AUA American University of Armenia
AVEDISIAN CENTER for BUSINESS RESEARCH & DEVELOPMENT

AUA American University of Armenia
MANOOGIAN COLLEGE of BUSINESS & ECONOMICS

COVID-19 AND WORKING FROM HOME: WHAT ARE THE GLOBAL AND LOCAL TRENDS?

CENTER FOR BUSINESS RESEARCH AND DEVELOPMENT RESEARCH NOTE

JULY 2020
YEREVAN, ARMENIA

COVID-19 AND WORKING FROM HOME: WHAT ARE THE GLOBAL AND LOCAL TRENDS?

VACHE GABRIELYAN, PhD
Manoogian Simone College of Business and Economics
American University of Armenia

Key Findings

- The pandemic forced a significant switch to work at home mode for many employees across the globe, with more variation across industries than across countries. With ILO estimating one in six having the capacity of work at home in developing countries and one in 4 in advanced economies, our survey shows roughly 1 in 5 working at home during pandemic.

- Work at home is much more common in industries with better educated and better paid workers, with finance and ICT being prominent. However, the industry switching the most to work at home mode under pandemic is education.

- The group taking most advantage of this opportunity are the highly educated and younger professionals, while similar professionals in managerial positions still feel obliged to regularly visit their workplace.

- The remote work in its latest incarnation of "work from anywhere" will not fade away even after the COVID-19 crisis ends, so there should be gradual preparation for the new normal for labor relations.

The pandemic is having significant impact on the nature of work. Suddenly, it appears to be the main thrust of the pandemic. While the COVID19 pandemic is a crisis, it is of a different sort, one with solutions different from others before. It seems that liquidity is an issue, but not the dominant one, that safety nets are as important for the economy as supply chain bottlenecks, and that office space transformation is closely connected to digital transformation. Most importantly, sustained maintenance of labor is seen as the ultimate bottleneck in the service industries employing a highly qualified workforce.

One of the significant trends is switching to working from home. While some see it as the panacea epitomizing extreme social distancing, others see it as a nuclear option of last resort that threatens company culture.

Structural Empowerment for Work from Home

Prior to the COVID-19 pandemic, the International Labor Organization (ILO) estimated that 7.9% of the world's workforce worked from home on a permanent basis, with employees accounting for only one out of five home-based workers worldwide, with great variation among countries. Globally, among employees, 2.9% were working exclusively or mainly from their home before the COVID-19 pandemic (ILO 2020). There are estimates for the capacity of tele-working for the globe (Berg et al. 2020), developed (Bartik et al., 2020), middle-income (Koczan and Plekhanov, 2020) and developing countries (Saltiel, 2020).

Governments around the world are trying to encourage more intensive use of Information and communication technology (ICT) as an instrument to fight the pandemic. The potential for working from home varies across the world. It depends both on the enabling infrastructure and the structure of the workforce.

Chakravorti and Chaturvedi (2020) estimate "social distance readiness" of various economies (appendix 1) using three indices:

- Robustness of key platforms — technology-mediated remote work, e-commerce, digital media and the country's digital foundations — key to business continuity;
- Proliferation and resilience of digital payment options to facilitate transactions;
- Resilience of the internet infrastructure to traffic surges.

They mention that it is not about income level only; robustness of platforms is also important. Similarly, they note, that "Readiness is not matched by social distancing mandates, and vice versa: Despite being the best prepared, Singapore and the Netherlands have pursued more measured paths to social distancing."

On the workforce structure part, Dingel and Neiman (2020) seem to fashion the most popular approach, repeated (through variations) by many. They determine the teleworkability of occupations by assessing the importance of workers' presence at the workplace using task information. They use

> surveys describing the typical experience of US workers in nearly 1,000 occupations to classify each occupation as able or unable to be done entirely from home and find that 37 percent of jobs in the United States can be performed entirely at home, with significant variation across cities and industries. These jobs typically pay more than jobs that cannot be done at home and account for 46 percent of all US wages. Applying our occupational classification to 85 other countries reveals that lower-income economies have a lower share of jobs that can be done at home. Developing and emerging market countries with per capita GDP levels below one-third of US levels may only have half as many jobs that can be done from home (p. 3).

ILO (2020) finds that

> while not all occupations can be done at home, many could−approximately one in six at the global level and just over one in four in advanced countries−but that the potential to do so requires, at a minimum, that countries make the necessary investments in improving telecommunications infrastructure. Other digital advances such as digital authentication and mobile banking and mobile payment systems can potentially allow more occupations to continue their activities. Future investments in housing could relieve overcrowding, making it more feasible for people to work from home, or at least to be more productive whilst working from home.

Fernando Saltiel from Duke University (2020) uses World Bank-sponsored worker-level data on task content from the Skills Toward Employability and Productivity (STEP) survey, which follows workers in urban areas across ten low- and middle-income countries, including Armenia. He finds

> There are important differences in the feasibility of working from home across countries in high-paying occupations. For instance, 14% of managers in Bolivia may do so, compared to 60% of

their peers in Vietnam. Similarly, just 18% of professionals in Armenia can work from home, relative to 39% of their counterparts in Laos (p. 7).

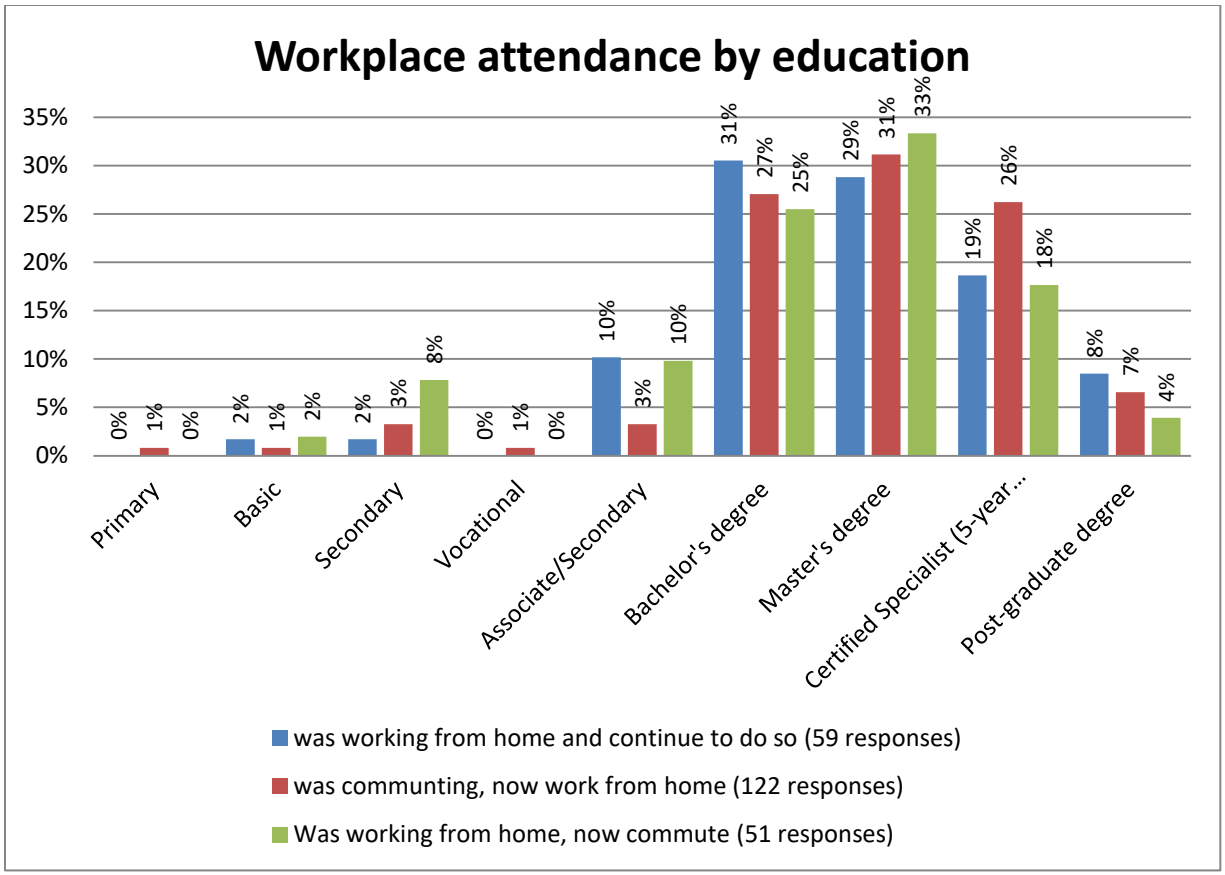
Analyzing the patterns, Saltiel comes up with worker characteristics that do not enable working from home. For Armenia, it seems that high school dropouts above 40, who not surprisingly are not very rich, do not stand a chance of remote work (see appendix 2).

Situation in Armenia

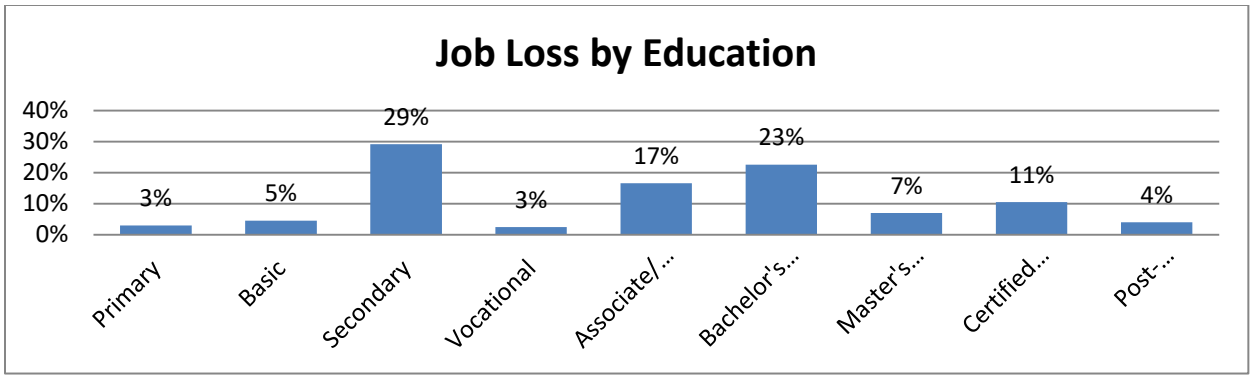
Let's discuss the empirical situation in Armenia. The Center for Business Research and Development at AUA conducted a phone survey in late May of 2020. Over 1300 working-age respondents from various regions of Armenia - both rural and urban - answered a set of questions using their own smart devices, in return for entry into a lottery.

It seems that as everywhere else in the world, we have the pattern of the most skillful labor being exposed the least to the negative consequences of the Coronavirus shock, while the ones with lesser education and experience bear the bulk of the costs.

What were the patterns of remote working by education? Those who have switched from commuting to remote working, mostly have higher education. Those holding a Master's degree have a non-significant edge over those who have a BA degree or Soviet 5-year education (the older generation, who has significantly different lower level of people initially working from home). The most interesting phenomenon here is the high ratio of people who used to work from home, but now commute. Volume-wise, though, those who switched from commuting to work is equal to the sum of the people who used to work at home before and had a back to commuting switch. For people without higher education, the ability to switch to remote work is miniscule.

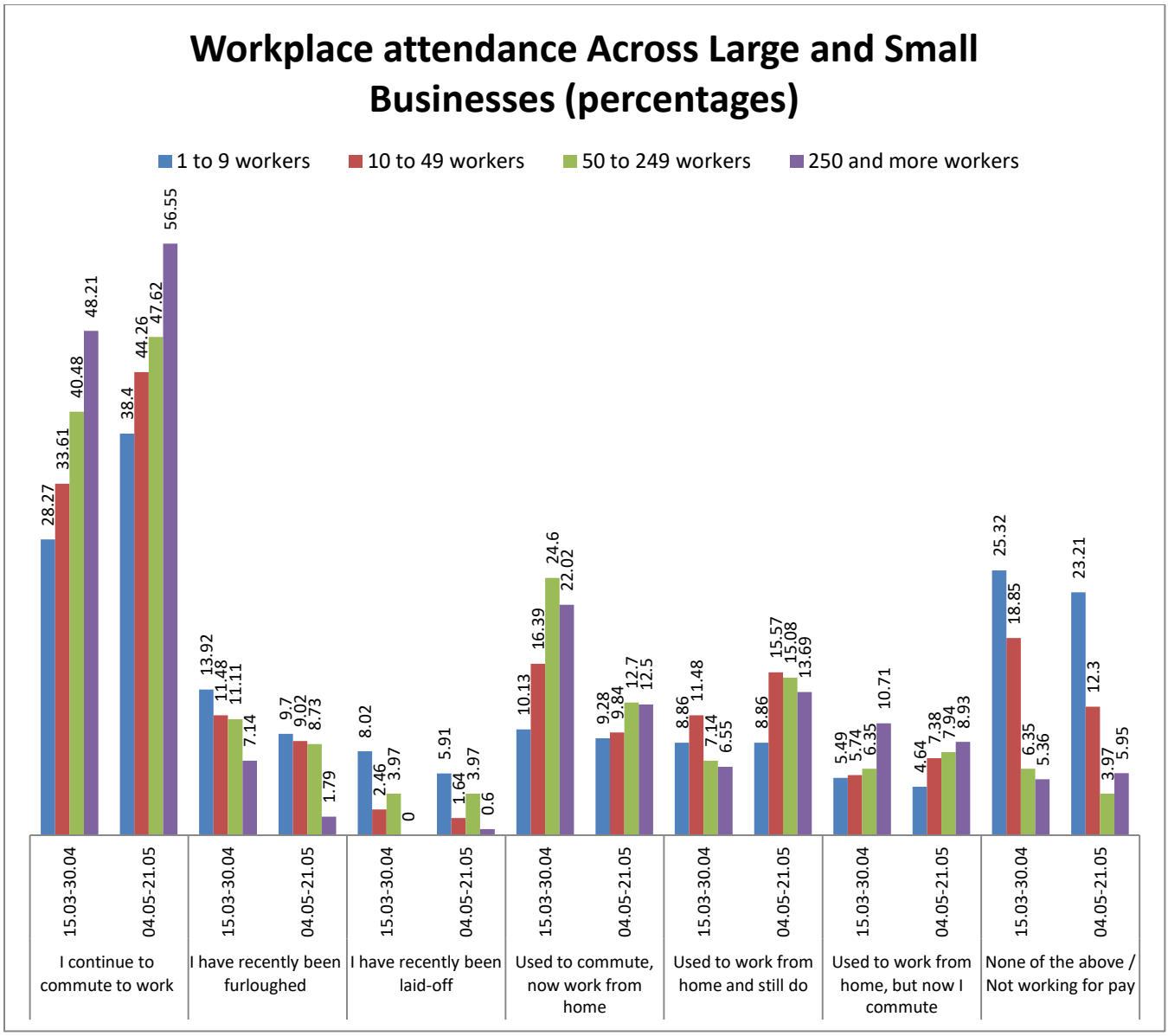


On the other hand, they are the ones that have lost jobs the most, followed by the younger BA degree holders. Robert Reich (1991) proposes three categories to represent "the three different competitive positions" for labor: a) routine production services; b) in-person services, and c) symbolic-analytic services. It seems that those engaged in symbolic-analytic services have the mobility and means (access and equipment) working from home. These younger Bachelor degree holders in all likelihood are those who are engaged in in-person or routine production services, where experience is important.

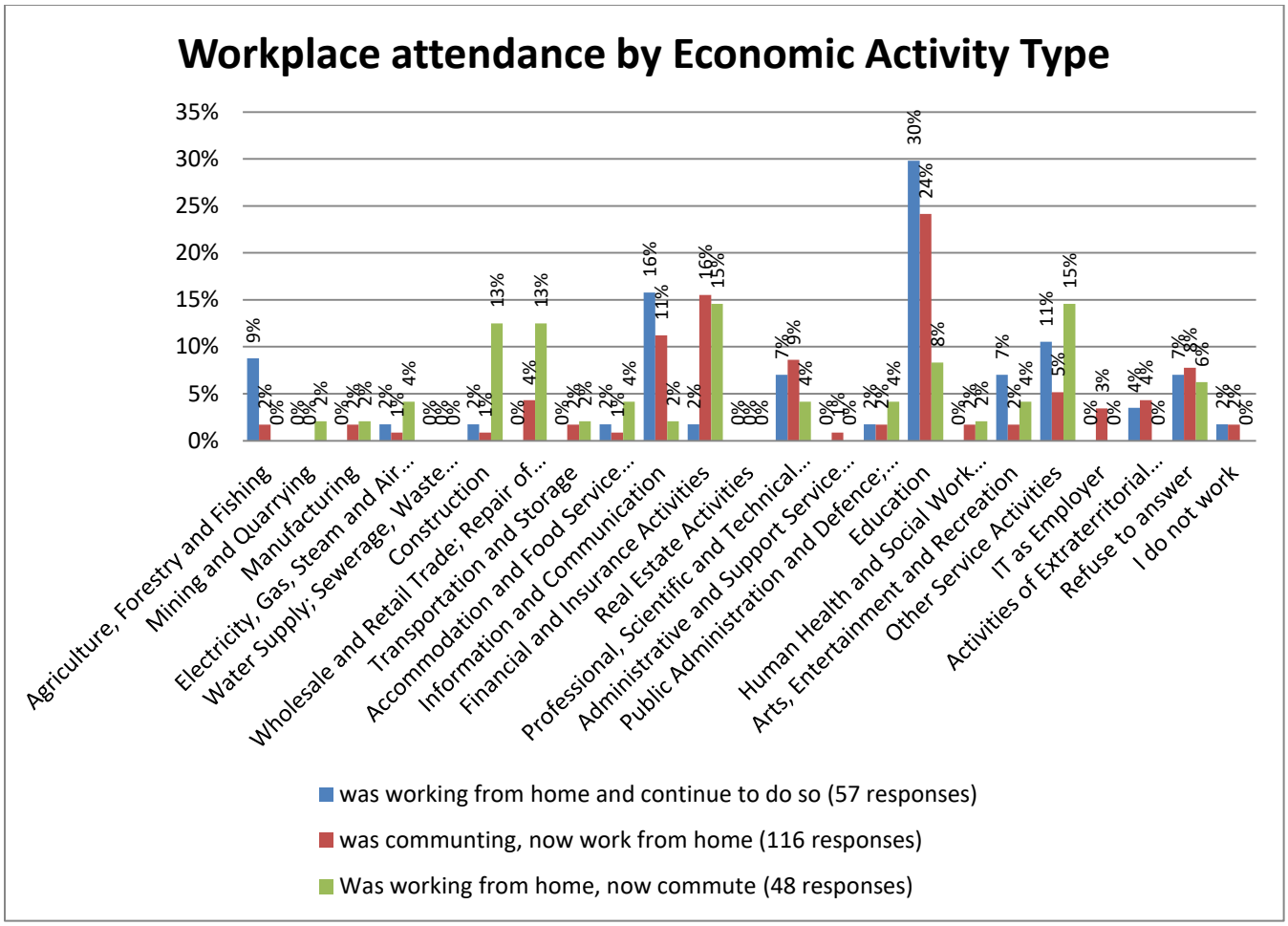


Extra-small companies (1-9 employees, on average 3-4) have twice the ratio of laid-off employees, while the highest percentage of people switching to remote are in medium companies (from 50 to 249 employees). The larger companies had both the more stable work force and the largest ratio of those who continued to commute to work.

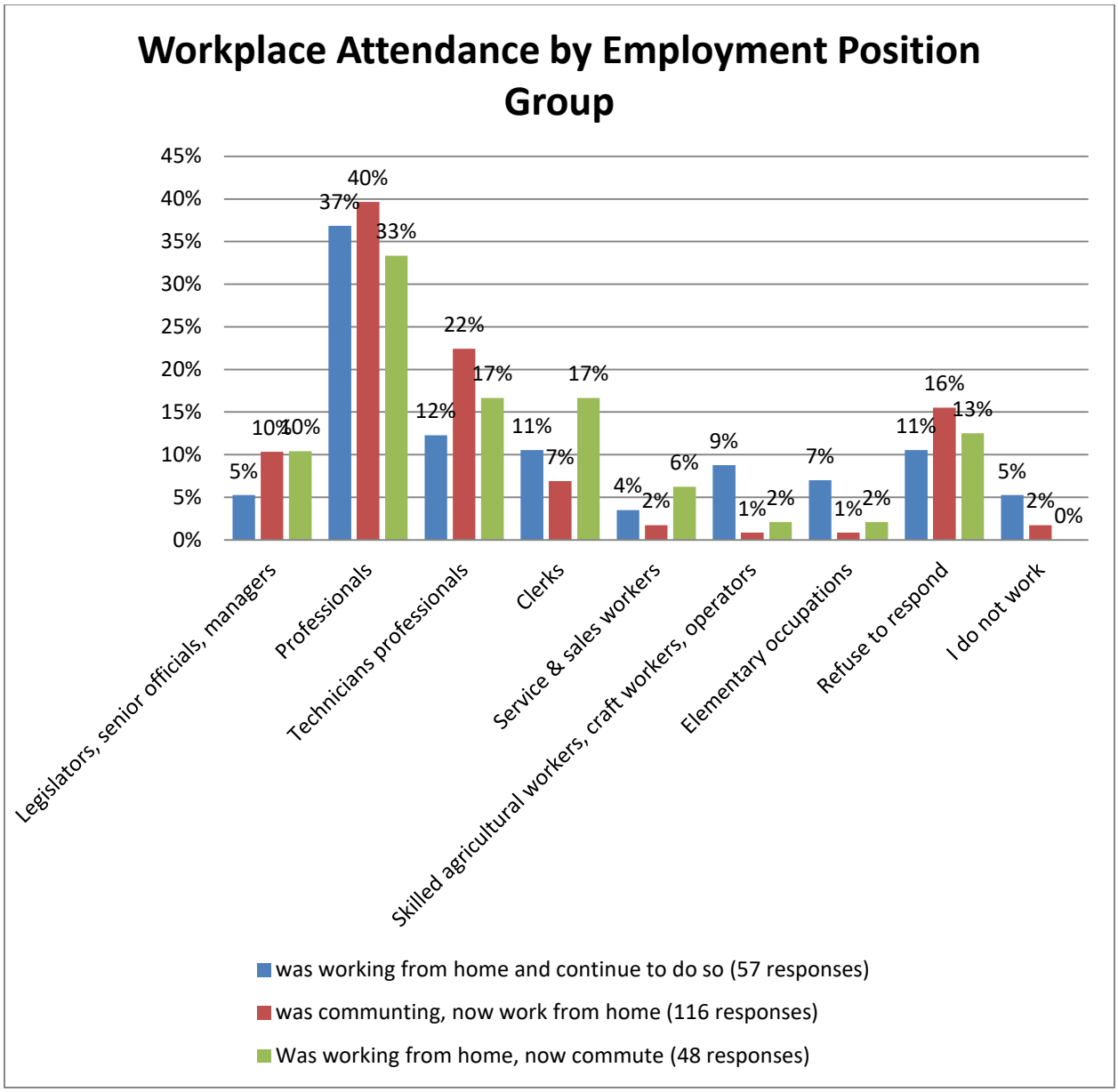
The interesting phenomenon of people who used to work from home, but now commute is more prevalent in larger companies, while the ones with more people working from home both before and after are in the small (up to 50 employees) companies. The large amount of people working during lockdown explains also the prevalence of disease later.



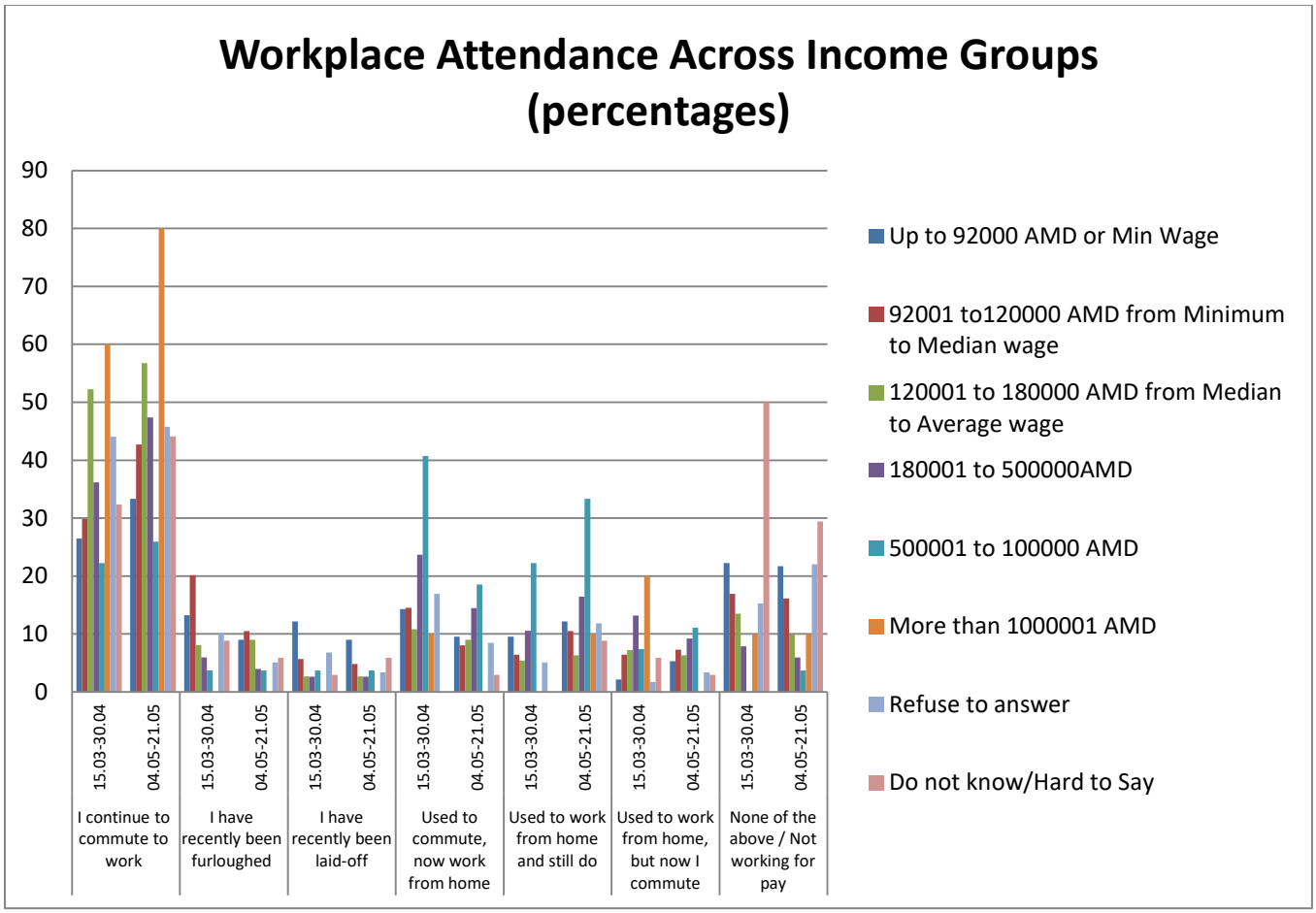
As expected, workers in three industries—information and communications, financial and insurance, and education have the highest rates of working from home conversion. It is interesting to note the abnormally high ratio of education—which would have been different several years ago. This attests about the level of ICT penetration, when not only most universities, but schools as well started to actively use Zoom and other teleconferencing software. Some argue, that as opposed to the finance and insurance industry, the after-COVID landscape will bring down this surge, while, say, the insurance industry workspace will be more akin to tech companies.



Of different employment groups, professionals have the most flexible schedules. While the low numbers of elementary occupations is within the expectations, the lower number of the managerial groups shows that management often worked from office, and perhaps using more "regular" means of telecommunications like e-mails, rather than Slack or new-generation office assistant software. While the ready availability of electronic communications with the banks and tax office, one lacking infrastructure is low usage of electronic signatures in everyday business transactions. So, Management Oblige seems an important factor distinguishing this group's workplace attendance pattern from other professionals.

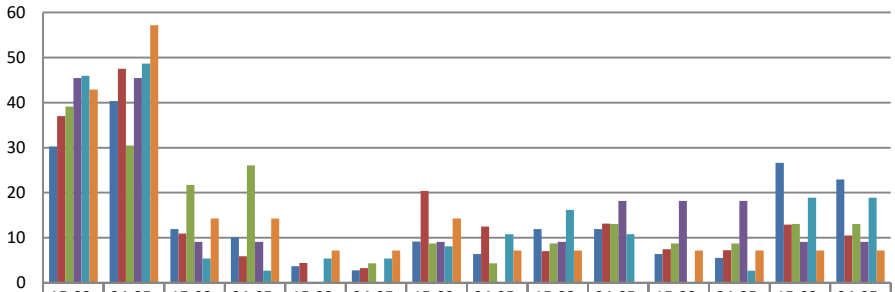


Exactly the same phenomenon is when we look at income levels. The highest earning group has staggering 60% workplace attendance during lockdown, while the second-highest group has the highest working from home switch rate. Although there are no data in our database on the assets of the respondents, we may assume that most of the professionals in that income groups own individual cars, and not commuting is not a transportation restraint, thus proving the Management Oblige hypothesis.



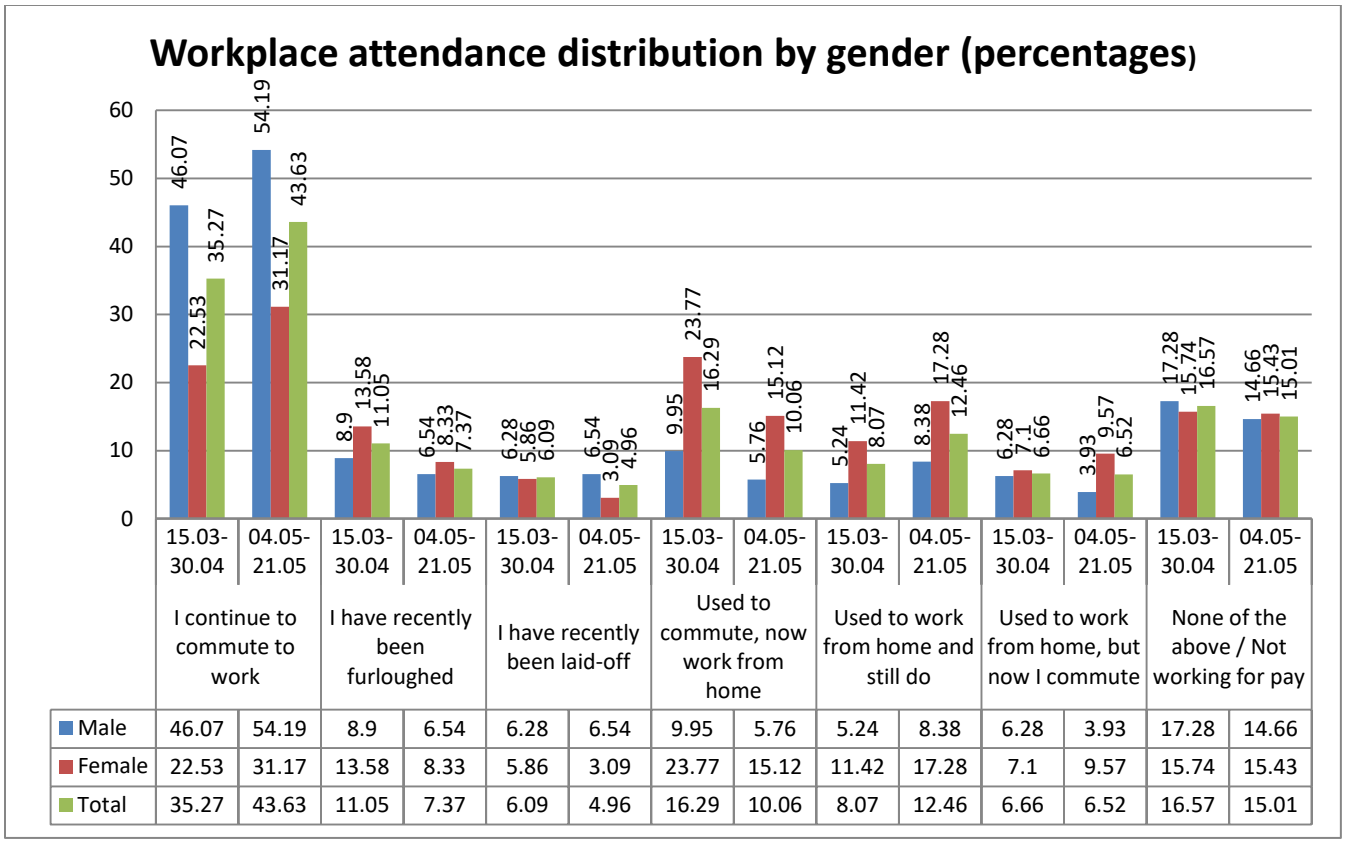
Workplace attendance by employment relationship type also confirm the pattern—the ones switching to work from home mode are mostly employees, they double the rate of those who run business. Perhaps there is some noise with the Apprentice employment pattern (as a very low number overall skews the figures), or unpaid help in the household business switching from work at home to commuting. There is another interesting pattern is that during lockdown domestic workers (many perhaps non-registered) took the heat—most working mothers at home and the likelihood of spreading the virus through public transportation put them on furlough at the highest rate.

Workplace Attendance Across Different Types of Employment Relationships (Percentages)



	15.03-30.04	04.05-21.05	15.03-30.04	04.05-21.05	15.03-30.04	04.05-21.05	15.03-30.04	04.05-21.05	15.03-30.04	04.05-21.05	15.03-30.04	04.05-21.05	15.03-30.04	04.05-21.05
	I continue to commute to work		I have recently been furloughed		I have recently been laid-off		Used to commute, now work from home		Used to work from home and still do		Used to work from home, but now I commute		None of the above / Not working for pay	
Run or do any kind of business	30.28	40.37	11.93	10.09	3.67	2.75	9.17	6.42	11.93	11.93	6.42	5.5	26.61	22.94
Work as an employee	36.98	47.48	10.94	5.91	4.38	3.28	20.35	12.47	7	13.13	7.44	7.22	12.91	10.5
Work for a private employer as a domestic worker	39.13	30.43	21.74	26.09	0	4.35	8.7	4.35	8.7	13.04	8.7	8.7	13.04	13.04
Help unpaid in a household business	45.45	45.45	9.09	9.09	0	0	9.09	0	9.09	18.18	18.18	18.18	9.09	9.09
Engaged in agriculture or animal husbandry	45.95	48.65	5.41	2.7	5.41	5.41	8.11	10.81	16.22	10.81	0	2.7	18.92	18.92
Work as ан Intern or Apprentice	42.86	57.14	14.29	14.29	7.14	7.14	14.29	7.14	7.14	0	7.14	7.14	7.14	7.14

Last, but not the least, let's look at the gender pattern of the workplace attendance. While it does not seem there is significant difference of men and women being laid off during the lockdown, it seems that immediately after lockdown more men were laid off. The interesting pattern is though, more than twice the number of women switching to working from home. I would argue that it is not the sheer benevolence of male employees exhibiting unprecedented acts of chivalry. I suppose it should be rather the structural glass ceiling effect, when women with similar qualifications are not in the managerial group, but in the professional one. So, while education and income group and industry may be similar, Management Oblige supposes at least partial workplace attendance by the management, while professionals (lawyers, accountants, etc.) can work from home. A more focused study of gender patterns accounting for industry, employment relationship and position may unveil this gender-specific structural effect in more vivid detail.



Conclusions

Adams-Prassl et al. (2020) conclude, based on US and UK data, that "negative consequences are particularly harsh for younger workers, those with unstable employment relationships and lower labour income." Bartik et al. (2020) conclude:

> …we provide results from firm surveys on both small and large businesses on the prevalence and productivity of remote work, and expectations about the persistence of remote work once the COVID-19 crisis ends. We present four main findings. ***First***, while overall levels of remote work are high, there is considerable variation across industries. .... ***Second***, remote work is much more common in industries with better educated and better paid workers. ***Third***, … employers think that there has been less productivity loss from remote working in better educated and higher paid industries. ***Fourth***, more than one-third of firms that had employees switch to remote work believe that ***remote work will remain more common at their company even after the COVID-19 crisis ends***.

As we have seen, Armenia by and large represents the same patterns, with the possible exception of the field of education. If we are speaking about secondary education, while the teachers may be better educated than median Armenian, they are not better paid—a lot of them get below the median salary, and most get below an average wage. They sit on the junction of Robert Reich's (1991) definition of "symbolic analysts" and "in-person services," with the difference that technology today enables remote rendering of "in-person services."

This ascendance of mobile "symbolic analysts" entails a plethora of questions about the future of work, starting from

- office layout/design (Holder, 2020) to the idea of new residential housing to have a built-in teleconferencing capacity to
- the flexibility of work at home staying far longer than pandemic (Miller, 2020) to working from anywhere schemes (Choudhury et al.) to
- legally redefining, as the Finns do, the concept of a 'workplace' with a more neutral concept 'working place', meaning that the working hours will no longer be tied to a specific place of work (Savage 2019) to
- stemming from here new regulations both for accounting and labor protection to
- psychological and physiological consequences of staying at home.

References

Adams-Prassl, A., T. Boneva, M. Golin & C. Rauh. (2020, April 08), The Large and Unequal Impact of COVID-19 on Workers. *VoxEU*. Retrieved from https://voxeu.org/article/large-and-unequal-impact-covid-19-workers

Alipour, J.V., Falck, O. & Schüller, S. (2020). **Germany's Capacities to Work from Home**. *IZA Discussion Papers* 13152, Institute of Labor Economics (IZA).

Bartik, A.W., Cullen, Z.B., Glaeser, E.L., Luca, M. & Stanton, C.T. (2020). What Jobs are Being Done at Home During the Covid-19 Crisis? Evidence from Firm-Level Surveys. *NBER Working Papers* 27422, National Bureau of Economic Research, Inc.

Berg, J., F. Bonnet & S. Soares (2020, May 11), Working from home: Estimating the worldwide potential. *VoxEU*. Retrieved from https://voxeu.org/article/working-home-estimating-worldwide-potential

Chakravorti, B. and Chaturvedi, R. S. (2020, April). Which Countries Were (And Weren't) Ready for Remote Work? *Harvard Business Review*. Retrieved from https://hbr.org/2020/04/which-countries-were-and-werent-ready-for-remote-work

Choudhury, P., C. Foroughi & B. Larson. (2019). Work-from-anywhere: The Productivity Effects of Geographic Flexibility. *Harvard Business School Working Paper 19-054*, Retrieved from https://www.hbs.edu/faculty/Publication%20Files/19-054_2ecb5287-d0bd-4aa0-b3d8-36fb44b757b4.pdf

Gottlieb, C., J. Grobovsek & M. Poschke. (2020, April 22). Working from Home across Countries. *Covid Economics: Vetted and Real-Time Papers* 8.

Dingel, J. and B. Neiman. (2020, April 3). How Many Jobs Can be Done at Home? *Covid Economics: Vetted and Real-Time Papers* 1.

Dingel, J and B Neiman. (2020). Who Can Work from Home? *University of Chicago*.

Fadinger, H. and J. Schymik. (2020). The Effects of Working from Home on Covid-19 Infections and Production: A Macroeconomic Analysis for Germany. *CRC Discussion Paper No 167*.

Holder, S. (2020). Even the Pandemic Can't Kill the Open-Plan Office. *CityLab*. Retrieved from https://www.citylab.com/life/2020/05/open-office-design-coronavirus-risk-safe-workplace-health/611299/

ILO. (2020). Working from Home: Estimating the worldwide potential. *ILO policy brief*.

Miller, C. (2020, July 2). Is the Five-day Office Week Over? *The New York Times*. Retrieved from https://www.nytimes.com/2020/07/02/upshot/is-the-five-day-office-week-over.html

Reich, R. (1991). *The Work of Nations: Preparing Ourselves for 2lst-Century Capitalism*. New York: Knopf.

Saltiel, F. (2020, April 17). Who Can Work From Home in Developing Countries? *Covid Economics, Vetted and Real-Time Papers* 6.

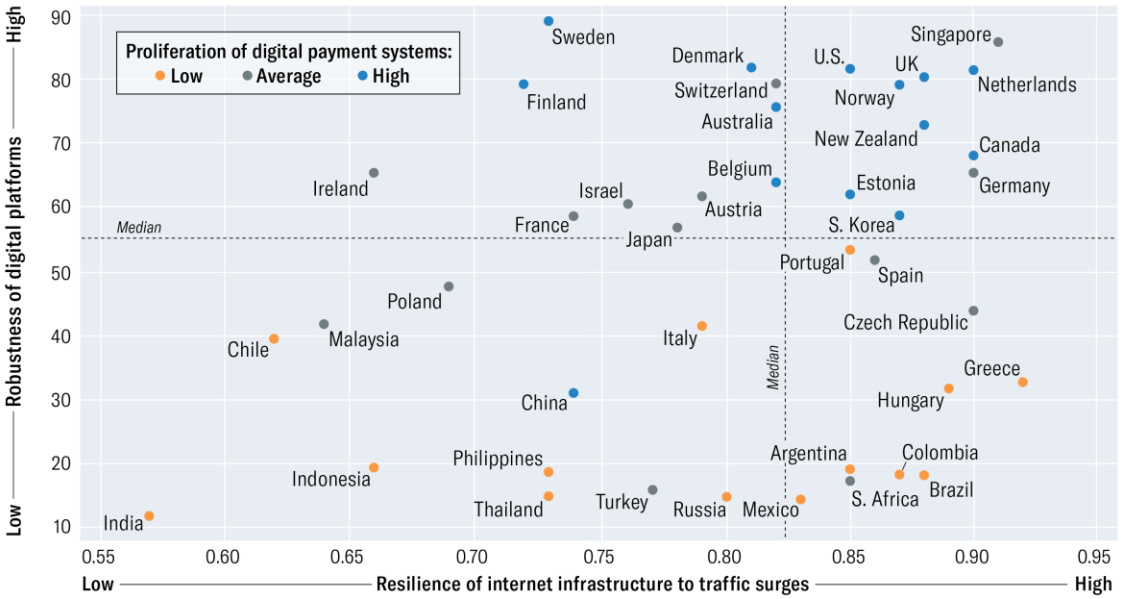
Savage, M. (2019, August 9). Why Finland Leads the World in Flexible Work. *BBC.com*. Retrieved from https://www.bbc.com/worklife/article/20190807-why-finland-leads-the-world-in-flexible-work

Appendix

Chart 1

How Prepared Are Countries to Work from a Distance?

Digital payments, internet infrastructure, and digital platforms all dictate how smoothly we can switch to socially distanced work. Here's how the economies of 42 countries stack up.



Note: Payment system data adapted from DEI 2017 and World Bank Global Findex measures. "Robustness" is an index of three *Ease of Doing Digital Business* platform scores — e-commerce (20%), digital media (20%), and freelance (20%) — and the digital foundations 2019 score (40%). "Resilience" is calculated by dividing the 4G download speed at the slowest hour of day by the average 4G download speed.
Source: Fletcher School at Tufts University

HBR

Source: Chakravorti and Chaturvedi (2020)

Chart 2

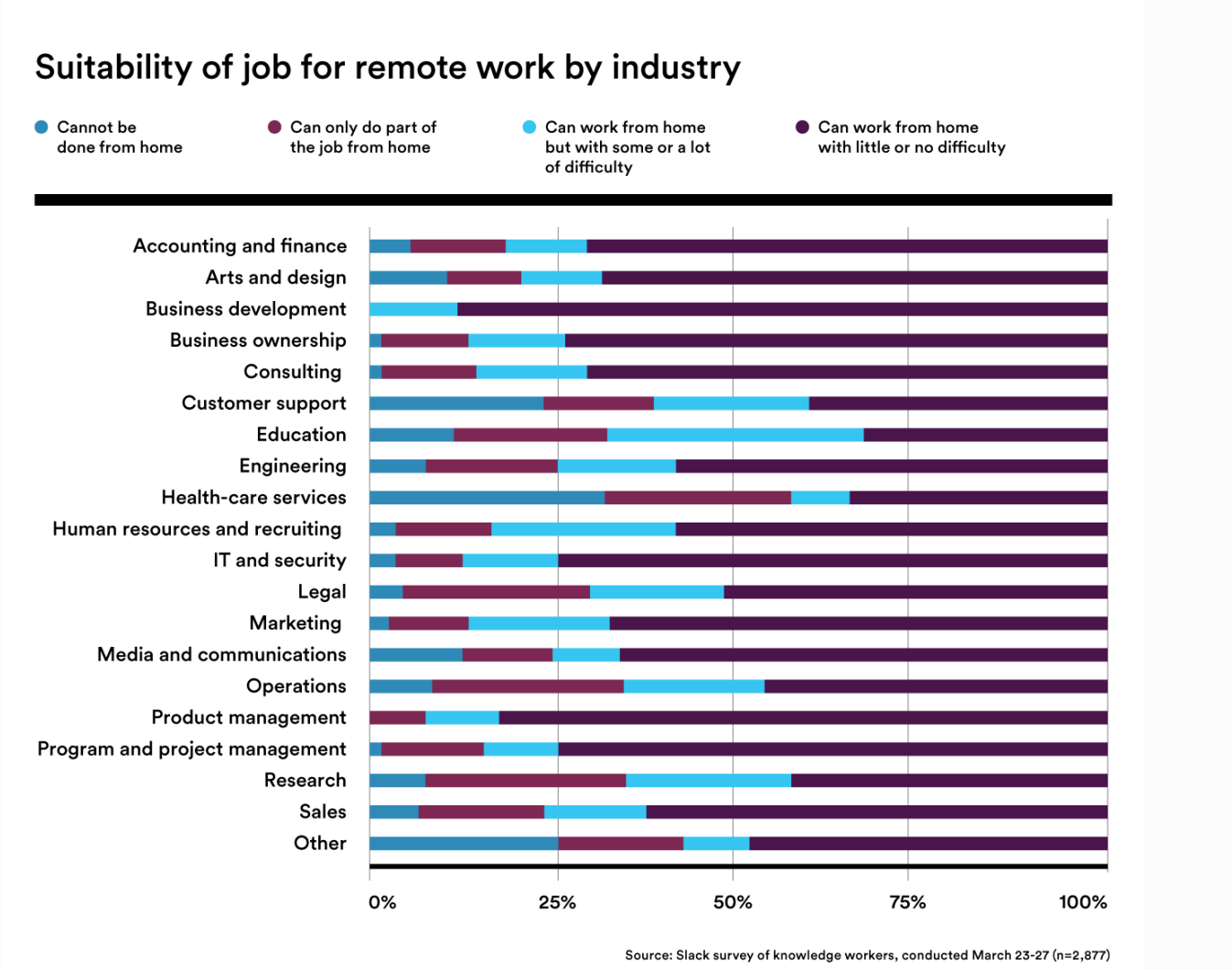
Table 3: Worker Characteristics Associated with **Not** Working from Home, By Country

	Armenia (1)	Bolivia (2)	China (3)	Colombia (4)	Georgia (5)	Ghana (6)	Kenya (7)	Laos (8)	Macedonia (9)	Vietnam (10)
HS Dropout	0.103***	0.095***	0.162***	0.156***	0.182**	0.113***	0.083***	0.121***	0.170***	0.220***
	(0.028)	(0.015)	(0.027)	(0.018)	(0.074)	(0.012)	(0.013)	(0.016)	(0.035)	(0.018)
Age > 40	0.089***	-0.001	-0.004	0.044***	0.058**	0.005	-0.008	0.040***	0.017	0.067***
	(0.023)	(0.016)	(0.024)	(0.016)	(0.027)	(0.010)	(0.014)	(0.014)	(0.019)	(0.016)
Male	0.034	0.020	0.096***	0.078***	0.073***	0.006	0.015	0.020	0.072***	0.106***
	(0.023)	(0.015)	(0.023)	(0.016)	(0.028)	(0.010)	(0.012)	(0.014)	(0.019)	(0.016)
Bottom Asset Quintile	0.086***	0.083***	0.071**	0.097***	0.088**	0.013	0.064***	0.009	0.126***	0.085***
	(0.030)	(0.018)	(0.031)	(0.020)	(0.035)	(0.012)	(0.015)	(0.016)	(0.029)	(0.020)
Self-Employed	0.023	0.063***	0.172***	-0.009	0.103**	0.031**	0.046***	0.081***	0.059**	0.060***
	(0.045)	(0.017)	(0.035)	(0.020)	(0.041)	(0.012)	(0.013)	(0.017)	(0.030)	(0.019)
Informal	0.053	0.094***	0.036	0.034	0.097***	0.117***	0.170***	0.210***	-0.036	0.134***
	(0.038)	(0.020)	(0.026)	(0.021)	(0.029)	(0.016)	(0.016)	(0.023)	(0.031)	(0.020)
Observations	995	1691	1239	1695	927	2074	2327	1390	1806	2176
R^2	0.053	0.099	0.104	0.096	0.063	0.158	0.138	0.255	0.043	0.220

Source: Skills Toward Employability and Productivity (STEP) Survey.
Note: Standard errors in parentheses. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$. Table 3 presents the estimated coefficients from equation (1) separately for each country in the sample. Results are weighted using sample weights to represent the working-age population of 15-64 year olds.

Source: Saltiel (2020).

Chart 3



https://slackhq.com/report-remote-work-during-coronavirus

Chart 4

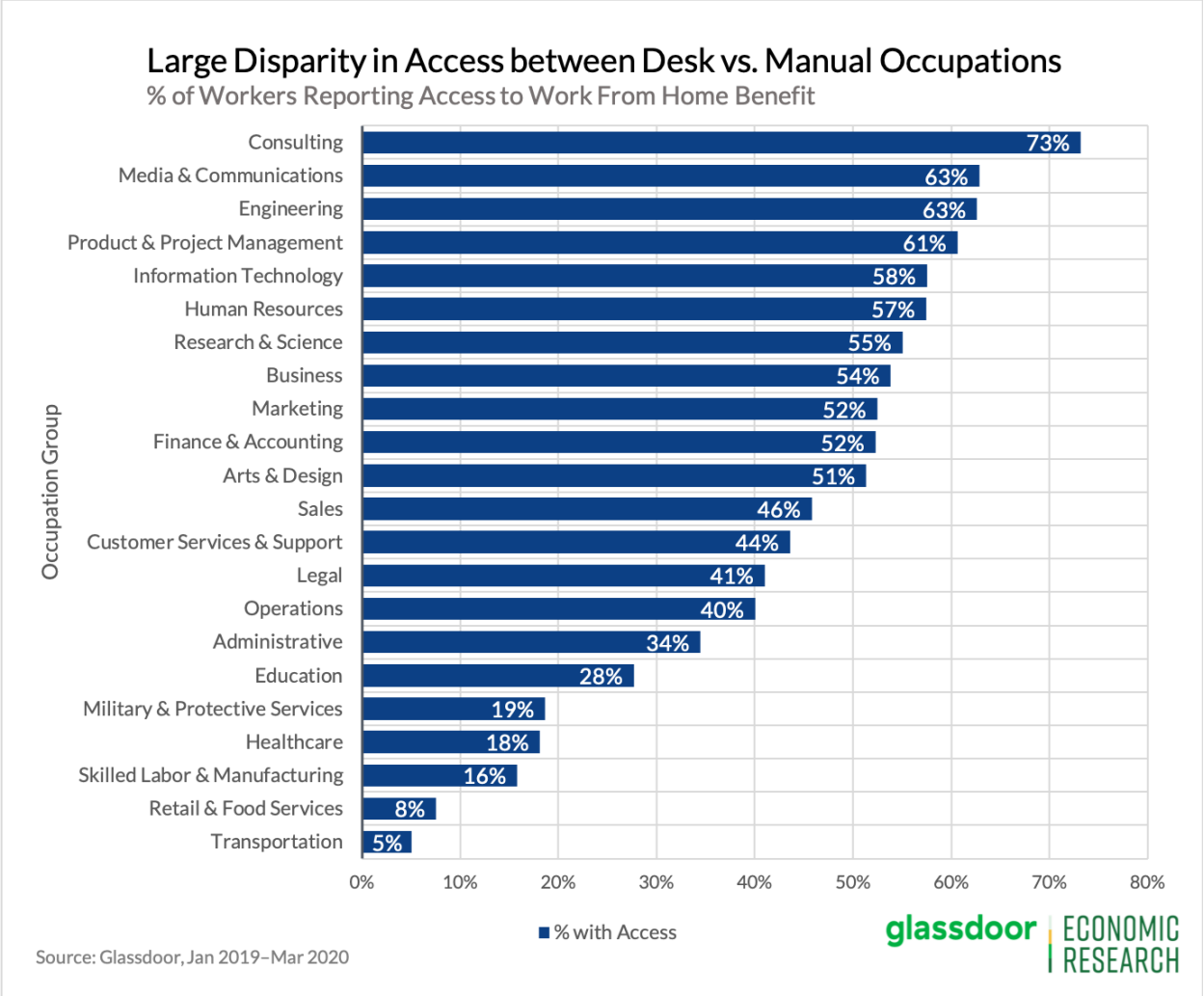

Large Disparity in Access between Desk vs. Manual Occupations
% of Workers Reporting Access to Work From Home Benefit
Occupation Group
Consulting 73%
Media & Communications 63%
Engineering 63%
Product & Project Management 61%
Information Technology 58%
Human Resources 57%
Research & Science 55%
Business 54%
Marketing 52%
Finance & Accounting 52%
Arts & Design 51%
Sales 46%
Customer Services & Support 44%
Legal 41%
Operations 40%
Administrative 34%
Education 28%
Military & Protective Services 19%
Healthcare 18%
Skilled Labor & Manufacturing 16%
Retail & Food Services 8%
Transportation 5%
0% 10% 20% 30% 40% 50% 60% 70% 80%
% with Access
glassdoor ECONOMIC RESEARCH
Source: Glassdoor, Jan 2019–Mar 2020

Chart 5

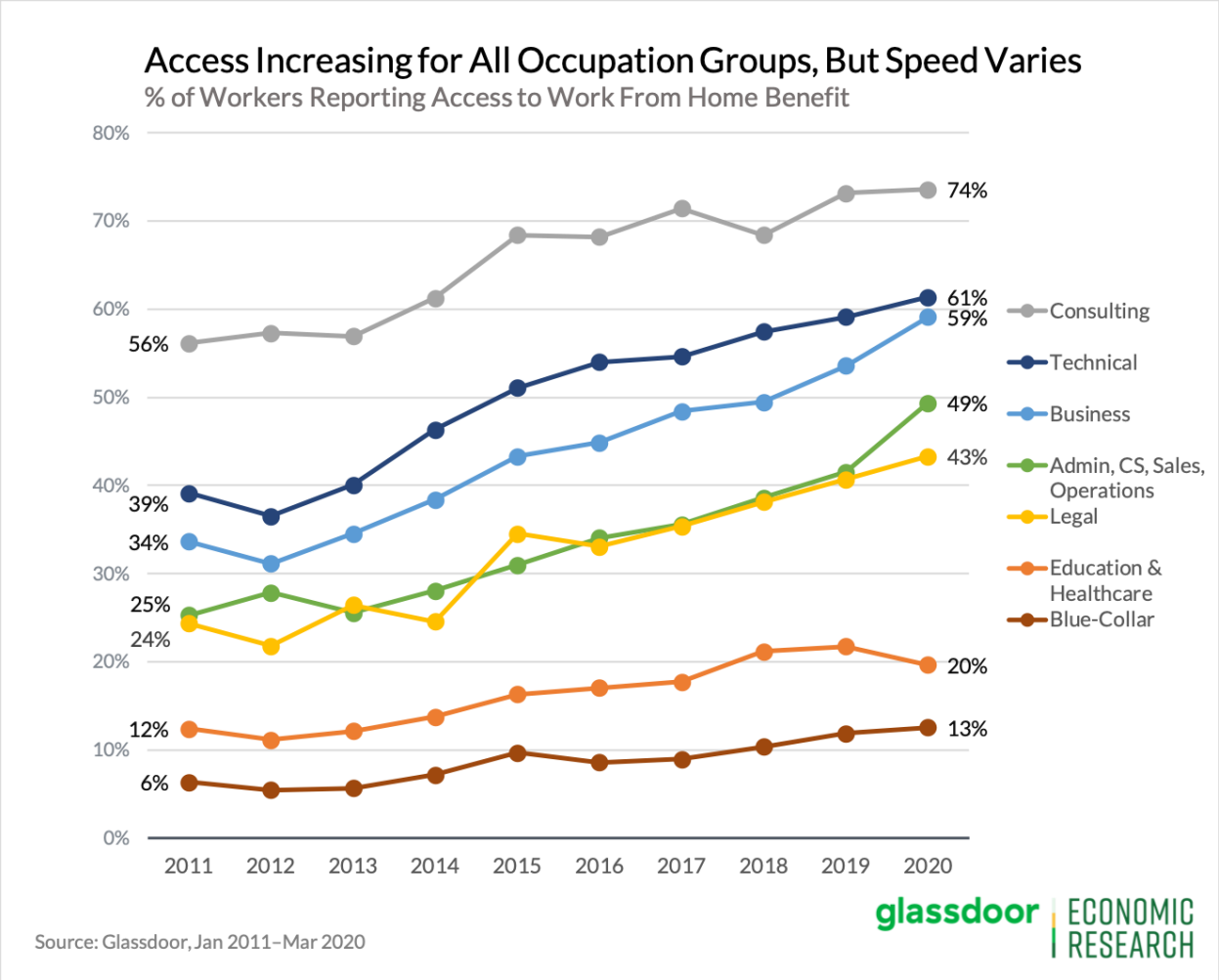
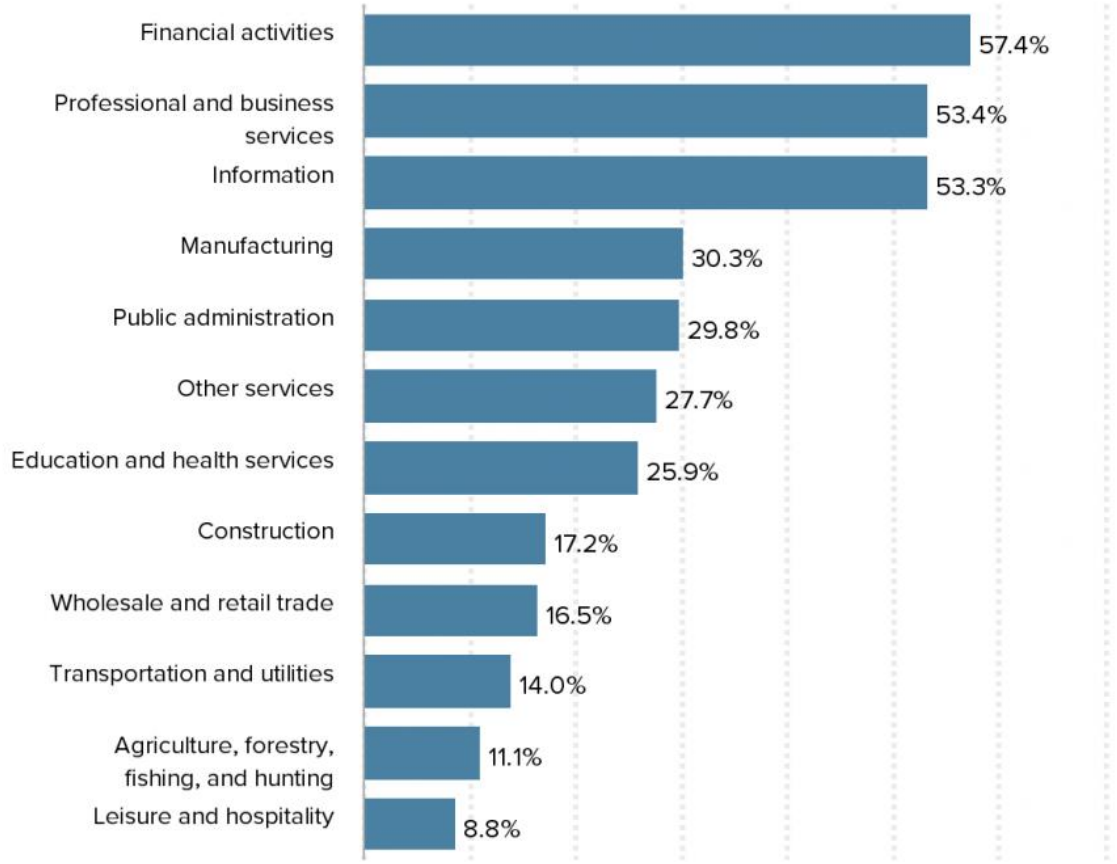

Access Increasing for All Occupation Groups, But Speed Varies
% of Workers Reporting Access to Work From Home Benefit
80%
70%
60%
50%
40%
30%
20%
10%
0%
2011
2012
2013
2014
2015
2016
2017
2018
2019
2020
74%
61%
59%
56%
49%
43%
39%
34%
25%
24%
20%
12%
13%
6%
Consulting
Technical
Business
Admin, CS, Sales, Operations
Legal
Education & Healthcare
Blue-Collar
Source: Glassdoor, Jan 2011–Mar 2020
glassdoor
ECONOMIC RESEARCH

Chart 6

Workers in leisure and hospitality are least able to work from home

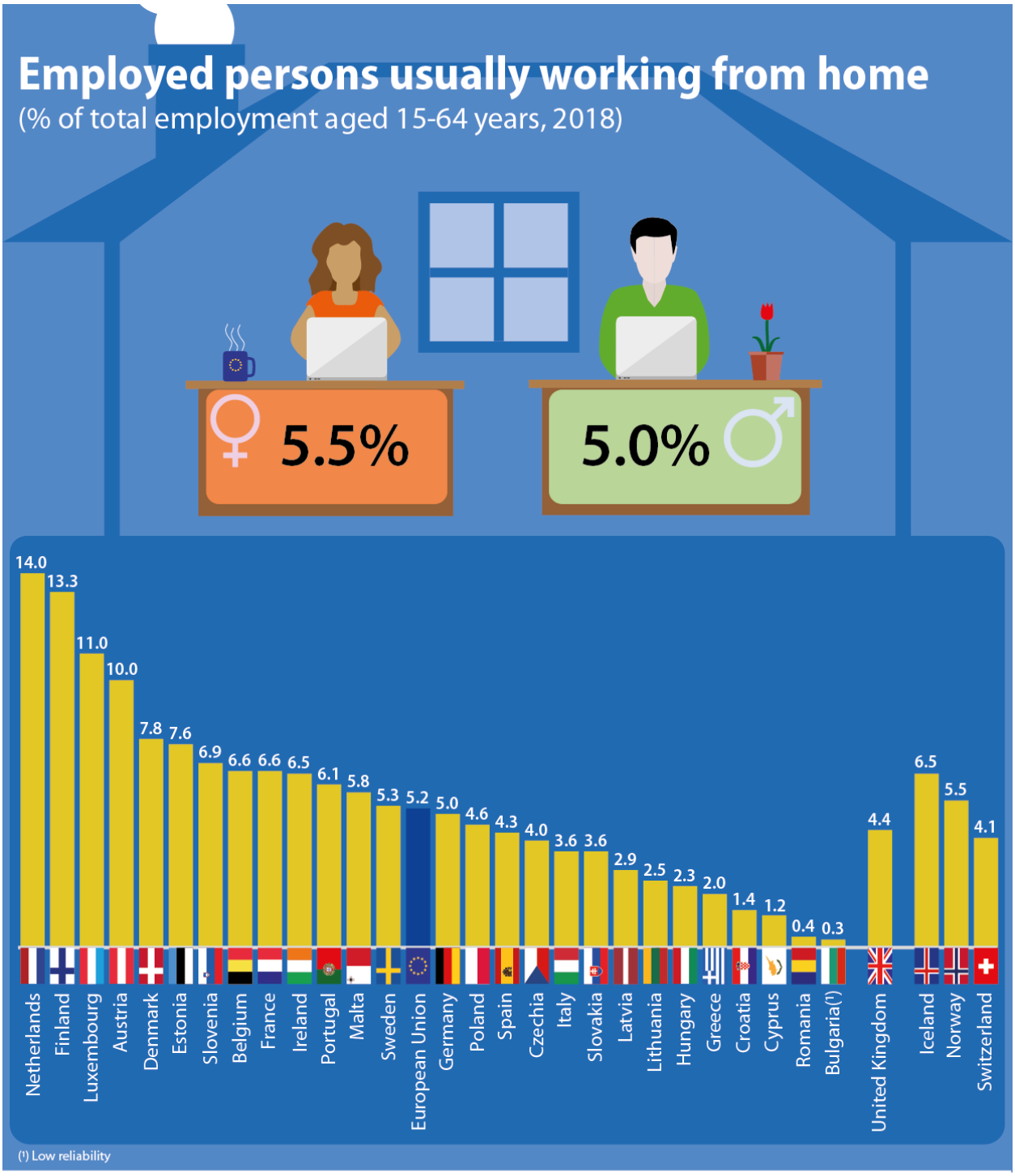
Share of workers who can telework, by industry, 2017–2018



Source: U.S. Bureau of Labor Statistics, Job Flexibilities and Work Schedules — 2017–2018 Data from the American Time Use Survey

Economic Policy Institute

Chart 7



Source: *Eurostat*