**Doctoring Deflation**

There are two compelling reasons inflation won’t be a concern for quite some time; Chinese urbanization and technology. In fact, I would be more inclined to predict deflation, and to be honest, I’m not really sure why that should be any more worrisome than it’s opposite. More on that in a bit. To understand why I began predicting the collapse of commodities two years ago, read China’s Slowing Urbanization. In this edition of Seeds of Thought, I will focus on the other major factor, technology. In particular, we will look at the field of primary healthcare and the role physicians play in it to show why it is that no matter how low the unemployment rate goes, wage pressure is unlikely to become a factor. The services industries will soon be dominated by technology, just as it has in agriculture and manufacturing. This is not prognostication for some time far off in the future. It is happening now. Yes, it takes time for such a large scale transformation, but, like the development of technology itself, the process of turnover is not a straight line. It is exponential, beginning slowly and building speed as it progresses, until change occurs so rapidly, that it feels as though it had happened overnight.

**Doctor 2.0**

According to most estimates, America is experiencing a shortage of about 8,000 primary care physicians, a number expected to grow to nearly 66,000 by 2025. However, I believe the apocalyptic estimates will once again fail to materialize. Let’s set the stage with this excerpt from a recent study by the Yale School of Medicine. “In recent years, physicians and policy makers have raised concern that this fragmented, under-funded system of primary care is not fulfilling the health care needs of Americans. In particular, Americans are finding it difficult to access primary care services and, when they do, the systems often provide inadequate care for chronic illness, mental illness, and continuity of care. Physicians who practice in primary care settings are pressed to see large numbers of patients during short visits to maintain income in circumstances of reduced per-visit compensation. Escalating demands of insurers, pharmacy providers, and regulators have created a work environment in which primary care providers spend increasing amounts of time away from patients, responding to oversight and creating reports. Adding to this challenging environment is the rapid pace of scientific advancement in medicine. While this progress means physicians can help patients achieve better health outcomes, it also means physicians must work harder to learn and apply new standards of care. Doing primary medicine well is becoming increasingly difficult in the current US health care environment. As one result, fewer students are entering primary care internal medicine and practicing primary care physicians are seeking other work.”

One paragraph, so densely packed with thought provoking material, it’s hard to know where to begin. For clarity, I’ve highlighted each aspect with bullet points.

**1.** Americans are dissatisfied with the care provided by primary care physicians (PCP)

**2.** Insurance companies are reducing per-visit compensation

**3.** PCPs must increase the number of patient visits / reduce time spent with patients in order to maintain income

**4.** Regulatory oversight and insurance paperwork have increased the demand on PCPs time, taking them away from patients

**5.** Rapid scientific advancement improves health, but also places great demands on PCPs to keep up

**6.** Increased workload, more critical consumers, lower pay leads to fewer people pursuing the field

Now, you might read all this and come to the same conclusion as the experts. We are headed for a crisis. I get it. I spent five years studying the teaching profession, where the US has been experiencing a shortage for decades, and this reads eerily similar to the progression of that profession. (Yes, teaching used to be considered a highly regarded profession.) At less than 3%, education has had one of the lowest unemployment rates for a very long time, even during economic slowdowns, yet it has experienced very little wage pressure.

In America, there are roughly 200,000 primary care physicians, plus 56,000 nurse practitioners and 31,000 physician assistants who work to support them. That adds up to 287,000 diagnosticians. They take in information through samples and questionnaires, run the results through their encyclopedic minds, which were developed through years of medical school and on the job experience, and spit out their findings. They then prescribe a course of action, many of which are ignored, and/or medication. For clarity’s sake, let me rephrase that. Primary care physicians and their colleagues collect data, run correlation analyses and present results. Sound like a job typically done by something other than a doctor?

Yes, I’m implying that as a diagnostician, the primary care physician’s role is very similar in nature to that of a computer. Here’s the catch though. Ironically, the very thing that once allowed doctors to add value and charge commensurate fees, namely their encyclopedic knowledge, is now their greatest shortcoming. In this age of rapid scientific achievement, PCPs can’t possibly keep up, no matter how studious they may be. Unfortunately, due to increased regulation and insurance demands, combined with the need to see more patients, they have very little time to keep up with the latest discoveries. That’s why, even when notified as to what to look for in patients presenting Ebola symptoms and amid a heightened awareness regarding its threat, the well regarded staff at Dallas’ Presbyterian Hospital released an infected patient back into society. It’s a simple matter of chunking. With so many demands on their time, healthcare professionals resort to gut feel and instinct more than you might think. (Suggested reading: How Doctors Think for some eye opening perspective from an insider). So, when confronted with something new, even something as hazardous as Ebola, that email with the new protocol that could save their life, is trumped by habit, a mistake computers are far less likely to make. There is proof that computers are better diagnosticians than humans, and not just because their encyclopedia is far more developed and they are less inclined to exhibit bias in their findings due to years of experience.

“Since the 1920s, these humans have been trained to look at the same small set of cancer cell features. The C-Path team, in contrast, had its software look at images with a fresh eye—without any pre-programmed notions about which features were associated with cancer severity or patient prognosis. Not only was this software at least as accurate as humans, it also identified three features of breast cancer tissue that turned out to be good predictors of survival rates. Pathologists, however, had not been trained to look for them.” (The Second Machine Age by Erik Brynjolfsson, Andrew McAfee)

In other words, computers can not only use current knowledge to diagnose at least as well as humans, they have the ability to “think” of ways to improve upon what is already known. What does this mean? The future of medical diagnosis is about to experience a radical shift. The same pocket sized computer which now holds the power to beat any human being at the game of chess, will soon be used to diagnose medical ailments and prescribe actions to follow, far more cheaply and with a whole lot more accuracy. Yes, there will soon be an app for that and there’s a decent chance it will come out of the XPrize competition, or from one of the hundreds of applicants who were not chosen as finalists.

Americans visit primary care physicians roughly 1 billion times a year. That’s a little more than half of all visits to doctors, and a thorn in the side of insurance companies. Doctors order a tremendous number of extremely expensive tests that are often unnecessary. They do so in order to satisfy patient demands or to cover themselves in the case of a malpractice suit. Office visits are inefficient for patients and costly for insurers. There is a great incentive for all involved, except perhaps the PCPs, to see primary care replaced by an app. More people would have affordable access to healthcare, patients would achieve better results and with the collection of amalgamated data in real-time, society could respond more rapidly to clustering and breakouts. All of which is good news, but hardly inflationary.

I’ve purposely chosen a field that most people believe is unlikely to see the replacement of humans with technology. If doctors can be replaced, it should be easy to see how all other service positions are also at risk. Not only will livery drivers and chauffeurs eventually be replaced by the self-driving car, but so too the body shop mechanics, due to the dramatic reduction in accidents. When the PCP’s disappear, so too will the pharmaceutical sales rep and all the ancillary businesses who depend on their expense accounts. And on, and on it goes.

I firmly believe, the world as we know it is about experience far more radical change than many expect. We are used to linear progression, where things develop over time, because that is how we advance. In the early stages of progress, linear growth outpaces that of exponential gains. It is why Herbert Simon was mocked when his prediction that a computer would be the world chess champion by 1968 failed to come true. Rather than taking 10 years as he expected, it took 39. However, within 5 years, the computer went from calculating 200 million chess moves per second to 280 trillion. A few years later, free apps had attained grandmaster status. Here is a graphical representation of how exponential growth looks relative to linear progress. I had to break it up into 3 stages for clarity. It is my contention that we are entering the more advanced stages and the implications for macro and microeconomics are far reaching. Through Seeds of Thought and Macro Radar, we will explore many of them in the months and years to come.

**Final Thoughts**

I realize that many will push back on this idea that people will allow an impersonal computer application to replace the personal touch of a human being. I respectfully disagree. The transitional phase accounts for that. By forcing doctors to see more and more patients, they spend less time with each one. Gone are the days of a real relationship with a physician, with that down home bedside manner. These days, doctors behave more robotic than the apps, and it begins when you first make the appointment. Before you go into your symptoms, the first question always asked is, “What insurance do you have?” Walk into any doctor’s office and the first thing that hits you are the many signs demanding payment up front. Sit in the waiting room for 30 minutes or more, then move on to the second holding area for another 15-20 minutes. When the doctor sees you, she is brief and to the point. She is all business. You are essentially being weaned away from human doctors.

Besides, even if you weren’t, it’s not like you’ll have a choice. You do what your insurance company tells you to do. PCPs are a tremendous inefficiency for them and so it is in their best interest to replace them with a free app. That’s how the insurance companies will differentiate themselves, while reducing their costs. It’s ironic though. That app will be easily replicable, just as all technology is, so new players will enter the insurance business, just as many low cost carriers have entered the cellular market, forcing price wars. A similar phenomenon has played out in numerous industries since technology moved into services. In other words, the great savings and improved efficiencies achieved through technology very quickly find their way to the consumer. Again, deflationary.

As for why deflation isn’t necessarily worse than inflation, take a look at a historical chart of the inflation rate in the US. You’ll see that during the period when technology was radically altering our agriculturally dominated economy, deflation was fairly common.

Finally, when you look at unemployment data, and compare it to recent historical trends, keep this in mind. Wages, like all other prices, are a function of supply and demand. Just as the price of oil is now likely to be capped at the extraction cost of shale, wage pressure must factor in not just the unemployment rate (supply and demand of human capital), but the cost of replacing a person with technology. In an economy that has been dominated by services for as long as most of us can recall, it isn’t something that comes naturally for us.

Think about it. We investors, economists, analysts and business leaders sat on the sidelines, perplexed when the doctors and nurses missed the clear signs of Ebola in that Dallas patient and allowed him to walk out the door. They did so, because they relied on their instincts and experience, missing something so obvious. Could it be that we are doing the same thing in the way we are assessing the economy and the impact of technology?