ppi *radically pragmatic*

America's Skills Gap: Why It's Real, And Why It Matters

BY RYAN CRAIG

At the start of 2019, 7 million U.S. jobs remained unfilled, and American employers consistently cite trouble finding qualified workers. While some liberals insist a "skills gap" doesn't exist, all evidence points to the contrary. These gaps are moreover made worse by a higher education system that ill-equips graduates for the workforce.

Last fall, following publication of my new book, A New U: Faster + Cheaper Alternatives to College, I was on a panel at a Boston book fair with another author, a professor at a nearby university. After I presented a few U.S. Department of Labor statistics on unfilled jobs in America, she responded by saying: "I don't believe it. I don't believe your numbers." Why? Because she hadn't encountered the problem herself.

She's not alone. In January 2019, lefty blogger and provocateur Matt Yglesias published an article in Vox headlined, "The 'skills gap' was a lie." [1] He claimed the skills gap "was the consequence of high unemployment rather than its cause… With workers plentiful, employers got choosier. Rather than investing in training workers, they demanded lots of experience and educational credentials."

Those who haven't ever worked in the private sector might be forgiven for being skeptical about the existence of a skills shortage. But employers know that America has a significant skills gap – one that is growing with each passing month. And you won't find many skill gap skeptics among underemployed workers, particularly Millennials.

America's economy has digitized over the past decade and our legacy infrastructure – postsecondary education institutions and workforce development boards – have not come close to keeping up. Moreover, the digitization of the economy has also changed hiring practices, with real implications for our workforce. In this whitepaper, I attempt to explain to the skeptic crowd that the skills gap is real, why we haven't closed it, and why it matters.

THE SKILLS GAP IS REAL

There can be no question that American employers have a record number of unfilled jobs. For the past year, the number has hovered around 7 million. As of early January 2019, the number reported by the U.S. Department of Labor Bureau of Labor Statistics (BLS) was 6.9 million.[2]

Faced with real numbers, skill gap skeptics make several arguments besides denying the validity of the BLS data (which, if they care to look, comes with an impressive level of rigor and backup).

First, they say that millions of unfilled jobs are the fault of employers, because there are candidates with potential but not experience who are being passed by. Data suggest that many employers now insist that candidates have already done the job, even for entry-level jobs. For instance, a recent survey found that 61 percent of all full-time entry-level openings require at least three years of experience.[3]

Observing this phenomenon, Peter Capelli of Wharton notes that American employers have developed a global reputation for wanting the perfectly qualified candidate delivered on a silver platter—or they simply won't hire. According to Capelli, "Employers are demanding more of job candidates than ever before. They want prospective workers to be able to fill a role right away, without any training or ramp-up time. To get a job, you have to have that job already."[4] Capelli calls this the "Home Depot view of the hiring process," where filling a job vacancy is "akin to replacing a part in a washing machine." The store either has the part, or it doesn't. And if it doesn't, the employer waits.

It's true that American employers have moved the goalposts when it comes to whom they hire. But it's also unrealistic to expect that employers can close the skills gap on their own simply by hiring legions of unskilled entry-level employees and training them up to where they need to be. Two reasons explain why. First is the increasing cost of bad hires; experts estimate that the cost of a bad hire now exceeds six months of that employee's salary, which means companies are increasingly reluctant to take the leap with employees about whom they're not confident can do the job. [5] The second reason companies are demanding better-qualified candidates upfront is the higher rate of churn for entry-level employees. Footloose Millennials are more likely to jump to another job at the first opportunity, which disincentivizes employers from investing in training. Whereas a generation ago, employers viewed entry-level hire training as an investment in their own future, today it's seen through the lens of the free-rider problem: investing in entry-level training is more likely a gift to a company's competitors, and hence, for suckers. It is this thinking that has produced the new status quo of "do the job before getting the job." The upshot is that candidates who would have been snatched up a generation ago are now left sitting on the sidelines.

A second claim from skills gap skeptics is that the 6.9 million unfilled jobs are not skilled jobs, but rather low-skill jobs. This line of argument casts the "true" gap as one of labor, not skills. So while the engine of America's dynamic economy is humming along, millions of jobs in agriculture, hospitality, and custodial services are unfilled.

As of January 2019, 6.9 million jobs remained unfilled.

BLS has relevant information on this point. Last fall, there were around 900,000 unfilled jobs in accommodation and food service, but also nearly 1.2 million unfilled openings in professional and business services, and another 1.3 million in education and health services.[6] While some of these positions are certainly lower skill (e.g., medical assistants), a significant percentage of America's unfilled jobs are skilled positions. According to Burning Glass, there are 1.7 openings for every qualified worker in high-skill healthcare jobs like nurse practitioners, physician's assistants, physical therapists, and occupational therapists. The job site indeed.com alone lists nearly a million open positions with salaries at or above $75,000.

But what's most convincing is the steady drumbeat of surveys and reports demonstrating that employers really are having a hard time finding candidates for middle and high-skill positions. As Burning Glass has recognized, "Our research shows that roles requiring highly skilled workers… are the most undersupplied roles."[7]

Let's drill down on the two primary reasons why employers are leaving middle and high-skill positions unfilled: (1) They are failing to find enough candidates with the requisite digital skills; and (2) They are dissatisfied with the "soft skills" presented by candidates, even those with digital skills.

1. The Digital Skills Gap

The World Economic Forum found only 27 percent of small companies and 29 percent of large companies believe they have the digital talent they require.[8] Three quarters of Business Roundtable CEOs say they can't find workers to fill jobs in STEM-related fields.[9]

Deloitte in the United Kingdom has found that only 25 percent of "digital leaders" believe their workforce is sufficiently skilled to execute their digital strategy.[10] Another survey found 80 percent of executives highly concerned about a digital skills gap.[11] And for the first time in recent memory, in May, August, and September 2018, the TechServe Alliance, the national trade association of technology staffing and services companies, reported no tech job growth in the U.S. According to TechServe Alliance CEO Mark Roberts, "this is totally a supply side phenomenon. There are simply not enough qualified workers to meet demand."[12]

There are two primary reasons for the large digital skills gap. The first is a real transformation in how we do business. It's not just that there are more digital devices (or that you're almost certainly reading this paper on a screen). It's that over the past decade, businesses and organizations have transformed their internal systems, as well as their processes for interacting with stakeholders – customers, suppliers, employees, shareholders – from informal and manual to formal software-based processes. Across all sectors, most middle- and high-skill jobs now involve managing some business function through software or software-as-a-service (SaaS) platforms. According to Brookings, only 41 million American jobs still don't require significant digital skills; nearly 100 million do. Two-thirds of the jobs created in the last decade require either high or moderate digital skills.[13] But it's inexact to generalize about a digital skills gap.

> **The digital skills gap actually consists of thousands of micro-level or tactical digital skills gaps.**

For example, we don't have a shortage of C++ or Fortran coders, although there's huge unmet demand for J2EE, Microservices, and .NET developers. Depending on whom you ask, the total number of positions that require coding skills ranges from 500,000 to 1 million.[14] But the gap extends well beyond coding to positions outside the formal technology sector. These are jobs that manage functions like supply chains, sales, marketing, customer service, finance, IT, and HR. Employers are seeking skills like Pardot (marketing), Marketo (digital marketing), Google Adwords (digital marketing), ZenDesk Plus (customer service), NetSuite (finance), Financial Force (finance), Workday (HR), and the customer relationship management (CRM) platform Salesforce – the most popular SaaS platform in American businesses. According to Burning Glass, jobs demanding Salesforce experience have quadrupled in the past five years; in 2017, more than 300,000 open positions called for Salesforce skills.[15] In addition to these cross-sector SaaS platforms, every industry has its own SaaS platforms for specific functions. For example, insurance companies and third-party claims administrators have a range of SaaS options for claims processing.

All of these career-critical business software platforms require specific know-how that is a far cry from the relatively little you need to know to navigate Netflix, Spotify and smartphone interfaces.[16] This leads to the second reason why the digital skills gap exists: The assumption that comfort navigating in a digital environment is the same as having the digital skills necessary to land a well-paying job. Eleanor Cooper, Co-Founder of Pathstream, a start-up partnering with higher education

institutions to provide business software training, notes that we are "accustomed to Instagram-like platforms which are both intuitive and instantly gratifying. But without exception, we find the user experience of learning business software to be exactly the opposite: instant friction and delayed gratification. Students first face an often multi-hour series of technical steps just to get the software set up before they begin working through tedious button-clicking instructions, which are at best mind-numbing and at worst outdated and inaccurate for the current version of the software."

In a recent article in *The New Yorker*, "Why Doctors Hate Their Computers," Dr. Atul Gawande describes the challenge of implementing Epic, a SaaS platform for managing patient care: "recording and communicating our medical observations, sending prescriptions to a patient's pharmacy, ordering tests and scans, viewing results, scheduling surgery, sending insurance bills."[17] First, there's 16 hours of mandatory training. Gawande "did fine with the initial exercises, like looking up patients' names and emergency contacts. When it came to viewing test results, though, things got complicated. There was a column of thirteen tabs on the left side of my screen, crowded with nearly identical terms: 'chart review,' 'results review,' 'review flowsheet.' We hadn't even started learning how to enter information, and the fields revealed by each tab came with their own tools and nuances."

Business software is really hard. We are accustomed to simple interfaces. But simple interfaces are possible only when the function is simple, like messaging or selecting video entertainment. Today's leading business software platforms don't just manage a single function. They manage hundreds, if not thousands.

Beyond cumbersome interfaces, the second reason why business software is really hard is that it has become inextricably and tightly wound up with business processes. Salesforce consultants will tell you it's easier to conform your business practices to Salesforce than to try to customize (or even configure) Salesforce to support the way you do business today. And that's true for almost all business software. As Gawande notes, "as a program adapts and serves more people and more functions, it naturally requires tighter regulation. Software systems govern how we interact as groups, and that makes them unavoidably bureaucratic in nature."

Software-defined business practices are increasingly standardized across functions and industries, and highly knowable. And because they're knowable, hiring managers want to see candidates who know them. Unfortunately, candidates find themselves at sea with business software – even platforms with the best interfaces – unless they have a basic understanding of the underlying business processes. So it's not just a digital skills gap. Embedded in the digital skills gap is a gap in industry and/or job function expertise. And that requires much more than 16 hours of training.

2. The Soft Skills Gap

Behind digital skills, as evidenced by job descriptions, employers care a great deal about a second set of skills: soft skills like teamwork, communication, organization, creativity, adaptability, and punctuality.

Employers want workers who will show up on time and focus on serving customers rather than staring at their phones. They need employees who are able to get along with colleagues, and take direction from supervisors - a particular challenge for headstrong Millennials.[18]

But soft skills aren't screened at the top of the hiring funnel.Employers aren't likely to list "willingness to take direction" or "humility" as skills in job descriptions. And the soft skills that are listed aren't readily assessable from résumés. So soft skills are evaluated further down the hiring funnel, via interviews – and long after the initial screen (primarily on digital skills) has weeded out many candidates with strong soft skills. It's no wonder employers don't think candidates' soft skills are up to snuff. In a LinkedIn study of hiring managers, 59 percent said soft skills were difficult to find and this skill gap was limiting their productivity.[19]A 2015 *Wall Street Journal* survey of nine hundred executives found that 89 percent have a very or somewhat difficult time finding candidates with the requisite soft skills.[20]

One reason for the soft skills gap is that Millennials (and now Generation Z) have less exposure to paid work than prior generations. When older Americans were in high school, even if they weren't working during the school years, they probably took summer jobs. Some worked in restaurants or painted houses, others mowed lawns or scooped ice cream. But in the summer of 2017, only 43 percent of 16-19 year-olds were working or seeking work – down from nearly 70 percent a generation ago.[21] The Bureau of Labor Statistics forecasts teen workforce participation will drop below 27 percent by 2024.

These work experiences are seminal to the development of the soft skills employers are seeking. Writing in the *Washington Post*, Jeff Selingo noted: "I worked in a hospital kitchen filling orders for patients. It was probably the worst job I ever held, but it was the first time I wasn't surrounded by my peers, so it taught me how to interact with people of all backgrounds and ages. I also learned the importance of showing up on time, keeping to a schedule, completing tasks, and paying attention to details (after all, I didn't want to mess up a tray for a patient on a specific diet)."[22]

Ironically, parents seeking to give their children a leg up by encouraging them to burnish their college applications with unpaid internships and travel programs – at the expense of paid part-time work – may be handicapping them by denying them the soft skill development that they'll need to land a good first full-time job. As a society, we have unfairly and improperly devalued dishwasher and busboy jobs as useful steps on the road to successful careers.

It's also quite possible that the digital skills gap is contributing to the soft skills gap. Candidates who are visible to hiring managers are the ones with digital skills; they're the candidates who consistently get past the applicant tracking system filters. And for many of the most technically prepared candidates, soft skills aren't their strong suit. Meanwhile, the most punctual, organized, and well-spoken candidates are lacking digital skills and are effectively invisible in the hiring process. As a result, interviews reveal a candidate pool that seems lacking in soft skills.

WHY WE HAVEN'T CLOSED THE SKILLS GAP

None of these missing skills are surprising to candidates or employers. So why does the skills gap persist? The skills gap is best thought of as the product of two distinct frictions.

On the student or candidate side, there is what I call "Education Friction." Education Friction means that because of the time, the cost and – most important – the uncertainty of a positive employment outcome, many individuals fail to upskill themselves. If we could eliminate Education Friction, millions of candidates would immediately equip themselves with the digital skills, industry and business process knowledge, and soft skills that employers are seeking.

On the employer side, there's what I've dubbed "Hiring Friction." Hiring Friction encapsulates Capelli's observation: a growing reluctance of employers to hire candidates who haven't already proven they can do the job. Hiring Friction helps to explain all the unfilled good jobs, and why employers are increasingly requiring years of relevant experience for positions that should be (and once were) entry level.

Any solution to closing the skills gap must address both Education Friction and Hiring Friction. And a review of the current players ostensibly in the gap-filling business explains why we're not closing the gap.

EDUCATION FRICTION:
How colleges and universities are perpetuating the skills gap

With their continued focus on multi-year, expensive degree programs, colleges and universities are a major source of Education Friction. College is increasingly unaffordable; the average student who borrows to attend college graduates with nearly $40,000 in student loan debt.[23]

Total student loan debt is now over $1.5 trillion, and average student loan debt per household has grown almost 1,000 percent in the past 20 years.[24] And because life tends to "get in the way" of any multi-year task – particularly for students most in need of the social mobility that postsecondary education is supposed to provide – nearly half of all students who undertake degree programs fail to complete (and many drop out with debt – the worst of both worlds).[25]

Nevertheless, with changing job requirements and unhappy employers, you'd think colleges and universities would be scrambling to address these market opportunities and boost enrollment with new and innovative degree programs. But academic programs at accredited postsecondary institutions are controlled by faculty members who typically aren't incentivized to align curricula to employer needs. Few are interested in what employers are seeking, particularly for entry-level positions. Many have never worked in the private sector or have only outdated or tenuous connections to non-academic employers.

Many more educators simply resist the idea that instruction should be aligned to employment opportunities. A report last year in American higher education's paper of record, the *Chronicle of Higher Education*, sums up the view of traditional colleges and universities on this question. In an article on Texas A&M's effort to launch courses in cybersecurity, the *Chronicle* reached the following conclusion: "Work-force demand can lead some institutions to teach students the skills needed for today's entry-level jobs. But those tools may well be obsolete five or ten years from now."[26] The implication – one that is absolutely in the mainstream of faculty thinking – is that updating curriculum to reflect current labor market needs may not be a worthwhile pursuit because such needs will change in five to ten years. This is certainly true for digital skills, but also for industry knowledge and perhaps even soft skills (which are arguably furthered less on a cloistered college campus than in virtually any workplace setting). In no other sector of the economy is such outdated thinking commonplace.

But even if faculty incentives and attitudes could be changed, the organizational structure of colleges and universities complicates any effort to align programs with employer needs. Hundreds of thousands of new jobs have been created in business intelligence and data analytics over the past few years. But where do they fit into existing academic departmental structures? Some business schools have added relevant curriculum; at other universities, it's the statistics department. Under faculty control, most universities haven't yet come up with an adequate answer.
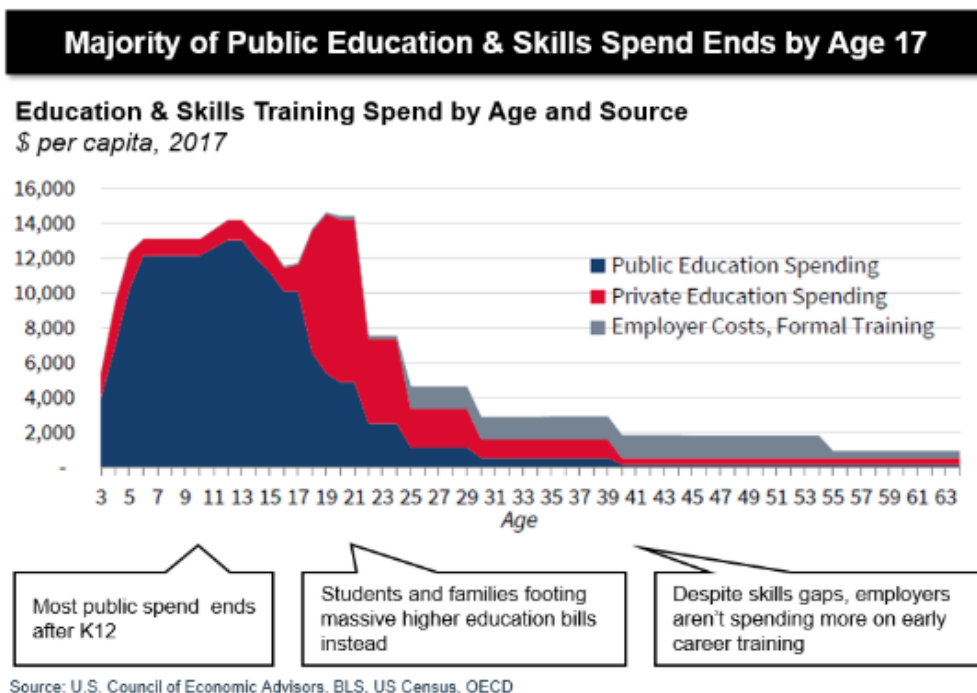
The same dynamic exists in other high demand areas like nursing and cybersecurity. Because few faculty members study or research the topic, few if any nursing programs train students on Electronic Records Management Systems. And the skills required for cybersecurity require some computer science curriculum, but are a distant relative from learning C++. At Texas A&M University, cybersecurity courses have been offered by engineering as well as agriculture and life sciences departments.

Higher education's interface of choice to employers is career services. But not only is career services well outside the academic chain-of-command, the concept of "career services" as a separate office, distinct from every other part of the institution, conveys to students that they aren't expected to think about employment until senior year. Not surprisingly, only half of all students ever visit career services.[27]

When they do, they're not meeting with professionals in their fields of interest (with relevant experience and networks), but rather with career services lifers, who may be best positioned to help students get jobs working in career services.

Even if they were interested in engaging with employers, colleges and universities wouldn't be able to do much about the frictions sustaining America's yawning skills gap. And as employers are simply presented with the decision to hire or not hire graduates, colleges remain poorly positioned to do anything about Hiring Friction.

Total spending on education and training is heavily weighted to the first 25 years of life. According to the Council of Economic Advisers, most spending is exhausted by age 17, and more than 90 percent of spending is complete by age of 25.[28] The prevailing view has been to position postsecondary education as a kind of "all you can eat in one sitting" buffet: get it done, then get to work.

Majority of Public Education & Skills Spend Ends by Age 17

Education & Skills Training Spend by Age and Source
$ per capita, 2017

Most public spend ends after K12

Students and families footing massive higher education bills instead

Despite skills gaps, employers aren't spending more on early career training

Source: U.S. Council of Economic Advisors, BLS, US Census, OECD

America's colleges and universities have captured the lion's share of non-employer spending on human capital development beyond high school, to the tune of over $500 billion annually.[29] In contrast, public spending on workforce development falls far short. In terms of formal spending on education and training, in 2016, the federal government spent over $139 billion through Title IV financial aid, the GI Bill, and other sources. Of this total, only $19 billion – 14 percent – was allocated to career education and training.[30] Department of Labor funds don't add much. Federal spending on workforce development through the Workforce Opportunity Investment Act (WIOA) is only about $1 billion (the remainder of the $3.3 billion in WIOA spending is allocated to disability and youth programs).

Where the workforce development spending goes is also problematic. As defined in WIOA, funds are allocated to state and local workforce development or investment boards. These organizations are responsible for spending federal and state workforce dollars on "one stop" services to help job seekers find jobs. And while they are ostensibly charged with human capital development and maintain long laundry lists of training programs operated by nonprofit organizations and traditional colleges and universities, they are measured based on speed-to-placement, not on value added. As a result, workforce boards find themselves in a vicious circle of attracting only low skill workers, and employers listing the lowest skill positions; there's little opportunity or rationale for value add.

While workforce solutions typically have no financial cost to candidates, like free college, they don't eliminate Education Friction: no one-stop guarantees jobs, and particularly not

good jobs. And as with higher education, workforce boards aren't well positioned to eliminate Hiring Friction for employers.

HIRING FRICTION: How employers aren't helping themselves

At the same time that skills shortages are real, employers are handicapping themselves in their hunt for qualified candidates. Recruitment and hiring practices have also not been immune to digitalization, but the result has been an over-emphasis on digital skills at the top of the hiring funnel, which serves to shut out qualified candidates whose résumés lack the magic words to get them in the door.

Because nearly every good job is posted online and generates hundreds of résumés, employers utilize keyword-based filters called Applicant Tracking Systems to determine which résumés are actually seen by a human. If you don't have sufficient keyword density, you're not visible. Faced with the deluge of résumés over the past decade, HR and hiring managers have sought to tighten the screen and have done so by adding skills to job descriptions. Which skills have they added? Unfortunately, there are only so many ways to say "critical thinking," or "problem solving." So the skills that have been added to job descriptions are digital and software skills. Across virtually every industry, technical skills now outnumber all other skills in job descriptions, particularly for entry-level jobs.[31] Without the digital skills employers are increasingly listing in entry-level job descriptions, too many college graduates are invisible for exactly the positions they want (and need in order to make student loan payments).

Nevertheless, fixing digital hiring practices will not make the skills gap go away. If anything, current trends will only accelerate. Anyone who's spent any significant time inside large and mid-size American businesses in recent years will recognize that the alphabet soup of business software represents the present of work. And anyone who's been reading dire predictions about the future of work – from one of the many "future of work" centers at foundations and think tanks that have emerged in the past few years – will tell you that it's going to get worse. Predictions about artificial intelligence and robotic process automation spell doom for tens of millions of lower skill positions, while simultaneously creating tens of millions of new digital-centric jobs. Based on the booming "future of work" business, it sometimes seems like our kids have two choices for gainful employment: (1) Digital skills; or (2) Develop skills to predict the future of work. And while it may be silly to predict that half of all current jobs will disappear, it's not silly or extreme to believe, as at least one presidential candidate does, that we're about to "experience the greatest technological and economic shift in human history."[32]

THE SKILLS GAP MATTERS

Perhaps taking inspiration from the growing "deficits don't matter" crowd, some skeptics shrug their shoulders at the skills gap. But that's a dangerous approach. There are few challenges more consequential to America's future than the skills gap. The skills gap is impeding economic growth, promoting generational inequity, and destroying the American Dream.

ECONOMIC GROWTH

If we could close the skills gap, it's likely we'd experience faster economic growth. In a recent survey of U.S. hiring managers, 90 percent reported it difficult to find and hire the right tech talent and 83 percent said the shortage of tech talent is slowing company revenue growth.[33] As a result, most Americans are experiencing negative repercussions of the skills gap. But the biggest casualties are the 10 million workers who have stopped seeking work and dropped out of the workforce in the last decade – many because they didn't have the skills employers were seeking.[34] And don't forget the tens of millions of Americans who remain employed, but whose real wages have remained stagnant because they are out of position relative to the jobs and sectors of the future.

FAILURE TO LAUNCH

While these casualties are disparate and hard to measure, the most distinct and visible victims of the skills gap are Millennials, who have been poorly positioned for employment, and are performing worse on virtually every economic metric than prior generations. Millennials are earning 20 percent less than Baby Boomers did at the same stage in their lives.[35] They are increasingly unable to afford their own residences.[36] And in an era when it's easier than ever to launch a new business, Millennials are remarkably unentrepreneurial.[37]

Millennials aren't starting new businesses for the same reasons that few of them are unemployed: because most take the first job that allows them to make payments on their student loans. But although not unemployed, a surprising percentage are underemployed as a result of a lack of digital skills.

Ironically – because they're most comfortable in a digital world – the digital skills gap might be hitting Millennials hardest. As a result of higher education's failure to adapt to employer requirements for entry-level jobs, too many new and recent graduates find themselves working in retail jobs they could have attained without the investment of time and debt.

Underemployment is a lot harder to define than unemployment. The Rockefeller Foundation found that 49 percent of recent college graduates reported they didn't need to go to college to do their current jobs.[38] Accenture found 51 percent of 2014 and 2015 graduates considered themselves to be underemployed.[39] Avenica, a provider of career pathways for new college grads, found that 86 percent of brand new college graduates reported having no job offers.[40] More authoritatively, the National Bureau of Economic Research has found that the unemployment rate of recent college graduates spiked at 7 percent post-recession and remains north of 5 percent, while underemployment remains near an all-time high of around 45 percent.[41]

In his 2016 book *There Is Life After College*, Jeff Selingo found that only about a third of all new graduates were successfully launching careers. Two-thirds were suffering through what the media has taken to calling Millennials' "failure to launch."[42]

This has led to satirical headlines in *The Onion* like "Company Immediately Calls Job Applicant Upon Seeing 'B.A. In Communications' on Résumé."[43] And it has further led to a cottage industry for journalists writing articles like this one in *Cosmopolitan*: "10 Reasons Why You Shouldn't Freak Out if You're Graduating Without a Job (You are so not alone)." Among the silver linings: you don't have to deal with coworkers you don't like, moving back home is the best living situation you'll have for a long time, and you can sleep all you like.[44]

More frustrating is that wages haven't improved for college graduates since the Great Recession. In fact, they've continued to fall, even for students who majored in STEM. In 2015, new graduates who majored in biology had average salaries of $31,000, down from $35,000 in 2010. Even computer science and engineering grads saw a decline.[45] This helps explain why only 41 percent of recent graduates have been able to pay down any principal on their student loan balances in the first three years after leaving school [46] and why the Federal Reserve Bank of New York found that the bottom 25 percent of new college graduates are incurring debt but earning no more than high school graduates.[47]

We also know that lower wages for new graduates tends to result in "wage scarring"—lower wages that persist for decades.[48] A new study from the Social Security Administration and a number of researchers, including Fatih Guvenen, an economist at the University of Minnesota, attributes the increase in lifetime inequality over the past fifty years to "a result of lower incomes at younger ages." According to Guvenen, "It all starts at age twenty-five," or with suboptimal first jobs.[49]

ECONOMIC ALIENATION

The skills gap has created another, arguably more damaging gap. America's employers love to signal near-unlimited potential for employment and career advancement. With all the well-paid, high-skill jobs on offer, job seekers who visit indeed.com or another leading job site may be forgiven for thinking the world is their oyster.

But these opportunities are effectively closed to millions who don't have the skills on their résumé to make it past the Applicant Tracking System screen, let alone a risk-averse human resources manager. This gap between the promise of opportunity and the reality of inaccessibility creates what the UK Labour Party MP Paul Sweeney called in this spring's Brexit debate "economic alienation," which "has caused many of the problems and anger in the UK."

Economic alienation explains why so many Americans feel left behind and disenfranchised. Far too many of our fellow citizens feel that participation in the dynamic economy – and the American Dream – is now out of reach. America's economy is increasingly divided between haves and have nots.

On one side, the skills gap may be prompting Millennials to give up on capitalism, or at least to say they are. In "Why Young Voters Love Old Socialists," Sarah Leonard, a twenty-nine-year-old editor at *The Nation*, wrote in the *New York Times* that "Millennials are worse off than their parents were . . . they are loaded with college debt (or far less likely to be employed without a college degree)."[50] She concluded that "the post-Cold War capitalist order has failed us." But fear not, there's a great alternative: "Because we came to political consciousness after 1989, we're not instinctively freaked out by socialism."

She went on to cite a 2016 Harvard poll that showed 51 percent of eighteen to twenty-nine year olds rejected capitalism.[51] According to Richard Wolff, a Professor of Economics at the New School University and one of America's few remaining Marxist economists, due to growing awareness that wages have been unable to keep up with the cost of living, younger Americans "are getting closer and closer to understanding that they live in an economic system that is not working for them, and will not work for their kids."[52]

On the other end of the political spectrum, Donald Trump was prescient enough to exploit this vulnerability, raging against elites who dominated America's economy and politics, and higher education in particular. As former Secretary of State and now Stanford University professor Condoleeza Rice said in a May 2017 interview, "One of the things that broke down and one of the reasons we got the election we did—as my friend calls it, the 'Do You Hear Me Now' election—is too many people have felt that the American Dream isn't there for them."[53]

How to close the skills gap

Secretary Rice's solution is a national project on education and job skills.[54] But economic alienation has given rise to a surprisingly wide range of policy proposals. Free college is becoming progressive orthodoxy, and a surprising number of progressives (and some conservatives and libertarians) are toying with universal basic income (UBI). **But these ideas haven't been tested along the following lines:**

• Do they eliminate Education Friction?
• Do they eliminate Hiring Friction?
• Can they scale to tens of millions of individuals?

Even if we could figure out how to pay for it, free college isn't actually free. Tuition might be free, but what about the tens of thousands of dollars of living expenses required to support a college student? Even for a "free college" student, there is no such thing as a free lunch. Furthermore, because free college says nothing about employment outcomes (let alone employment guarantees), it only has a marginal impact on Education Friction. Likewise, it also completely fails to address Hiring Friction.

UBI is the bluntest instrument being proposed in that it does nothing to eliminate either friction. With its sledgehammer approach, UBI might help close the skills gap, but only by reducing the relevance of skills – probably not a winning proposition. Moreover, like free college, the scale of UBI is a direct function of government spending, and any effort to implement such a program will likely substantially worsen the nation's already severe fiscal woes.

While the search for solutions to close the skills gap becomes ever more urgent, it's most important that we not give up. In the *Washington Post*, CUNY's Cathy Davidson rejected higher education's responsibility for the skills gap, saying "the most relevant education in the world cannot change a labor market rigged against the middle class. This is a social problem, not a higher education problem." [55]

But even if she's right (and at best, she's only partially right), mission-driven public and not-for-profit colleges universities ought to be motivated to try to solve this "social problem" rather than sit there throwing stones at capitalism. To paraphrase Donald Rumsfeld, we're sending young people out into the labor market we have, not the labor market we might want or wish to have at a later time.

In my next paper, leveraging this framework, I propose a series of models for closing the skills gap: models with the promise of eliminating both Education Friction and Hiring Friction. While these models are led by private sector intermediaries with a commercial incentive to scale to provide frictionless pathways to good jobs for tens of millions of Americans, the public and nonprofit sectors will play a key role in accelerating adoption.

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