Challenges for Hawai‘i’s Post-COVID Workforce
Questions and Answers

True story - Ordered new refrigerator 3 weeks ago...original delivery date is October 30 (this Saturday). Just got an email from Home Depot - my "estimated" delivery date is now January 20, 2022. 😞 Will these disruptions have lasting impact in Hawaii through 2022?

It definitely looks like the supply-chain disruption will have an impact lasting well into 2022.

So, why isn’t everyone learning to code?

Well of course not everybody needs to learn how to code any more than everybody needs to know how to reboot a Tesla. In the context of the post-Covid workforce it’s clear that the occupational polarization observable pre-pandemic not only will not reverse, if anything it has received an additional impetus from the rise in telework. Teleworkers already have the skills, including many with coding skills, but more generally with using information technology’s capability to overcome lack of proximity to be productive. The tasks for which the evolution of the modern economy rewards workers (through higher real earnings) involve critical thinking and analytical skills. Those who have not acquired those skills are impaired by their absence and are vulnerable to displacement of rote and repetitive tasks by machines which are more accurate and don’t need bathroom breaks. Learning to code, but learning to think critically and analytically, hones skills which are complementary to information technology. Without those skill a worker risks being displaced as a substitute for the technology. (See David Autor https://www.science.org/doi/10.1126/science.1251868). But coding is not the only way to acquire the skills, which can be learned through mathematics and science, learning to play a musical instrument, or learning strategy in athletic competition. Not only is there more than one path a multiplicity of paths enriches the experience of having gone down one or another.
Do you see any hope for diversification of the economy in Hawaii so that we are not faced with such massive impacts when there is a downturn in tourism?

Small open economies specialize in short lists of things they do well because it is their comparative advantage. They trade with others whose comparative advantage is in other specialties. This is true even when one has an absolute advantage in two things. If you are the best cook and the best landscaper, it still may pay for your partner to do more of the yardwork so that both of you can eat good meals. For the same reasons coal-mining towns, steel towns, manufacturing centers, tech concentrations, virtually all small regional economies specialize and—therefore—face the diversification dilemma to which you allude.

It’s true that the channels of transmission of exogenous macroeconomic risk vary in their bandwidth. Tourism is a broad channel of transmission, and that’s if we’re just talking about catastrophic geopolitical, biological, or geophysical risk as opposed to the garden variety noise (volatility) in the economy. So is monetary union (Hawaii uses the U.S. dollar, not the Canadian dollar) but you don’t hear anybody in Hawaii saying we should use Bitcoin or puka shells.

Herein lies two flaws in this reference to portfolio theory (which is actually what we are talking about). Eggs, basket. Nobody is prevented from diversifying the economy now. Nothing prevents other economic activities from flourishing in the presence of tourism. Indeed, for Hawaii tourism is such the low-hanging fruit that the luxury of having tourism (which, be honest, is a gift from the aina we didn’t earn it) enables other economic activities to flourish because we have the elbow room to experiment. Oahu has the military, and Oahu alone, but even for the Neighbor Islands these alternative exportable activities range from astronomy to transgenic modification-based agriculture (which is one-fifth of all agricultural activity in Hawaii and was one-quarter of it before all the posers on Maui starting squawking). Tourism is so lucrative that other possibilities can be pursued without fear of killing the Golden Goose.

Of course, geese get geese diseases. Doing tourism in the 1970s when tourism was growing (and lifting Oahu per capita income to 140 percent of the U.S. average—it’s 110 percent now), was Hawaii’s diversification strategy, away from the military and plantation agriculture, but you
would have been complaining in a steel town like Pittsburgh in the 1970s if you were aware of the steel mills South Korea was building at the time. Silicon Valley may be all that now but what happens when nobody actually has to work at the Fakebook campus, but can work remotely?  Oops, I guess that just happened.

If it’s not Avian Flu that gets your Golden Goose, it’s a novel coronavirus like SARS or SARS-Cov-2. Diversification does not eliminate systemic economic risk, it only tamps down the idiosyncratic risk. Although I have never heard a politician in Hawaii say this, the variance-covariance matrix of Hawaii NAICS industry-specific real logarithmic returns does not provide guidance as to the portfolio allocation which maximizes overall risk-adjusted returns to real GDP. There is no “magic portfolio allocation” which eliminates systemic risk.

Still, there is nothing preventing entrepreneurs from doing something other than tourism in Hawaii. Knock yourselves out. Commercial viability—or its absence—is usually a clue, but, like I say, nothing prevents anybody from trying and in Hawaii we even encourage it. Like I say, tourism gives Hawaii the luxury to “chance ‘um” in other things which might fail but might not.

Besides, saying that Hawaii should not do tourism because it underperforms during a pandemic is like saying that Hawaii should not do food service because people don’t want to go out to eat during a pandemic, or Hawaii should have fewer transpacific flights because infectious disease might spread on the 5 to 9 to 11 hours of transoceanic crossing. You can list Hawaii’s vulnerable industries (tourism is not an industry, it’s an export), but you can’t just say “eliminate accommodation, food services, transportation, arts, entertainment, and recreation because they do poorly during a pandemic.” The corner solution of “zero” is not generally the solution. Doing food service differently, now that’s a path to resilience. Do you have a hostess, or do you have a QR code? Do you have a nasty, sticky menu, or do you have a web page? Maybe people don’t want to sit in the outdoor dining area in Kailua with the chicken crap all around. I’m just saying, how you do things is as important as whether you do them. Tell the 50,000 persons in Hawaii who haven’t worked since March 2020 that the 600,000 persons who are still working are “OK with not doing tourism.” Look at the actual economic structure of Hawaii, by industry: what’s not diverse enough?
Hawaii 2019 GDP by industry shares

Reading clockwise starting with agriculture, the Hawaii economy does not specialize in producing *things* because they can be scaled upward elsewhere and done in greater volume at lower cost. You could buy a Mercedes Benz assembled in Kalihi but I’m guessing that the one from Stuttgart will be better for the price. The Hawaii economy does about as much distribution and financial services as elsewhere but is not a powerhouse. The Hawaii economy’s concentration in nonfinancial private services is a testimony to the large share of exports comprising tourism, as is the concentration in public services a testimony to the larger share of exports comprising the federal military. But, again, these things change over time and by doing the easy stuff—notwithstanding their vulnerability—Hawaii has a shot at trying out other things. Steel manufacturing ain’t one of them. Explain to me why 3D content in the metaverse calibrated to Hawaii’s endowment and culture isn’t one of them. Yes, tourism feels everybody else’s shocks, but talk about geopolitical risk, 9/11? Fuhgeddaboudit: Pearl Harbor got Hawaii *attacked*! You do what you can, and right now, post-Covid, people are trying out all kinds of new things; we looked at these data in the presentation (below). People in America right now are trying out all *kinds* of new business concepts. Their pandemic lesson? *Carpe diem*: seize the day!
Applications for a federal Employer Identification Number (EIN), except for applications for tax liens, estates, trusts, certain financial filings, applications outside of the 50 states and DC or with no state-county geocodes, applications with certain NAICS codes in sector 11 (agriculture, forestry, fishing and hunting) or 92 (public administration) that have low transition rates, and applications in certain industries (e.g. private households, civic and social organizations)

Sources: U.S. Census Bureau, Business Applications: Total for All NAICS in the United States [BABATOTALSAUS], retrieved from FRED, Federal Reserve Bank of St. Louis; https://fred.stlouisfed.org/series/BABATOTALSAUS, seasonally-adjusted data through August 2021.
Does the labor force participation rate slope decline include gig economy participation?

From [https://www.bls.gov/cps/definitions.htm](https://www.bls.gov/cps/definitions.htm):

“The labor force participation rate represents the number of people in the labor force as a percentage of the civilian noninstitutional population. In other words, the participation rate is the percentage of the population that is either working or actively looking for work. The labor force includes all people age 16 and older who are classified as either employed and unemployed, as defined below. Conceptually, the labor force level is the number of people who are either working or actively looking for work.

In the Current Population Survey (CPS), people are classified as employed if, during the survey reference week, they meet any of the following criteria:

1. worked at least 1 hour as a paid employee (see wage and salary workers)

2. **worked at least 1 hour in their own business** [emphasis added], profession, trade, or farm (see self-employed)

3. were temporarily absent from their job, business, or farm, whether or not they were paid for the time off (see with a job, not at work)

4. worked without pay for a minimum of 15 hours in a business or farm owned by a member of their family (see unpaid family workers)

For criteria 1 and 2, the work must be for pay or profit; that is, the individual receives a wage or salary, profits or fees, or payment in kind (such as housing, meals, or supplies received in place of cash wages). For the self-employed, this includes those who intended to earn a profit but whose business or farm produced a loss. See the definition of self-employed for further details.
Each employed person is counted only once in aggregate employment statistics from the CPS, even if they hold more than one job.

The following are not considered employment in the CPS.

- volunteer work
- unpaid internships
- unpaid training programs
- training programs not sponsored by an employer, even if the trainee receives a public assistance payment for attending
- National Guard or Reserve duty (weekend or summer training)
- ownership in a business or farm solely for investment purposes, with no participation in its management or operation
- jury duty
- work around one's home such as cleaning, painting, repairing, or other housework or home improvement project.

The labor force participation rate is calculated as: (Labor Force ÷ Civilian Noninstitutional Population) x 100.

Aloha and thank you Paul. There are lifetime financial impacts on women’s time out of the workforce. Given the fact the pandemic has not been gender neutral, with more women leaving the workforce for family responsibilities, is there any early data on this or planned research to track this and hopefully help mitigate.

I may have referred to the work of Professor Stefania Albenesi at the University of Pittsburgh on this subject (see https://www.nber.org/papers/w28505 and her NBER YouTube presentation at https://www.youtube.com/watch?v=V3TnAI8HeG8), and her September 27, 2021 presentation to the National Association for Business Economics (at 2:06:00 of https://www.youtube.com/watch?v=rZvuLTmG27U; her presentation is preceded by Steve Davis from University of Chicago talking about working from home if that is of interest (1:48:20 of the same YouTube video)).

[Responding to an earlier reply] Actually, it didn’t answer my question. Should we be teaching coding as a basic skill in high school? Are we using a curriculum for a 20th century workforce? Should we be changing university requirements so liberal arts students have a minimum ability in technology so they can make a living in the 21st century.

I gave a much longer response to this separately and refer you to it. As a liberal arts student of the 1970s with classmates who invented much of the technology we use today, my personal experience was that knowing how the machines work and being able to make them work was an invaluable complement to an education in art history, medieval literature, scene design and stage lighting, and Slavic civilizations among many other things nerds might say was pointless. My advice to college students is to look around, pay attention, and engage at the forefront of knowledge in general. It’s not clear to me that this requires an arbitrary threshold of “minimum ability in technology” but, seriously, a kid would have to be living in a cave not to know that their mid-life neck problems will come from tilting their heads over to look at their smartphone screens too much. Their lives are immersed in this technology. How anybody could avoid knowing at least the rudimentary elements of how the technology around them works I have
trouble imagining. I never had trouble with my kids learning computers (and smartphones); for my parents—who learned by retrofitting—it was a heavier lift, but we all do it. Boomers learned it before you could Google the instructions or watch a YouTube video about how to do everything. It’s an opportunity, I’m sure today’s undergraduates can figure it out. Seems like kids today have mad technology skills; it’s the old dudes who need to keep up. But, to answer the question should kids learn to code in high school, which is not the same question as why isn’t everyone learning to code, me, I think everyone could be helped by learning some coding, at any age. But we don’t even require math in high school, do we, any more? Arts education? Does that even exist? Coding is how one does math, how one enhances streaming content, or scrapes databases. It’s a tool that ought to be an integral part of lots of education. I’ve taken coding classes—they’re ubiquitous—but I’m thinking that learning it in a context is as good as plowing through a semester of R or Python. These are kids who are going to participate in the metaworkplace, they will want to know some coding. But that doesn’t mean everybody has to be a coder. It’s not the same thing as saying coding skills should be a graduation requirement, but it seems unavoidable to me that it would be integrated in lots of curricula.

Paul your slide that college degrees are a lifetime income differentiator over non-degreed individuals, so given that we are encouraging industry-recognized credentials (like in coding), boot-camps in Computer Science, and apprenticeship beyond skilled trades, do you think these credentials will hold for lifetime earnings?

Let me respond by citing Ian Yohai, Director, Growth & Membership Data Science & Engineering at Netflix from a recent webinar (National Association for Business Economics (NABE) CBE Webinar Series, Part 1: Economics Careers in Entertainment, October 13, 2021 (NABE Certified Business Economist program)). It’s an extreme version of your question which this webinar participants contemplated, but it has the same flavor as yours. The webinar moderator, Carolyn Evans, Chief Economist, at Intel asked the following question, to which I cite one panelist’s reply.
Evans: “For those people without PhDs but who want to work in some sort of high-level data analysis/applied economics role at any of these companies what are your opinions on the necessity of a doctorate? Do you find your dissertations prepared you for your roles today?”

Yohai: “It’s really about the mental model more than anything else because I think the skills can be acquired a number of ways. I would say that if you have a Masters degree and you’ve demonstrated or maybe it’s through early career you have some experience it’s not like you won’t be eligible for any positions if you don’t have a PhD, it’s really about, through the interview process, being able to articulate the type of work you’ve done and the kinds of problems you work on. I think the PhD is more about the training, but if you are able to pick that up through other means through work experience or outside interests or whatnot that can totally qualify you—at least at Netflix—for any of the positions that we have.”

I have no doubt that staying the course of a conventional academic arc, pursuing an undergraduate education shortly after, preferably immediately after high school, and doing graduate work as an extension or—when in a field such as business or law some experience can help—fitting advance degrees into a longer arc, is fruitful. There is a reason the standard approach and timetable exist: they are effective. Having said that, I interrupted my graduate education twice, once to teach undergraduate theory and a second time to go into banking; I finished my doctorate just after I turned 49. I do not commend this approach to anyone, but I learned a hella lot of financial risk analytics between the Latin American debt crisis, the S&L Crisis, the Asian Financial Crisis, and the Sub-Prime Financial Crisis from experience in an international banking organization so, no, I wouldn’t trade it for a PhD at the age of 25. Still, I have friends who got their undergraduate degrees and became firefighters and water safety officers or spent a working lifetime in military service: do I think they know how to code? Beats me, one of them can fly an F-15 so, that’s cool. Every one of them is doing something else now, and I’m not in banking, but yes on average higher educational attainment is an unambiguous predictor—if not a guarantee as many will tell you—of higher lifetime earnings. I would think it imprudent to bet against it. The only coding class I ever took (at community college) was in
BASIC in the 1970s, but I have learned to work with many others over time so, yes I think coding skills contribute, but coding changes like everything else so you’re never done learning.

Let’s remind ourselves of the data we are talking about (and recall that your mileage may vary based on gender and historical specificity):

**U.S. real earnings by educational attainment and consumer price inflation**

![Graph showing real earnings index and inflation over time]


I know many undeserving individuals and I met a disproportionate number of them in my banking career who did not obviously seem to have earned their wealth or financial status. In intermediate school I would have said they deserved a false crack. Life is unfair. Deal with it.
Not learning modern skills while living in the modern world doesn’t make any sense to me. There are many pathways to learnings but the path with least resistance seems to be school and college. The data showing that schooling pays off simply validate what should be obvious to everyone by taking five seconds to look around. The corollary (and this I say from experience), is that much of what you learn will be superseded in 30 years anyway, so we’re not just talking about undergraduate education here. We’re talking a lifetime of human capital formation. The people with stronger foundations are able to prosper later from upgrades in a way those without the foundation cannot. Skills beget skills, as James Heckman articulated so powerfully in a lifetime body of research on early childhood skills acquisition (https://www.nber.org/papers/w14064).

Is there any comparison to The Third Wave by Toffler?

I never read The Third Wave (1980) by Alvin Toffler and, earlier, confused it with the first of his series, Future Shock (1970). The latter was something “everybody” was reading when I was in high school (everybody except me). As a consequence of my ignorance, I can’t really comment on how much Toffler anticipated that has become true but I imagine it is a lot although I was sure, studying graduate economics during the 1970s, that most of what people were anxious about during the 1970s—The Limits to Growth comes to mind—was in their head. Still, it is fascinating to think about what people who spend a lot of time rigorously conceiving alternative future states of the economy have to say about it, even if my tendency over the last 40-50 years has been to be skeptical, on balance. The things they get right are interesting, but other the extrapolations often undermine their contribution. As I say, I never read The Third Wave, but I am inclined to say that many futurists will be proven correct. Toffler may be one. Another is Hawaii’s own Futurist, UH Professor Jim Dator with whom I have shared a podium once or thrice, puzzled yet intrigued by what he had to say. I tend to live life like PeeWee Herman who, at the end of his Big Adventure, when Dottie asks if he isn’t going to watch the drive-in biopic movie version, responds, “I don’t have to watch it, I lived it.”