

The First Tee...

Withered Workforce...abundance of help-wanted signs reflects labor reluctance:

- The economy's historic pandemic come-back is occurring with the lowest rate of labor force participation in over forty years...the recovery has also been characterized by a record number of unfilled jobs
 - About 23 million Americans were unemployed at the peak of the pandemic...since then, about half have returned to jobs, while the labor market remains 7 million jobs short of the level seen prior to the initial lockdown:
 - The Labor Force Participation Rate, defined as the share of working-age Americans (15 to 64 years old) who are employed or looking for work, has been trending for a year at its lowest level since the 1970's:
 - The labor participation rate has averaged 61.5% the past 12 months, compared to the 65.4% level seen during the first year of the economic recovery from the financial crisis of 2008...the labor participation rate peaked in 2000 at 67.3%.
 - The U.S. Labor Participation Rate is lower than that of all of its advanced-nation peers:
 - During the pandemic, 30% of the U.S. labor force (49 million) received at least one weekly unemployment payment:
 - The government paid-out over \$750 billion in unemployment benefits in 2020, compared to \$28 billion in 2019.
- **The Long and Short of it...**temporary and more permanent trends are impacting the job recovery:
 - The hopefully only interim issues causing a shortage of workers to fill open positions include...the enhanced federal unemployment benefits, reduced availability of childcare, concerns about infections from the Delta coronavirus variant, and in a growing number of cases, a lack of desire to work (*which unfortunately could be a longer-term issue*).
 - More enduring issues for worker scarcity include...a shrinking population of workers, an aging workforce, lack of skilled labor to meet job requirements, longer-term disabilities caused by the coronavirus, and drug addiction.
- **Employment Impediments on Economy**...shrinking labor pool could act as permanent drag on GDP:
 - Despite artificial intelligence and automation, labor is needed to run and manage the machines:
 - Lack of workers could be a catalyst to secular stagnation...defined as a prolonged period of lower economic growth.
 - **Baby Boomer Bombshell**...Americans born between 1946 and 1964 have been retiring over the past ten years, but but the pace of job departures has accelerated during the pandemic (doubling in 2020 versus the rate seen in 2019):
 - Some of the retirements were financially driven, aided by the rising value of stocks and home values:
 - The Baby Boomer demographic defined the labor market the past few decades; these individuals were characterized by high-productivity, high-capacity (working lots and long hours), and high experience...qualities not seen in the up and coming generations.
 - **Mr., Mrs., Ms. Mom**...millions of parents left the workforce during the pandemic to care for children that were impacted by school and day-care center closings (women workforce participation rate was 56.2% in June, down from 60.3% pre-COVID):
 - With the cost of daycare rising faster than most salaries, many families are reconsidering the prospects of both parents working.
 - **Opioid Atrocity**...the Federal Reserve Bank of Cleveland estimates that prescription opioids accounted for 44% of the decrease in the men's labor force participation since 2001...drug addiction has been negatively impacting the workforce since the 1990's:
 - The pandemic has accelerated drug abuse...overdose deaths spiked 30% in 2020 to a record high of 92,183 (75% were opioid related).
 - **Automation Sublimation**...advanced worker skills are needed as artificial intelligence replaces redundant jobs:
 - The number of under-educated and under-trained workers is expanding as the job market evolves:
 - The demand for workers with specialized training will continue to grow, but as companies struggle to fill positions for jobs requiring low or no skills they will search-out ways to produce items or provide services by an automated non-human means.
 - The shift to automating jobs has been more pronounced following downturns in the economy:
 - Since the 1990's, employment growth has not been able to keep pace with GDP growth in the years following a recession:
 - A study by the National Bureau of Economic Research found that 88% of routine (easily automated) jobs lost since the 1980's disappeared within 12-months of an economic slump...common examples are self-checkout registers, touchscreen kiosks, automated assembly lines.
 - 45% of the 7 million U.S. jobs still missing in June are vulnerable to automation replacing humans (according to Oxford Economics):
 - Industries where the automation phenomenon is especially prevalent is food service, retail sales, and manufacturing.
- **Help Wanted signs are commonplace everywhere you go these days** (covering most industries):
 - Many unemployed workers may rue the day they did not take advantage of some of these job opportunities when the economy's growth trajectory changes and employment demand slackens.

At the turn...

The Back Nine...

Chips Experiencing Dip...global shortage of semiconductors is creating supply-chain issues for manufacturers ranging from automakers to light-switch producers:

- Chips are one of the smallest most exacting products ever produced on a global scale:
 - Advanced logic chips are the most expensive and complex...giving computers and smart phones intelligence:
 - Memory chips are a larger market than logic but are less complex in their design and manufacturing specifications.
- Asia is the dominant player in chip production...led by Taiwan Semiconductor Mfg. Co. (TSMC) and Samsung Electronics Co.:
 - Chip making calls for incredible precision in high volumes...chips are built in factories that are called foundries:
 - Chip foundries cost billions to build and equip, creating the necessity to run at full capacity 24/7 to recoup costs:
 - To remain profitable, a chip foundry needs to get a 90% success out of the photolithographic process used to make chips:
 - Foundries produce millions of chips in a process that takes three to four months to complete...large amounts of water and electricity are needed in the manufacturing process, which is vulnerable to the smallest disruptions or contaminations (*damaging dust mites!*):
 - Production sensitivity is not surprising given the sophistication of a chip is measured by line-widths (distance between circuits)...the current standard in advanced chips is 5 nanometers (or billionths of a meter), which is about a hundred-thousandth of the width of a strand of human hair.
 - Billions will be spent in the coming years by governments and companies in a global chips race:
 - TSMC is planning to spend \$28 billion this year (over 2020's record \$17 billion)...TSMC is larger than its next 3 major competitors combined
 - TSMC rivals are two to three generations behind TSMC in their development of advanced chips:
 - Samsung is overall the largest global chip maker due to its dominance in memory chips...Samsung has a \$116 billion ten-year spending plan:
 - Apple, Qualcomm and Nvidia are designers of semiconductors, but do not currently manufacture chips...Apple is planning to start its own production.
 - Intel is the largest U.S. chip maker, and leads in global semiconductor revenue...but, Intel's market is primarily concentrated in computer processors.
 - Governments are getting more involved in advanced chip making abilities...economic and geopolitical implications.
 - China is ramping-up investment in chip manufacturing capabilities to reduce reliance on U.S. technology (*chip wars!*)
- Much of the chip shortage was exacerbated by the pandemic and shifting demand:
 - The coronavirus quarantine increased sales of laptops, networking equipment, webcams, and monitors as the office and school moved into homes...home appliance (utilizing chips) sales also surged:
 - Uncertainties caused by the pandemic led to sharp swings in the orders for chips...initiating the supply-chain issues:
 - Auto makers cut chip orders early in the pandemic but fell behind in chip needs when car orders surprisingly surged last fall.
 - Automakers are expected to lose \$61 billion in sales this year due to chip shortages delaying production of vehicles.
 - Stockpiling of chips have also added to the shortages as companies built inventories as a hedge:
 - Huawei Technologies was a firm hoarding chips...the Chinese smartphone manufacturer was protecting against shortages due to U.S. sanctions.
 - Freeze-out...extreme weather has also played a role in the chip shortage (impacting producers and users):
 - The arctic blast in February caused a huge power outage in Texas...there is a large cluster of chip manufacturing in the Austin area, some of these plants were taken off-line for over a month (loss of equipment to due fires, floods, freezes, etc, is creating added demand for chips).

19th Hole...

You will never win if you never begin.

Helen Rowland

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