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WORKING FROM HOME: GLOBAL TRENDS AND CONSEQUENCES

Time Savings When Working from Home†

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The COVID-19 pandemic brought a lasting shift to work from home (WFH). We quantify the savings in commute time afforded by this shift in 27 countries, drawing on our Global Survey of Working Arrangements (G-SWA). The average daily time savings when working from home is 72 minutes in our sample. To obtain this figure, we consider the commute times of people who worked mainly from home at some point during the pandemic and compute the average of country-level means. We use regression methods to control for cross-country differences in the age, gender, and education distributions, and we treat the raw US mean as the baseline value.

When we account for the incidence of WFH across people—including those who never work remotely—our data imply that WFH saved about two hours per week per worker in 2021 and 2022, and that it will save about one hour per week per worker after the pandemic ends. For a full-time worker, that amounts to 2.2 percent of a 46-hour workweek (40 paid hours plus 6 hours of commuting). That's a large time savings, especially when multiplied by hundreds of millions of workers around the world.

We also provide evidence on how workers allocate these time savings. On average, those who WFH devote 40 percent of their time savings to primary and secondary jobs, 34 percent to leisure, and 11 percent to caregiving activities. These results suggest that much of the time savings flow back to employers, and that children and other caregiving recipients also benefit.

I. The Global Survey of Working Arrangements

The G-SWA covers full-time workers, aged 20–59, who finished primary school, in 27 countries. In addition to basic questions on demographics and labor market outcomes, the survey asks about current and planned WFH levels, commute time, and more. We design the G-SWA instrument, adapting questions from the US Survey of Working Arrangements and Attitudes developed by Barrero, Bloom, and Davis (2021b). We recruit professionals to translate our original English-language questionnaire into the major languages of each country. The G-SWA went to field in 15 countries in late July and early August 2021 and in an overlapping set of 25 countries in late January and early February 2022. See Aksoy et al. (forthcoming) for more information. As they discuss, the G-SWA samples skew to better-educated persons, less so in most rich countries but very strongly so in middle-income countries.

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We measure time savings when working from home as follows. In the first wave, we ask, "In 2019 (before COVID) how long was your typical commute to work in minutes (one-way)?" In the second wave, we ask, "How long do you usually spend commuting to and from work (in minutes)? If you are not currently commuting to work, please answer based on your commute time in 2019 (before COVID)." We obtain daily commute time by doubling the one-way commute time in the first wave and summing times to and from work in the second wave.

For those who worked mainly from home at some point during the pandemic, we obtain their allocation of time savings by asking, "During the COVID-19 pandemic, while you have been working from home, how are you now spending the time you have saved by not commuting? Please assign a percentage to each activity (the total should add up to 100 percent).

(a) Working on your current or primary job

(b) Working on a second or new secondary job

(c) Childcare, home schooling, and/or caring for other relatives

(d) Home improvement, chores, or shopping

(e) Leisure indoors (e.g., reading, watching TV and movies)

(f) Exercise or outdoor leisure"

Using the responses, we calculate the percentages of time savings devoted to jobs (a + b), leisure (e + f), and caregiving activities (c). Multiplying these percentages by total daily time savings when working from home yields the extra minutes allocated to each activity.

To obtain data on WFH days per week as of the survey week, we ask, "How many full paid days are you working from home this week?" Response options range from zero to five or more days per week. To obtain data on planned WFH levels, we ask, "After COVID, in 2022 and later, how often is your employer planning for you to work full days at home?" If the worker says that his or her employer has neither discussed the matter nor announced a policy regarding WFH, we assign a zero value.

II. Results

Table 1 reports country-level conditional mean values for the daily savings in commute time when working from home and its allocation to other activities. To obtain these values, we fit an unweighted OLS regression of the following form to the individual-level observations:

$$Y_{icw} = I_c + X_{icw}\beta + \varepsilon_{icw},$$

where Y_{icw} is the outcome of interest for person i in country c and survey wave w, I_c is a country-specific intercept term, X_{icw} is a vector of covariates (age groups, gender, education groups), and β is a coefficient vector. After fitting this regression, we recover the estimated $\hat{I}_c$. Using the United States as our reference country, we compute $\overline{Y}_{c=US}$ as the raw US mean outcome in the data pooled over waves 1 and 2 and obtain the adjusted country-specific intercepts as $\tilde{I}_c = \hat{I}_c + \overline{Y}_{c=US}$. These $\tilde{I}_c$ values are our country-level mean outcomes, conditional on the observables in X.

Daily commute time savings when working from home range from 51 minutes in Serbia, 54 in Poland, and 55 in the United States at the lower end to 99 minutes in India, 100 in Japan, and 102 in China at the upper end. Mean daily time savings when working from home exceed one hour in 23 of 27 countries. As remarked, the simple average of these country-level conditional means is 72 minutes of time savings per day.

How do workers allocate these time savings, according to our survey data? On average, 40 percent goes to extra work on primary and secondary jobs. Another 34 percent goes to leisure, and 11 percent goes to caregiving activities. These results are broadly similar to the findings in Bloom, Davis, and Barrero (2020) for the United States and in Hensher, Beck, and Balbontin (2022) for Australia. Returning to our data, extra work time on primary and secondary jobs absorbs 53 percent of the time savings in Malaysia, Singapore, and Taiwan but less than 35 percent in Germany, Greece, Japan, Italy, Poland, and Spain. Respondents in Austria, Spain, and Germany allocate more than 40 percent of their time savings to leisure. Extra caregiving activities absorb only 6 percent of time savings in Singapore and South Korea, as compared to 15 percent or more in Greece, Italy, Poland, and Serbia.

Table 1—Commute Time Savings and Its Allocation, Country-Level Conditional Means

Country	Daily time savings when working from home, minutes	*Percentage of time savings devoted to:* Primary or secondary job	Leisure	Caregiving
Australia	78	43	33	9
Austria	71	35	45	7
Brazil	82	40	32	12
Canada	65	41	37	7
China	102	46	31	12
Egypt	73	44	29	13
France	62	44	26	14
Germany	65	31	46	8
Greece	58	33	33	15
Hungary	66	40	33	10
India	99	47	26	13
Italy	61	34	31	15
Japan	100	32	39	9
Malaysia	69	53	25	9
Netherlands	77	40	35	11
Poland	54	34	36	16
Russia	73	46	27	14
Serbia	51	35	35	17
Singapore	94	53	27	6
South Korea	86	40	39	6
Spain	63	31	41	12
Sweden	60	35	40	12
Taiwan	69	53	28	8
Turkey	69	39	33	12
United Kingdom	73	38	39	9
United States	55	42	35	8
Ukraine	70	39	28	15
Cross-country average	72	40	34	11

Notes: The table shows coefficients on country dummies in OLS regressions that control for gender, age groups (20–29, 30–39, 40–49, 50–59), education (secondary, tertiary, graduate) and a survey wave fixed effect, treating the raw US mean as the baseline value. We fit the regression to data for 18,995 G-SWA respondents surveyed in mid-2021 and early 2022 who worked mainly from home at some point during the COVID-19 pandemic. The "average" value is the simple mean of the country-level values.

Table 2 summarizes the incidence of WFH in our sample and provides information about how daily time savings vary with demographic characteristics. We consider two country-level samples because we lack data on marital status and the presence of children in some countries. Panel A reports unconditional mean WFH levels. As of the survey week, both men and women worked about 1.7 full days at home on average. Employer plans imply about half as many WFH days per week after the pandemic ends. Combining these results with the daily time savings in Table 1, our data say that WFH saved about two hours per week per worker in 2021 and 2022, and that it will save about one hour per week per worker after the pandemic ends. That's equivalent to 2.2 percent of a 46-hour workweek, the sum of 40 paid hours and 6 hours of commuting.

Panel B shows how commute times vary in the cross section. Average daily commutes are about ten minutes longer for highly educated workers (tertiary or graduate degree) than for those with a primary or secondary education. Perhaps the most noteworthy aspect of panel B is how little the average daily commute times vary with demographic characteristics. In contrast, the incidence of avoided commutes due to working from home rises strongly with educational attainment (and earnings), as Barrero, Bloom, and Davis (2021b) show for the United States.

How should we think about the value of the time savings associated with WFH? The after-tax wage rate offers a useful benchmark for the private value of commute time savings. This valuation is apt when the individual freely allocates time across activities, as in Becker

Table 2—WFH Incidence and Time Savings in the Cross Section

	27-country sample		20-country sample	
	Men	Women	Men	Women
Panel A. Work-from-home days per week, averaging over all workers				
Actual, as of the survey week	1.67	1.71	1.67	1.73
Employer plans, postpandemic	0.84	0.80	0.85	0.82
Panel B. Daily commute time savings when working from home, minutes				
All	74	72	74	73
Primary or secondary education	66	63	67	65
Tertiary education	75	74	76	75
Graduate degree	76	75	75	75
Age 20–24	77	76	82	78
Age 25–29	74	76	77	77
Age 30–34	73	73	73	73
Age 35–39	74	74	73	75
Age 40–44	72	72	71	73
Age 45–49	75	70	74	71
Age 50–54	72	66	71	67
Age 55–59	75	61	75	61
Married or cohabiting	—	—	75	73
Not married or cohabiting	—	—	71	72
Lives with children under 14	—	—	76	75
Does not live with children under 14	—	—	71	70

Notes: Panel A reports unconditional means of WFH days per week in our sample. The first row shows the average WFH days in the survey week, based on 33,091 G-SWA respondents. The second row shows the average value of employer plans for WFH days per week after the pandemic ends, based on 34,875 G-SWA respondents. Panel B reports unconditional means of daily commute times among those who worked mainly from home at some point during the COVID-19 pandemic, based on 19,027 G-SWA respondents. The education category refers to the highest level attained. We weight each individual-level observation equally in computing the means in this table. Weighting each country equally yields similar results.

(1965), and time spent commuting is neither more nor less (un)pleasant than time spent working. Later research on travel time valuations, as reviewed in Jara-Díaz (2007) and Small (2012), highlights factors that lead to departures from the benchmark. Theory and evidence suggest that the (marginal) value of commute time rises with trip duration because longer trips are more tiresome and because the overall time constraint binds more tightly. Commuters strongly dislike unpredictable travel times, and automobile drivers strongly dislike congested road conditions. Thus, long commutes, unpredictable commute times, and congested road conditions push the private value of time savings above the after-tax wage. Conversely, short, predictable, and pleasant commutes push the private value below the after-tax wage.

These observations indicate that the private benefits of the commute time savings associated with WFH are roughly 2.2 percent of after-tax earnings when the workforce demographics are similar to that of the United States and average daily commute times are around 72 minutes. The private value of the time savings will tend to be smaller in countries with shorter commutes and in countries with a smaller share of highly educated workers (because less educated workers WFH less). For example, Table 1 shows that the average daily commute is 55 minutes in the United States. Thus, the implied private value of the time savings associated with WFH is on the order of $(55/72)(2.2) = 1.7$ percent of after-tax earnings.

This figure captures only the commute time savings associated with WFH. The full private value of working from home is greater for several reasons. First, avoided commutes bring monetary savings as well as time savings. Second, workers spend less time grooming and getting ready for work when they WFH (Barrero, Bloom, and Davis 2022). Third, working from home offers more flexibility in time use over the day and greater personal autonomy. The upshot

TABLE 3—HOW THE TIME SAVINGS ALLOCATION VARIES WITH INDIVIDUAL CHARACTERISTICS

Dependent variable: Daily time savings (minutes) devoted to the indicated activity when working from home						
	27-country sample			20-country sample		
	Jobs	Leisure	Caregiving	Jobs	Leisure	Caregiving
Tertiary education	0.6	1.6	0.5	0.0	0.6	0.0
	(0.9)	(1.0)	(0.5)	(0.9)	(1.2)	(0.6)
Graduate degree	2.7	2.5	1.5	2.1	2.4	0.8
	(0.9)	(1.0)	(0.5)	(1.0)	(1.4)	(0.6)
Age 25–29	−1.9	−0.5	0.8	−1.3	−1.0	0.2
	(1.6)	(1.4)	(0.6)	(1.7)	(1.5)	(0.6)
Age 30–34	−2.6	−2.6	2.4	−2.7	−1.6	−0.1
	(2.1)	(1.9)	(0.6)	(2.5)	(2.0)	(0.5)
Age 35–39	−1.8	−5.3	4.2	−1.3	−3.4	0.3
	(2.5)	(1.6)	(0.5)	(3.1)	(1.7)	(0.5)
Age 40–44	−1.4	−5.6	4.9	−1.4	−3.0	1.1
	(2.7)	(1.8)	(0.7)	(3.3)	(2.0)	(0.9)
Age 45–49	0.9	−4.3	3.0	0.2	−3.3	1.4
	(2.0)	(1.2)	(0.6)	(2.5)	(1.3)	(0.7)
Age 50–54	0.8	−3.4	−0.5	0.1	−3.5	−0.0
	(2.2)	(1.5)	(0.5)	(2.5)	(1.8)	(0.5)
Age 55–59	0.4	−1.3	−1.2	−0.2	−1.8	0.1
	(2.1)	(1.8)	(0.6)	(2.4)	(2.0)	(0.8)
1(Men)	2.4	1.9	−0.7	2.4	2.5	−0.7
	(0.5)	(0.6)	(0.4)	(1.0)	(1.1)	(0.3)
1(Lives with children<14)				−0.3	−7.9	11.4
				(1.2)	(1.4)	(0.8)
1(Men) × 1(Lives with children<14)				0.1	−0.6	−1.7
				(1.5)	(1.3)	(0.6)
Dependent variable mean	29	24	8	28	25	9
Observations	19,027	19,027	19,027	14,300	14,300	14,300
R^2	0.060	0.030	0.034	0.051	0.036	0.098

Notes: The table reports OLS regression estimates in G-SWA data. Each column corresponds to a separate regression. The omitted group in the 27-country sample is women aged 20 to 24 with a primary or secondary education, and in the 20-country sample, it is the subset who do not live with children under 14. All specifications include country fixed effects and a wave dummy. We cluster errors at the country level.

is that the direct private value of working from home, say, two or three days a week is greater than suggested by travel time valuations applied to commute time savings. See Barrero, Bloom, and Davis (2021b) for a deeper analysis and more evidence on what workers like (and dislike) about working from home.

Table 3 provides information on how the time savings allocated to jobs, leisure, and caregiving vary with demographic characteristics and living arrangements. Each column reports a regression of daily commute time savings on the indicated covariates. All specifications include country and wave fixed effects. The omitted group in the 27-country sample is women aged 20 to 24 with a primary or secondary education, and in the 20-country sample, it is the subset who do not live with children under 14.

Several interesting patterns emerge. First, living with children under 14 has large effects on the allocation of commute time savings. Women with children devote an extra 11.4 minutes of their daily time savings to caregiving activities, relative to the omitted group. For men, the corresponding figure is 9.0 (11.4 – 0.7 – 1.7) minutes. Second, differences between men and women in how they allocate their time savings are modest. While men devote more time savings to their jobs, the daily difference is only 2.4 minutes. Men also devote about two more minutes of their time savings to leisure. Women allocate an extra 0.7 minutes of their daily time savings to caregiving when there are no children under 14 in the household and an extra 2.4 minutes when there are. Finally, the daily time savings allocated to jobs, leisure, and caregiving all rise with educational attainment. In this regard, it is helpful to recall from Table 2 that daily commute times also rise with education. These patterns are broadly consistent with US evidence in Bloom, Davis, and Barrero (2020).

III. Concluding Remarks

The pandemic-induced shift to WFH yielded large private benefits in the form of commute time savings. To gauge the magnitude of these benefits, we turn to the G-SWA and consider data on commute times and the extent of WFH in 27 countries. We estimate that WFH saved about two hours per week per worker in 2021 and 2022, and that it will save about one hour per week per worker after the pandemic ends. That amounts to 2.2 percent of a 46-hour workweek, with 40 paid hours plus 6 hours of commuting. As we discussed, the after-tax wage rate is a reasonable benchmark for the private value of commute time savings. Thus, we estimate that the private value of the commute time savings associated with WFH will be about 2.2 percent of after-tax earnings in the postpandemic economy.

WFH and the associated drop in commuting also affect individuals and society through many other channels. Kahn (2022, chapters 2 and 3) offers an extended discussion of how WFH expands personal freedom, improves life quality, brings new employment opportunities, and builds social capital in residential communities. More WFH also means lighter loads on transport systems and, in particular, less congestion at peak travel times. The available evidence, as reviewed in Hook et al. (2020), suggests that WFH reduces economy-wide energy consumption and pollution. Barrero, Bloom, and Davis (2021a) consider how the ability to work remotely improves economic and social resilience during pandemics and other disasters that inhibit travel and in-person work. Aksoy et al. (forthcoming) and Glaeser (2022) consider the challenges for cities presented by the big shift to WFH. Vielkind (2023) highlights the particular challenges presented by the large drop in public transit ridership.

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