. Since 1990 global poverty has been reduced by 50% and the level of extreme poverty has been reduced by 80%.

Of interest, the financial crisis hasn’t had much impact on global growth. In fact, despite the crisis global per capita GDP has nearly doubled this century (see chart upper right).

11 Source, including graph, CIA Fact Book, http://www.indexmundi.com/g/g.aspx?c=xx&v=67
Our economic discussion to this point has been on a global basis but some comments about the US economy might be in order. The outsourcing trend and the loss of US manufacturing jobs may be at an end and, in fact, there is strong reason to believe that a revival may be underway with the outsourcing and offshoring trends being reversed.

There are a number of factors behind this shift. First, oil prices are three times what they were in 2000, which means the cost of shipping has helped erode the cost advantages of manufacturing offshore.

Second, the natural gas boom in the US has surprisingly given the US an energy cost advantage in manufacturing. Natural gas in the US costs one-quarter of the cost in Asia. While it is possible to ship natural gas overseas it is a complicated and expensive proposition with very high up-front fixed costs.

Third, wages in China, for example, are five times what they were in 2000 and are estimated to rise 18% per annum.\textsuperscript{12}

To be clear, the US will likely never have as many manufacturing jobs as it did at its peak in 1979 when there were 19.5 million such jobs. But we are seeing gains in manufacturing jobs since the low of 11.4 million jobs in January 2010. As of October 2012 508,000 net new manufacturing jobs had been created.\textsuperscript{13}

In short, as with many other Chicken Little prophecies, the death of the US manufacturing sector may have been exaggerated.

\textbf{Solar Energy Solves Multitude of Global Issues}

More people making more money and consuming more is putting a strain on certain global resources, most notably energy. BP predicts that global energy consumption will grow 39% between 2010 and 2030 with 96% of that growth coming from developing countries.

\textsuperscript{12} The Atlantic, December 2012.
\textsuperscript{13} US Department of Labor http://data.bls.gov/pdq/SurveyOutputServlet
The expected increase in energy consumption has been a cause of hand wringing with concerns about higher energy prices constraining economic growth and damaging the environment.

We believe we are on the cusp of an alternative energy revolution. To wit: solar power has the ability not just to meet future energy demands but to solve many of the world’s pressing problems.

The sun delivers enough energy to provide 7,000 times the amount of energy that we need at present.\textsuperscript{15} (Which means in a little over one hour the sun provides enough energy to meet global needs for an entire year.) This fact, while technically true, represents a bit of hyperbole. There is really no practical way to harness all of this energy. But we don’t need all of this energy, we only need a fraction of it and, more importantly, we already have the knowledge and technology to harness all of the energy we need from the sun using photovoltaic cells. The only question regarding the generation and storage of solar energy is the cost.

At the moment the price of solar panels is price competitive (without subsidy) with grid delivered electricity only in certain sunny locations. But even in these price competitive locations solar electricity, while clearly gaining momentum, is still in its infancy. But as with other technologies, as the price continues to fall (and quality and efficiency improve) the adoption rate rises.

Our view is that the price for solar energy will continue to decline and that this decline will pick up momentum such that solar power will become effectively free.

In 1977 the per watt cost for solar panels was $76.77; adjusted for inflation this equates to $111.89. The price today is approximately

\begin{center}
\includegraphics[width=\textwidth]{price_graph.png}
\end{center}

\textit{The graph above shows the price of photovoltaic cells per watt from 1977 to 2013. The price has declined by 99 percent in the last 37 years.}
$0.74 per watt.\textsuperscript{16} That represents a price reduction of 99% over the last 37 years.

The idea of effectively free may sound like a fantasy but there are a number of precedents for such dramatic price reductions. In 1927 the price of a five minute coast to coast long distance phone call was $27.75.\textsuperscript{17} If we adjust this for inflation, in 2014 dollars the price is an astounding $373 and in 1933 the inflation adjusted cost was just under $500.\textsuperscript{18}

Today, of course the price of a long distance phone call is effectively free. Effectively free is not the same as free, but the cost is sufficiently low that for practical purposes it is free.

The cost of producing electricity from solar panels is almost exclusively an up-front capital investment that requires no incremental investment for fuel etc. Given that the capital costs for solar are declining dramatically, it is not hard to envision a point where the price of energy generation is sufficiently low as to be functionally free.

When energy is abundant and extremely inexpensive many of the world’s most pressing issues disappear. Clean, fresh water becomes extremely abundant as the energy for desalination becomes insignificant; food production and distribution is cheaper; manufacturing and distribution of goods and services is much cheaper. Worries about global warming and airborne pollution disappear.

Now that’s human progress!

\textbf{There Has Never Been a Better Time to Be Alive}

The arc of the human condition is relentlessly upward. Do bad things happen? Are there legitimate issues of concern? Absolutely yes to both questions. Is life extremely harsh for a large number (albeit an increasingly small minority) of us? Of course. But in looking at the big picture it is impossible not to recognize that:

There are more humans than ever…and… We…

\begin{itemize}
  \item Live longer…
  \item Have higher incomes…
  \item Are more educated and literate…
  \item Have more leisure time…
  \item Are more connected to each other…and to information…
  \item Have more food…
\end{itemize}

…Than ever before.

In short, life is better than it has ever been. Our advice: Reject your inner Chicken Little and embrace the great state of the planet earth.

\textsuperscript{16} Bloomberg Energy Finance
\textsuperscript{17} Phone rate data from multiple sources including The Industry Analysis Division’s Reference Book of Rates Price Indices and Household Expenditures for Telephone Services (page 67) and www.consumer-action.org
About humanprogress.com and Guinness Atkinson Asset Management

humanprogress.com is a website devoted to challenging the conventional wisdom about the state of humanity and planet earth. The state of humanity has never been better and the human condition continues to improve across the globe. This is a fact based view that is not evident in the daily news coverage that for a variety of reasons focuses on the negative.

Guinness Atkinson Asset Management is an asset management firm. Our interest in sharing the story and facts surrounding human progress is twofold. First, on a personal level, we’re bothered by the negativity the permeates the zeitgeist. This negativity might be acceptable if it were based in fact, but it is not. This incorrect negative world view shapes our culture, politics and social institutions and is inherently detrimental. We’d like to be among the voices setting the record straight.

Second, as investment managers we struggle to understand how investors can make investment decisions--short or long term--when the most commonly held world view--the chicken little view--is empirically false. A more accurate world view should make one a better investor.

For more information, visit www.humanprogress.com.