Internet Appendix for

"From L.A. to Boise: How Migration Has Changed During the COVID-19 Pandemic"

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# Internet Appendix A: Additional Figures and Tables

FIGURE IA.A1

## Proportion of Moves to Urban, Suburban, and Rural Place by Origin Type

The figure displays the proportion of moves to urban, suburban, and rural areas by the origin ZIP code type (e.g. urban, suburban, etc.) across the years 2017-2021. The classifications for urban, suburban, and small town are determined by 2010 Rural-Urban Commuting Areas (RUCA) codes at the ZIP code level. Urban is defined as metropolitan areas with a primary flow within an urbanized area (RUCA=1). Suburban is defined as a metropolitan area where at least 10% of daily flow is to an urban area (RUCA=2,3). Rural is defined as micropolitan, small town, or rural area (RUCA=4-10).
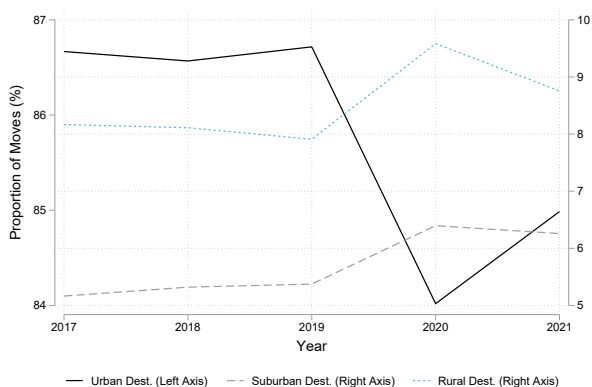

(a) **Urban Area Origins**
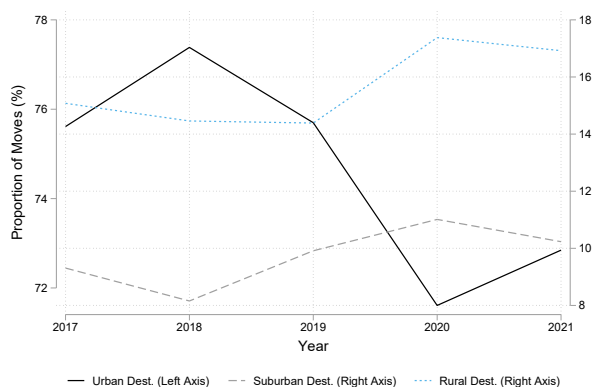
(b) **Suburban Area Origins**
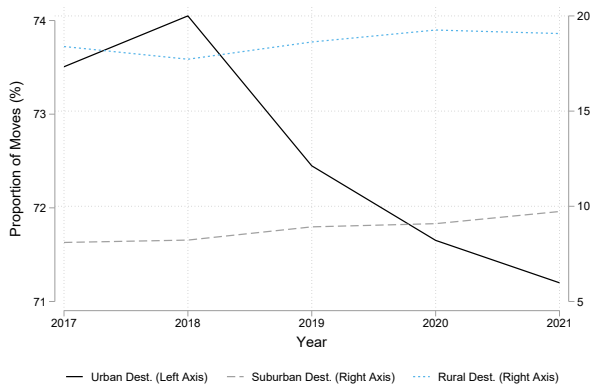
(c) **Rural Area Origins**

FIGURE IA.A2

Moves through time

The figure displays a times series of the number of monthly moves completed over the sample period of January 2017-December 2021. In Panel A, we include all moves completed over this period. For Panel B, we break out the number of monthly moves by income group. We use the sub-sample of moves where households provide income data, which represents approximately 25% of all moves, to construct Panel B. We define approximately equal-sized income groups as Low Income (< $50,000), Medium Income ($50,000-$99,999), and High Income ($100,000+).

Panel A: Number of Monthly Moves
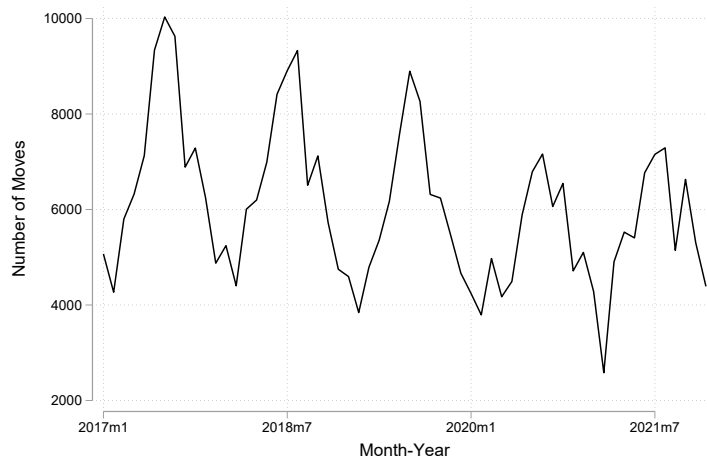
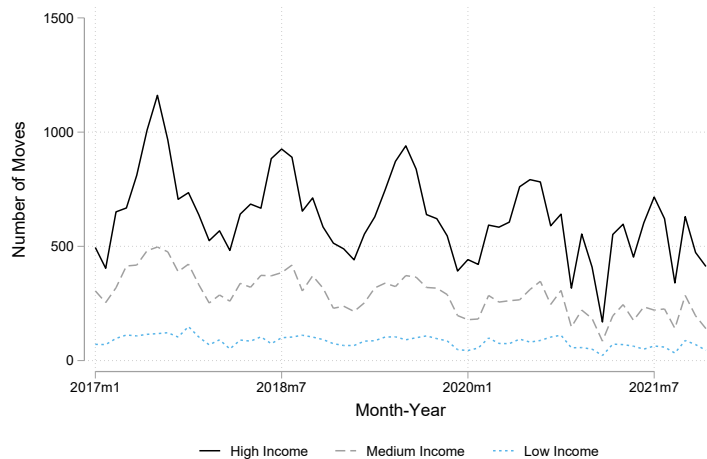**Panel B: Number of Moves by Income Group**

FIGURE IA.A3

Proportion of COVID-induced Moves by Demographic Groups

The figure displays the proportion of moves that were influenced by the pandemic across different demographic groups on a quarterly basis. For each quarter, we sum the number of moves indicated as COVID-influenced and divide by the total number of surveys completed. Demographic data is taken from survey responses. Panel A displays results across income groups, Panel B displays results across age groups, and Panel C displays results across household size groups.
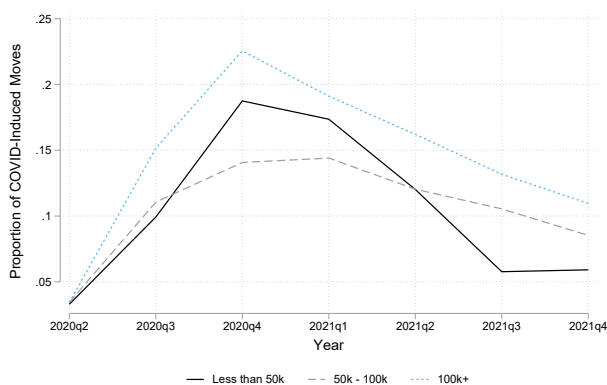
(a) **Income Group**
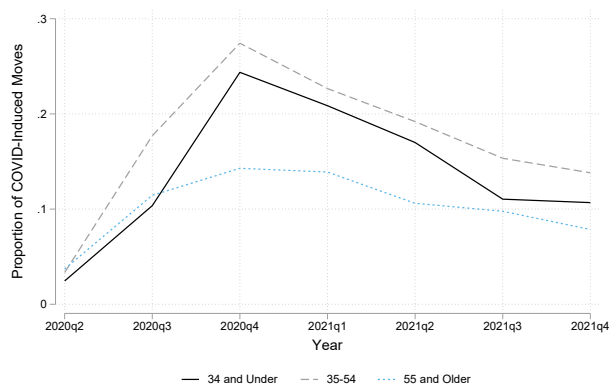
(b) **Age Group**
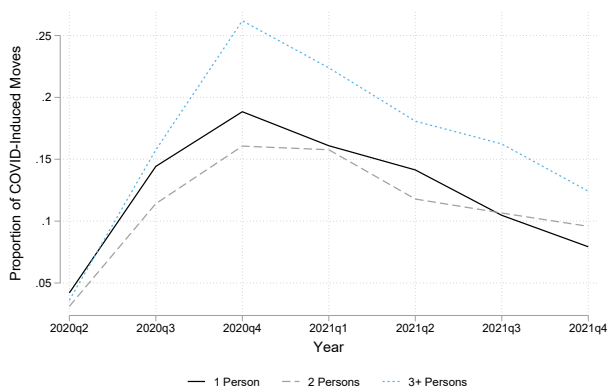
(c) **Household Size**

Annual Proportion of Reasons for Moving by Income Group

This figure presents the proportion of moves influenced by a particular reason (Job, Family, Retirement, Health, Lifestyle or Cost of Living) across time and by income group. Cost of Living only entered the set of options post-onset of the pandemic. We define approximately equal-sized income groups as Low Income (<$50,000), Medium Income ($50,000-$99,999), and High Income ($100,000+). The sample is the subset of moves with provided income information in their survey response over the period January 2017–December 2021.
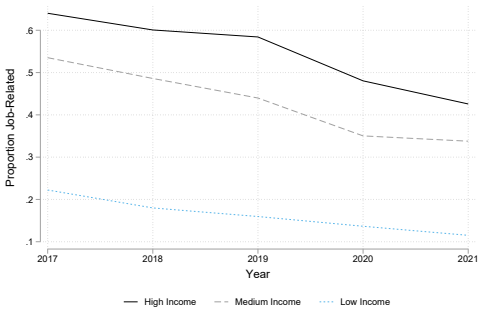
(a) **Job-Related Move Proportion**
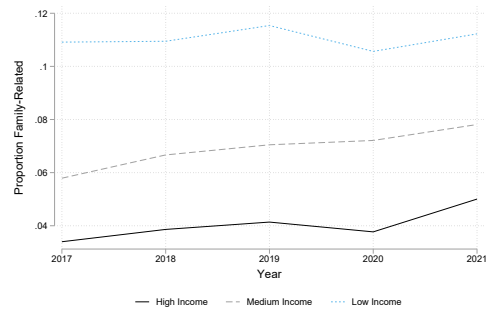
(b) **Family-Related Move Proportion**
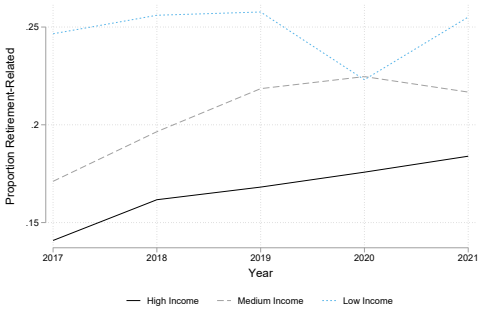
(c) **Retirement-Related Move Proportion**
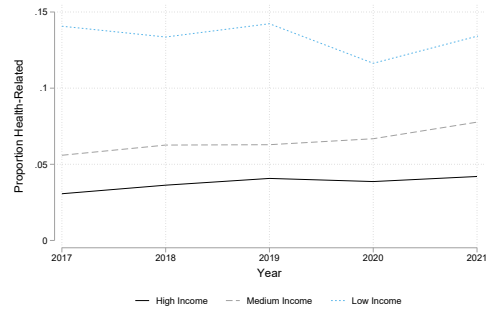
(d) **Health-Related Move Proportion**
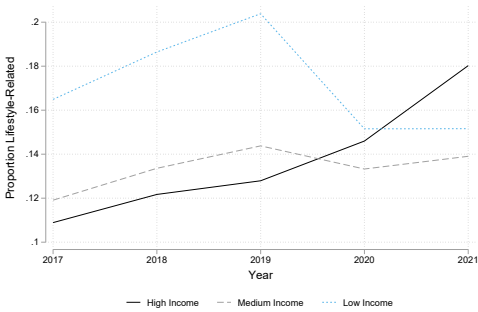
(e) **Lifestyle-Related Move Proportion**
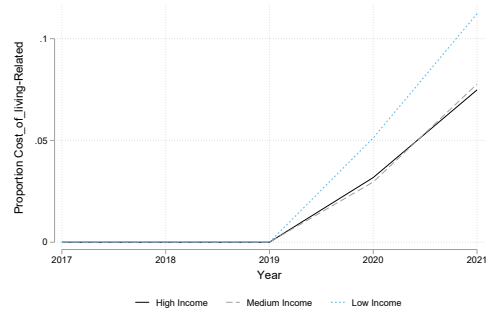
(f) **Cost of Living-Related Move Proportion**

FIGURE IA.A5

Proportional Change in Reason for Move by State

This figure presents the change in the proportion of survey respondents citing each particular reason (Job, Family, Retirement, Health, Lifestyle or Cost of Living) by state. We examine the change in these proportions by state during the pandemic period (April 2020-Decemeber 2021) as compared to before the onset of the pandemic (January 2019-March 2020). Proportions, and therefore differences, are measured in percentage points. Note, "Cost of Living" does not appear as an option until the summer of 2020. The data includes all survey responses over the period January 2019-December 2021.
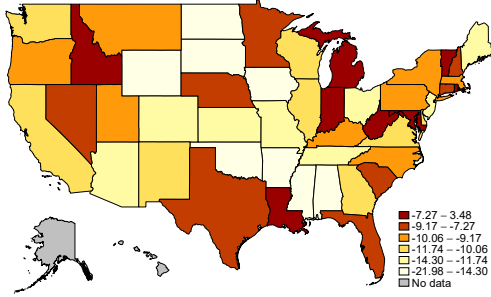
(a) **Origin: Job-Related Change**
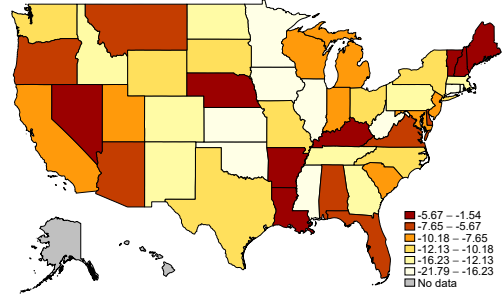
(b) **Destination: Job-Related Change**
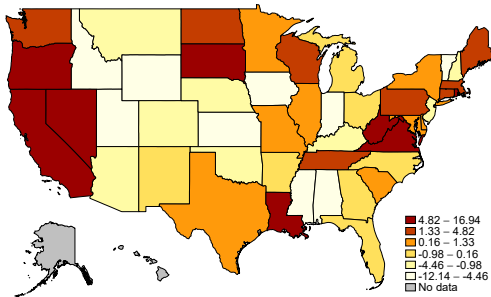
(c) **Origin: Family-Related Change**
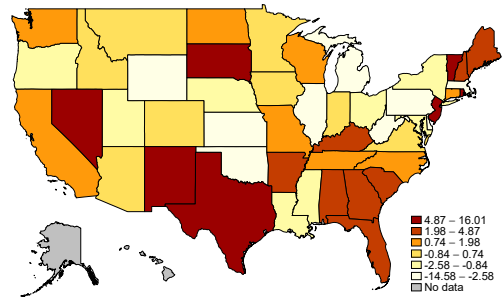
(d) **Destination: Family-Related Change**
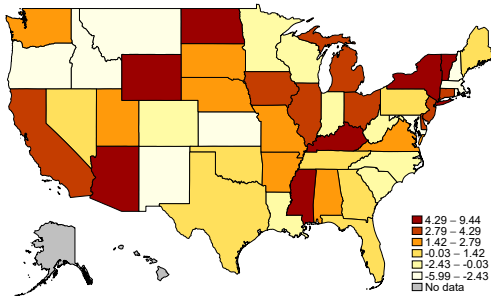
(e) **Origin: Lifestyle-Related Change**
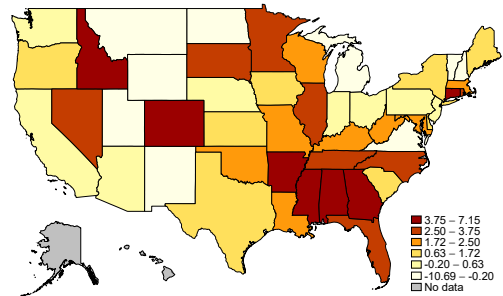
(f) **Destination: Lifestyle-Related Change**
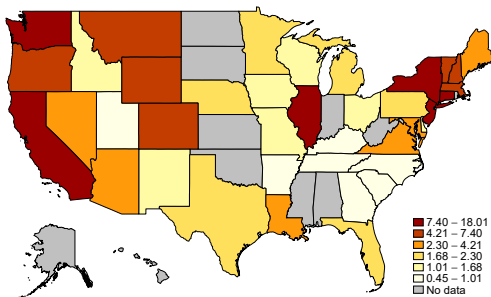
(g) **Origin: Cost of Living-Related Change**
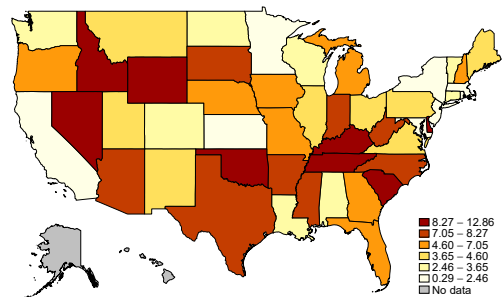
(h) **Dest.: Cost of Living-Related Change**

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Proportional Change in Mover Demographic by State

This figure presents the proportional change in the income group, age, and household size of the moving household by origin state or by destination state. We examine the change in these proportions by state during the pandemic period (April 2020-Decemeber 2021) as compared to before the onset of the pandemic (January 2019-March 2020). Proportions are defined as the number of moves in the state in either the pre/post-pandemic period divided by the total number of moves across all locations in that period. Proportions, and therefore differences, are measured in percentage points. The data includes all moves with survey responses over the period January 2019-December 2021."High income" is defined as those households who make more than $100,000. "Younger" is defined as those where the respondent is less than 55. "Family" captures any household that is three people or more. All groupings were meant to best approximate the median while using some judgement on an appropriate cut.
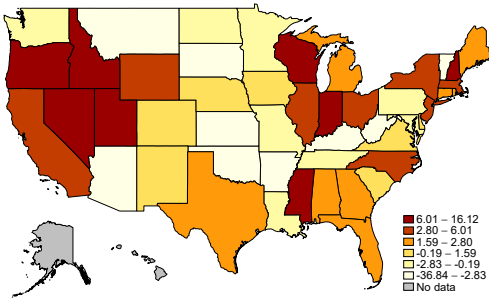
(a) **Origin: High Income Change**
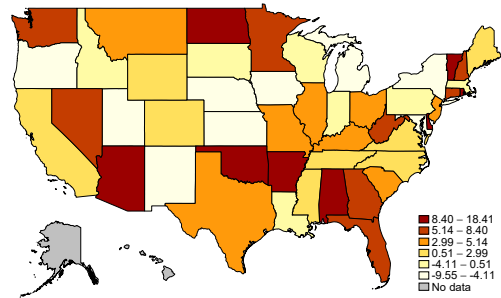
(b) **Destination: High Income Change**
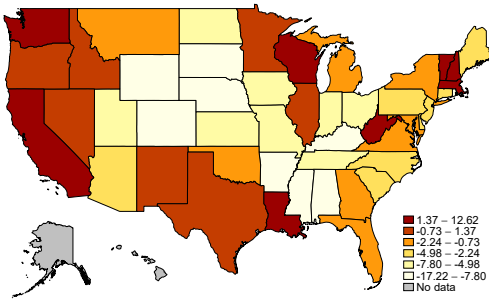
(c) **Origin: Younger Age Change**
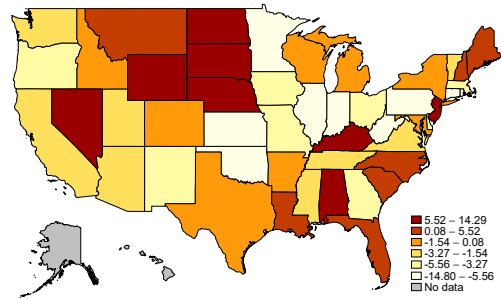
(d) **Destination: Younger Age Change**
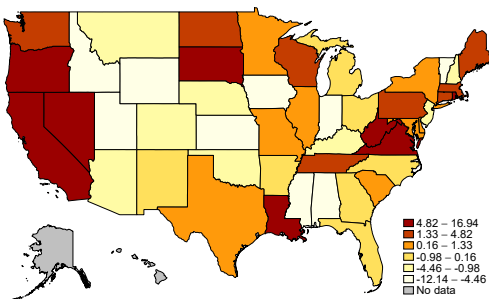
(e) **Origin: Family Change**
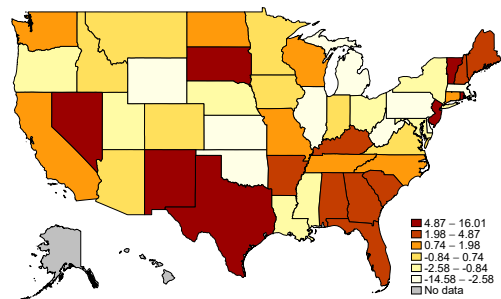
(f) **Destination: Family Change**

Origin and Destination Characteristics Through Time

These figures present the average characteristics of origin and destination locations through time across years for the entire move sample (January 2017-December 2021). The Stringency Index measures the number of state-level restrictions on mobility/closures and are calculated using data from Hale, Webster, Petherick, Phillips, and Kira (2020). Stringency Index is measured as of July 1, 2020 to approximate the mid-point of the pandemic era in our data. Density is calculated from the 2010 Census at the ZIP-code level. Median rent at the ZIP-code level is sourced from Manson, Schroeder, Van Riper, Kugler, and Ruggles (2020).
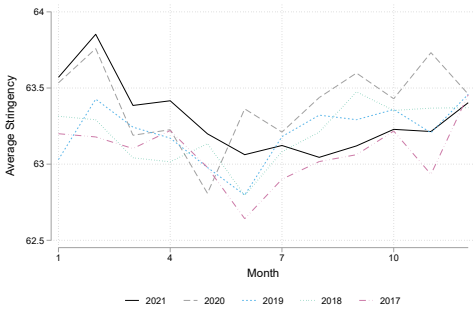
(a) **Origin: Stringency Index**
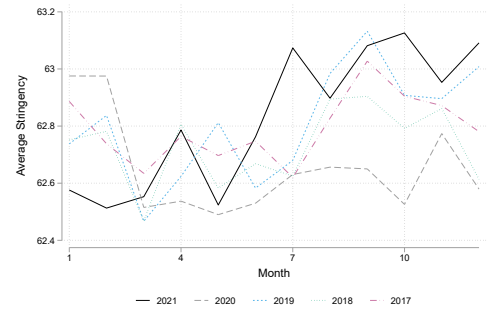
(b) **Destination: Stringency Index**
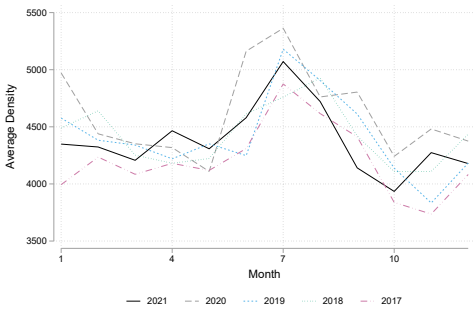
(c) **Origin: Population Density**
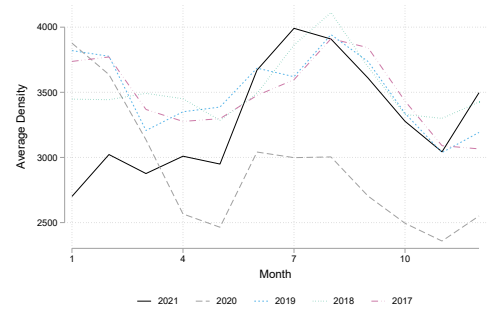
(d) **Destination: Population Density**

(e) **Origin: Median Rent**
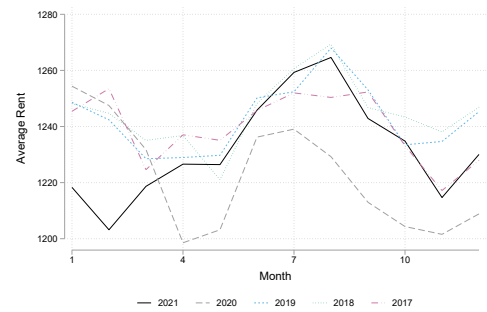
(f) **Destination: Median Rent**

Dynamic Relationship Between COVID-Era Migration and Economic Outcomes

These figures present results from a dynamic difference-in-difference Poisson fixed-effect regression. The county-level dependent variables are: quarterly total establishments, ESTABLISHMENTS, obtained from the QCEW (Figure a), annual total dollar amount of SBA loans, SBA_LOANS, obtained from the SBA (Figure b), quarterly total employment, EMPLOYMENT, obtained from the QCEW (Figure c), and annual total personal income, PERSONAL_INCOME, obtained from the BEA (Figure d). We regress the county-level outcome of interest on the interactions between time indicators and a Top 25% COVIDFLOWS dummy variable, TOP_25%_COVIDFLOWS, and the interactions between time indicators and a bottom 25% COVIDFLOWS dummy variable, BOT_25%_COVIDFLOWS, where COVIDFLOWS is defined as the difference in annualized net inflows per capita from April 2020-December 2020 less April through December 2017-2019. More details on the variables are provided in Appendix Table **??**. We exclude 2020 data from the sample. We include county and time fixed effects, which absorb the main effects of the time indicators and the COVIDFLOWS dummy variables. The omitted time period is 2019Q4 or 2019 for quarterly or annual data, respectively. Standard errors clustered at the county level and we present confidence intervals at the 10% level.
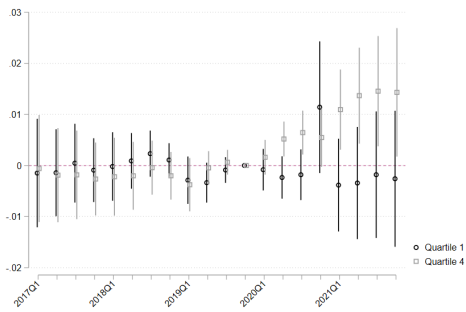
(a) **ESTABLISHMENTS**
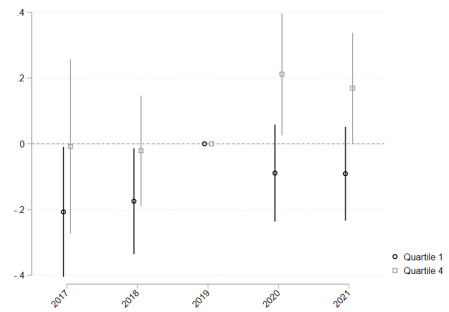
(b) **SBA_LOANS**
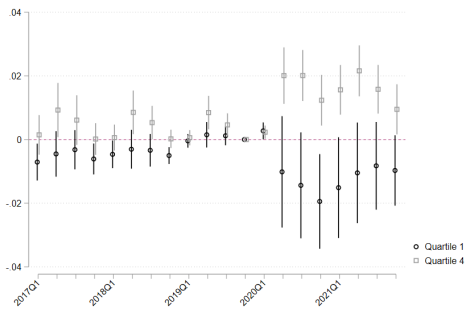
(c) **EMPLOYMENT**
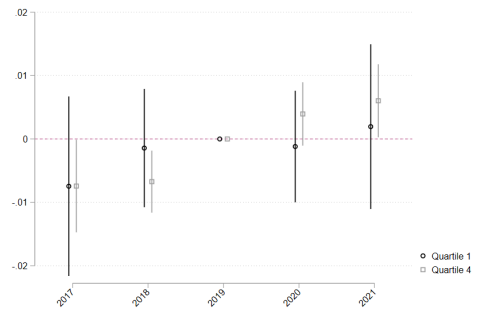
(d) **PERSONAL_INCOME**

TABLE IA.A1

Survey Response Statistics

The table presents summary statistics for the Unigroup survey responses. We present the number and proportion for each reason for moving using data from UniGroup over the period January 2017-December 2021. Customers can choose from a preset list of reasons for their moves, with the option to select more than one reason. In addition to the overall proportion, we compare the stated reasons in the pre-pandemic period (January 2017-March 2020) to the pandemic period (April 2020-December 2021). We take the difference and test the statistical significance of the difference using standard errors double-clustered at the year-month and origin-state levels. "Cost of Living" was added in the summer of 2020, so we cannot calculate a differential response for the pandemic period.

Reason	Count	Proportion	Pre-Covid	Post-Covid	Difference	p-value
Job	37,878	42.5%	46.6%	33.1%	-13.5%	0.000
Family	23,794	26.7%	24.7%	31.3%	6.6%	0.000
Retirement	17,974	20.2%	19.7%	21.2%	1.5%	0.090
Lifestyle	12,848	14.4%	13.7%	16.1%	2.5%	0.000
Health	5,242	5.9%	5.8%	6.0%	0.2%	0.454
Cost of Living	1,551	-	-	5.7%	-	-
Partial Move	3,223	3.6%	3.8%	3.3%	-0.5%	0.017

TABLE IA.A2

Proportional Changes in State to State Moves

The table displays the 25 state-pairs with the highest and lowest proportional change in moves following the onset of the COVID-19 pandemic. The pre-period is defined as January 2017-March 2020, while the post period is April 2020 through December 2021. The proportion for each period is calculated as the number of moves to/from that state pair divided by the total number of moves across all states in that period.

Panel A: Highest Proportional Change In Moves

Rank	Origin State	Destination State	Pre-Pandemic Proportion (%)	Post-Pandemic Proportion (%)	Change in Proportion (%)
1	CA	TX	1.253	1.630	0.377
2	NY	FL	1.050	1.324	0.274
3	NJ	FL	0.671	0.941	0.271
4	IL	FL	0.661	0.910	0.249
5	CA	TN	0.313	0.542	0.228
6	CA	FL	0.705	0.887	0.183
7	CA	NC	0.421	0.554	0.133
8	CO	FL	0.209	0.330	0.121
9	NJ	SC	0.162	0.282	0.120
10	CT	FL	0.272	0.389	0.117
11	MA	FL	0.314	0.430	0.116
12	WA	TX	0.229	0.319	0.090
13	PA	FL	0.440	0.528	0.088
14	CA	ID	0.334	0.421	0.087
15	CO	TX	0.296	0.379	0.083
16	WA	AZ	0.241	0.322	0.080
17	WA	FL	0.146	0.215	0.069
18	WA	TN	0.042	0.109	0.067
19	IL	TN	0.220	0.287	0.067
20	AZ	FL	0.189	0.254	0.064
21	IL	TX	0.453	0.517	0.064
22	NY	SC	0.240	0.300	0.060
23	NY	TX	0.383	0.442	0.059
24	CA	PA	0.252	0.308	0.056
25	IL	SC	0.117	0.172	0.055

Panel B: Lowest Proportional Change In Moves

Rank	Origin State	Destination State	Pre-Pandemic Proportion (%)	Post-Pandemic Proportion (%)	Change in Proportion (%)
1	CA	OR	0.806	0.647	-0.159
2	FL	CA	0.461	0.328	-0.134
3	TX	CA	0.761	0.631	-0.130
4	CA	WA	0.942	0.834	-0.108
5	CA	AZ	0.770	0.679	-0.091
6	CA	NV	0.413	0.328	-0.086
7	VA	CA	0.327	0.248	-0.079
8	FL	VA	0.356	0.280	-0.075
9	OR	CA	0.247	0.174	-0.074
10	TX	AZ	0.298	0.225	-0.072
11	FL	GA	0.445	0.373	-0.071
12	OK	TX	0.197	0.128	-0.069
13	FL	TX	0.521	0.455	-0.066
14	WA	CA	0.428	0.362	-0.066
15	AZ	CA	0.286	0.221	-0.065
16	NC	CA	0.229	0.168	-0.060
17	OH	CA	0.280	0.220	-0.060
18	NY	CA	0.750	0.690	-0.060
19	IL	CA	0.587	0.528	-0.060
20	NC	GA	0.193	0.133	-0.059
21	MI	CA	0.251	0.193	-0.059
22	WA	OR	0.170	0.112	-0.058
23	IN	CA	0.136	0.082	-0.054
24	FL	CO	0.263	0.213	-0.050
25	GA	CA	0.220	0.171	-0.049

TABLE IA.A3

Origin-Destination Pair Analysis: Individual Regressions

This table presents Poisson fixed-effect regression results examining changes in the relative characteristic of origin and destination locations during the pandemic for each characteristic individually. The data cover all moves performed by UniGroup from January 2017-December 2021 and the panel is strongly balanced. The unit of observation is at the Origin County-Destination County-Year level. We regress the number of origin-destination pair moves on the difference in the location characteristic between the Destination and Origin locations, interacted with POST, which takes the value of one if the date the move was completed occurs in 2020 or 2021, and zero otherwise. All differences are standardized for easier interpretation. We examine the following location characteristics (more details provided in Appendix Table **??**): STRINGENCY, which is an index that measures the number of state-level restrictions on mobility/closures, COVID_CASES, which is the number of COVID-19 cases per 10,000 residents, MEDIAN_RENT, which is the simple average across the county of zip-code level median rent , TAX_RATE, which is the state-level marginal tax rate, DENSITY, which is the population density of the county, SCHOOL_QUALITY, which the percent of high school students who score proficient in math tests, CRIME_RATE, which is the number of crimes per 100,000 residents, AVG_TEMP, which is the average annual temperature over the previous 30 years, and NATURE_PROPORTION, which is the proportion of county land covered by water or forests. Standard errors clustered at the origin county level are shown below the estimates. ***, **, * indicates significance at the 1%, 5%, and 10% levels, respectively.

				Number of Moves Origin-Destination-Year					
	1	2	3	4	5	6	7	8	9
(STRINGENCY$_{Dest.}$ - STRINGENCY$_{Orig.}$) × Post	-0.017***								
	(0.007)								
(COVID_CASES$_{Dest.}$ - COVID_CASES$_{Orig.}$)× Post		-0.035***							
		(0.006)							
(MEDIAN_RENT$_{Dest.}$ - MEDIAN_RENT$_{Orig.}$) × Post			-0.087***						
			(0.007)						
(TAX_RATE$_{Dest.}$ - TAX_RATE$_{Orig.}$) × Post				-0.041***					
				(0.007)					
(DENSITY$_{Dest.}$ - DENSITY$_{Orig.}$) × Post					-0.117***				
					(0.016)				
(SCHOOL_QUALITY$_{Dest.}$ - SCHOOL_QUALITY$_{Orig.}$) × Post						0.032***			
						(0.007)			
(CRIME_RATE$_{Dest.}$ - CRIME_RATE$_{Orig.}$) × Post							-0.018***		
							(0.007)		
(AVG_TEMP$_{Dest.}$ - AVG_TEMP$_{Orig.}$) × Post								0.032***	
								(0.007)	
(NATURE_PROPORTION$_{Dest.}$ - NATURE_PROPORTION$_{Orig.}$) × Post									0.025***
									(0.009)
Orig-Dest Pair FE?	YES	YES	YES	YES	YES	YES	YES	YES	YES
Year FE?	YES	YES	YES	YES	YES	YES	YES	YES	YES
Obs.	752,365	752,365	752,365	752,365	752,365	752,365	752,365	752,365	752,365
Pseudo R^2	0.312	0.312	0.313	0.312	0.313	0.312	0.312	0.312	0.312

Origin-Destination Pair Analysis Across Origin Incomes and Time Period

This table presents Poisson fixed-effect regression results examining how the changes in the relative characteristics of origin and destination locations during the pandemic varies across income and throughout the pandemic. The data cover all moves performed by UniGroup from January 2017-December 2021 and the panel is strongly balanced. The unit of observation is at the Origin County-Destination County-Year level. We regress the number of origin-destination pair moves on the difference in the location characteristic between the Destination and Origin locations, interacted with POST, which takes the value of one if the date the move was completed occurs in 2020 or 2021, and zero otherwise. Columns 1 and 2 re-calculate the number of moves, conditioning on whether the origin zip code fell above the top 50%tile of median zip-code level incomes ("Higher Income") or in the bottom 50%tile ("Lower Income"). Columns 3 and 4 test for a differential effect, comparing the outcomes in 2020 and 2021, respectively. For column 3, $Post$ takes the value of one if the date of the move was completed in 2020 and excludes 2021 from the analysis. In column 4, $Post$ takes the value of one if the move was completed in 2021, excluding 2020. All differences are standardized for easier interpretation. We examine the following location characteristics (more details provided in Appendix Table **??**): STRINGENCY, which is an index that measures the number of state-level restrictions on mobility/closures, COVID_CASES, which is the number of COVID-19 cases per 10,000 residents, MEDIAN_RENT, which is the simple average across the county of zip-code level median rent , TAX_RATE, which is the state-level marginal tax rate, DENSITY, which is the population density of the county, SCHOOL_QUALITY, which the percent of high school students who score proficient in math tests, CRIME_RATE, which is the number of crimes per 100,000 residents, AVG_TEMP, which is the average annual temperature over the previous 30 years, and NATURE_PROPORTION, which is the proportion of county land covered by water or forests. Standard errors clustered at the origin county level are shown below the estimates. ***, **, * indicates significance at the 1%, 5%, and 10% levels, respectively.

	Number of Moves Origin-Destination-Year			
	1	2	3	4
(STRINGENCY$_{Dest.}$ - STRINGENCY$_{Orig.}$) × Post	0.002	0.002	-0.006	0.011
	(0.009)	(0.007)	(0.006)	(0.008)
(COVID_CASES$_{Dest.}$ - COVID_CASES$_{Orig.}$)× Post	-0.001	-0.002	0.006	-0.012
	(0.009)	(0.007)	(0.007)	(0.008)
(MEDIAN_RENT$_{Dest.}$ - MEDIAN_RENT$_{Orig.}$) × Post	-0.074***	-0.095***	-0.099***	-0.087***
	(0.014)	(0.010)	(0.009)	(0.011)
(TAX_RATE$_{Dest.}$ - TAX_RATE$_{Orig.}$) × Post	-0.009	-0.005	-0.007	-0.007
	(0.011)	(0.008)	(0.007)	(0.009)
(DENSITY$_{Dest.}$ - DENSITY$_{Orig.}$) × Post	-0.002	0.020	-0.036*	0.063***
	(0.024)	(0.018)	(0.020)	(0.018)
(SCHOOL_QUALITY$_{Dest.}$ - SCHOOL_QUALITY$_{Orig.}$) × Post	-0.002	0.018***	0.008	0.018**
	(0.009)	(0.006)	(0.006)	(0.007)
(CRIME_RATE$_{Dest.}$ - CRIME_RATE$_{Orig.}$) × Post	-0.022**	-0.046***	-0.033***	-0.042***
	(0.010)	(0.010)	(0.009)	(0.009)
(AVG_TEMP$_{Dest.}$ - AVG_TEMP$_{Orig.}$) × Post	0.023**	0.071***	0.038***	0.079***
	(0.011)	(0.009)	(0.008)	(0.010)
(NATURE_PROPORTION$_{Dest.}$ - NATURE_PROPORTION$_{Orig.}$) × Post	0.014	0.038***	0.013*	0.047***
	(0.011)	(0.008)	(0.008)	(0.009)
Subset?	Lower Income	Higher Income	2020 only	2021 only
Orig-Dest Pair FE?	YES	YES	YES	YES
Year FE?	YES	YES	YES	YES
Obs.	332,435	520,195	526,040	525,732
Psuedo-R^2	0.112	0.319	0.307	0.309

TABLE IA.A5

Summary Statistics for County Economic Outcomes

The table presents summary statistics for the local economic outcomes. The time period of the analysis is January 2017-December 2021. COVIDFLOWS is defined as the difference in annualized net inflows per capita from April 2020-December 2020 less April through December 2017-2019. Thus, it is a county-level, time invariant measure of the change in migration patterns. We scale the measure up by ten thousand for easier interpretation. ESTABLISHMENTS is the total number of establishments at the county-quarter level. EMPLOYMENT is the total number of employed individuals at the county-quarter level. SBA_LOANS is the gross dollar-amount of SBA loans aggregated to the county-year level. PERSONAL_INCOME is the the annual total personal income by place of residence taken from the Bureau of Economic Analysis (BEA). Additional details on the variable construction can be found in Appendix Table A1.

	N	Mean	Std. Deviation	Min.	25%	Median	75%	Max.
COVIDFLOWS	58,156	-1.25	70.75	-3809.52	-0.58	0.00	0.90	40.28
ESTABLISHMENTS	58,196	3,255.85	13,066.59	10.00	335.00	719.00	1,930.00	539,246.00
EMPLOYMENT	58,196	48,256.79	166,356.96	98.00	3,707.00	9,424.50	27,210.50	4,594,584.00
SBA_LOANS ($mil)	12,170	11.90	76.98	0.00	0.00	0.29	2.90	3109.21
PERSONAL_INCOME ($mil)	14,502	6.53	23.20	0.03	0.56	1.27	3.61	728.77

TABLE IA.A6

COVID-Era Migration of Higher-Income Households and Economic Outcomes

The table presents results of Poisson fixed-effect regressions examining how the relationship between local economic outcomes and COVID-era migration changes with entrant income. The county-level dependent variables are: quarterly total establishments, ESTABLISHMENTS, obtained from the QCEW (column 1), annual total dollar amount of SBA loans, SBA_LOANS, obtained from the SBA (column 2), quarterly total employment, EMPLOYMENT, obtained from the QCEW (column 3), and annual total personal income, PERSONAL_INCOME, obtained from the BEA (column 4). We regress the county-level outcome of interest on the interaction between POST and a Top 25% COVIDFLOWS dummy variable, TOP_25%_COVIDFLOWS, an interaction between POST and AVG_POST_PERIOD_ENTRANT_INCOME, and the triple interaction. AVG_POST_PERIOD_ENTRANT_INCOME is the standardized measure of the average zip-code income of all entrants in the post period, and proxies for the average income of entrants during the pandemic. COVIDFLOWS is defined as the difference in annualized net inflows per capita from April 2020-December 2020 less April through December 2017-2019. POST is a dummy variable equal to one if the year is 2021, and zero otherwise. More details on the variables are provided in Appendix Table **??**. We exclude 2020 data from the sample. We include county and time fixed effects, which absorb the main effects of POST, AVG_POST_PERIOD_ENTRANT_INCOME, and COVIDFLOWS. Standard errors clustered at the county level are shown below the estimates. ***, **, * indicates significance at the 1%, 5%, and 10% levels, respectively.

	ESTABLISHMENTS 1	SBA_LOANS 2	EMPLOYMENT 3	PERSONAL_INCOME 4
POST × TOP_25%_COVIDFLOWS	0.009	0.181	0.008*	0.004
	(0.01)	(0.11)	(0.00)	(0.00)
POST × AVG_POST_PERIOD_ENTRANT_INCOME	0.028***	-0.067	0.007	-0.002
	(0.00)	(0.13)	(0.00)	(0.00)
POST × TOP_25%_COVIDFLOWS × AVG_POST_PERIOD_ENTRANT_INCOME	0.016**	0.014	0.017**	0.015***
	(0.01)	(0.16)	(0.01)	(0.00)
County FE?	Yes	Yes	Yes	Yes
Year FE?	No	Yes	No	Yes
Year-Quarter FE?	Yes	No	Yes	No
Obs.	38,654	7,180	38,654	9,364
Pseudo R^2	0.999	0.968	0.999	0.999

TABLE IA.A7

Local Economic Outcome Robustness Tests

The table presents robustness tests for Table 4 in the main text. Regression analysis in Panel A includes county and state×time fixed effects (instead of county and time fixed effects in the main analysis). In Panel B, we use an alternative measure of COVID-era flows, which calculates the change in flows over the full pre- and full post-period. In particular, the full period migration shock in Panel B calculates COVIDFLOWS_FULL as the difference in annualized net inflows per capita from April 2020-December 2021 less January 2017-Feburary 2020. Panel B includes county and time fixed effects as indicated in the table footer. Standard errors clustered at the county level are shown below the estimates. ***, **, * indicates significance at the 1%, 5%, and 10% levels, respectively.

Panel A: State × Year Fixed Effects

	Establishments 1	SBA Loans 2	Employment 3	Personal Income 4
POST × BOT_25%_COVIDFLOWS	-0.010**	-0.019	-0.010*	-0.014
	(0.00)	(0.08)	(0.01)	(0.01)
POST × TOP_25%_COVIDFLOWS	0.007*	0.135	0.008**	0.008**
	(0.00)	(0.10)	(0.00)	(0.00)
County FE?	Yes	Yes	Yes	Yes
State × Year FE?	No	Yes	No	Yes
State × Year-Quarter FE?	Yes	No	Yes	No
Obs.	45,836	7,856	45,836	11,292
Psuedo R^2	0.999	0.974	0.999	0.999

Panel B: Full Period Shock

	Establishments 1	SBA Loans 2	Employment 3	Personal Income 4
POST × BOT_25%_COVIDFLOWS_FULL	0.004	0.059	-0.004	0.003
	(0.01)	(0.09)	(0.01)	(0.01)
POST × TOP_25%_COVIDFLOWS_FULL	0.030***	0.227***	0.030***	0.018***
	(0.01)	(0.09)	(0.01)	(0.00)
County FE?	Yes	Yes	Yes	Yes
Year FE?	No	Yes	No	Yes
Year-Quarter FE?	Yes	No	Yes	No
Obs.	46,524	7,904	46,524	11,296
Psuedo R^2	0.999	0.968	0.999	0.999

Internet Appendix B: Characterizing the Unigroup Sample of Movers and Comparisons of Migration Data Sets

Our main data set covers interstate moves conducted through a large moving company, UniGroup. The Unigroup sample is not a representative sample of all movers in the U.S. during this time period for two key reasons. First, our sample does not have intra-city moves such as those from the center of a city to less dense, lower price-per-square-foot suburban neighborhoods. As noted in the main text, our focus on interstate moves is not uncommon (Molloy, Smith, and Wozniak, 2011). The second reason is that the Unigroup sample is tilted towards higher earning, older households. In this Appendix and in the paper, we compare our migration data to other migration data and conduct additional analyses using the other migration data to help understand the external validity of our conclusions. The additional data are from the Current Population Survey, the United States Postal Service, and the Internal Revenue Service

We examine the tilt of our sample towards higher earning, older households by comparing the distribution of mover characteristics in our sample to the more representative CPS ASEC (Annual Social and Economic Supplement) migration survey data between the years 2017-2021. The most recent 2021 CPS ASEC survey will capture migration during 2020. The CPS surveys are collected and weighted to give a representative view of the U.S. on a host of issues. Within the CPS surveys, ASEC surveys are given to a subset of respondents. The data contains demographics, reasons for moving, locations at the state-level, and state-to-state migration pairs for both interstate and within-state moves.[1]

We discuss the differences in demographics between our sample and the CPS sample in Section

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[1]While there are some clear benefits to the CPS data, there are two key limitations compared to our main data. First, the CPS sample is much smaller with some states only having a few respondents each year, and second, the data only extends through 2020, unlike our UniGroup data that goes through December 2021. The smaller number of responses may provide noisier estimates of changes in reasons for moving and makes examining one-year changes in migration patterns difficult (especially at the state level).

III.D of the main text, which is based off comparing the CPS demographic distribution (provided in Panel A of Appendix Table IA.B1) to the Unigroup demographic distribution (provided in Panel B of Table 1 in the main text). The tilt of our sample towards higher income, older households is readily apparent.

We provide further evidence on the higher income tilt of our sample using Internal Revenue Service (IRS) data on county-to-county migration flows between 2017 and 2020, noting that IRS data for 2021 is not yet publicly available. These data contain flows from the origin county to the destination county. The IRS provides both the number of households moving, an approximation for the number of individuals, and the total adjusted gross income for each county-to-county pair. The limitation of this data set is that the data is only available for the pre-pandemic period. Moreover, county pairs with less than 20 moves in a particular year are not provided in the data. Hence, we can only utilize this data to test how representative our data is for commonly paired counties in the pre-period.

We compare our main flow measure to the flows in the IRS data and the adjusted gross income in the IRS data in the pre-pandemic period to help characterize our sample of movers. For each origin county × destination county × year, we calculate the average adjusted gross income per move using the IRS data. In Table IA.B2, we show that the adjusted gross income per mover in the IRS data is greater when a greater proportion of moves are conducted by Unigroup (we divide the Unigroup number of moves by the IRS number of moves). This provides further evidence that Unigroup movers are of higher income than the average mover.

We also use IRS data to support our proxy for high-income movers, which is whether the Unigroup move originates from a zip code in the top 25% of median-income zip codes. In column 2 of Table IA.B2, we show that the greater the percentage of Unigroup moves from higher income zip codes, the higher the average adjusted gross income of movers in the IRS data. In column 3, we show that the adjusted gross income of movers is especially high if there is both a greater number of Unigroup moves and a greater percentage of the Unigroup moves originate from higher-income zip codes.

Overall, this analysis supports the notion that our sample is tilted towards higher income households. Although the UniGroup data is not representative of all movers, the subset of movers we study are an especially important subset to study. These individuals are more likely to be switching local labor markets and tax jurisdictions. Moreover, due to their above average income level, these re-locations will have more severe consequences for local consumption, which can lead to new employment opportunities (Moretti, 2010), and collected taxes.

Given the tilt of our sample, we would not expect the flows of the higher-income Unigroup interstate movers to represent the flows of all movers in the United States. Though we may expect some positive correlation. We examine how the flows of movers in our sample relate to the flows of all movers using data on change of addresses from January 2017 to December 2021. The data is from the United States Postal Service (originally obtained by Ramani and Bloom (2021) through a FOIA request). Specifically, we use the permanent number of moves to a particular state and from a particular state in the pre- and post-pandemic periods. The data encapsulates both interstate and intrastate migration, but does not distinguish between them. The USPS data is very limited in that it does not include origin-destination pairs information, demographics, or stated reasons for moving, so we cannot use it as a comparison set for most of our analyses. We find the correlations between the Unigroup flows and USPS flows at the state-year level are 0.36 and 0.48 for the origin and destination states, respectively. These correlations suggest that flows in Unigroup follow a similar pattern as for the U.S. as a whole, but given the tilt of Unigroup movers they are not perfectly correlated.

We can also compare how the changes in reasons for moving in our sample are related to the changes in reasons among the more representative CPS survey sample. Because the CPS data has both interstate and intrastate moves, we can examine whether there were similar changes in reasons for within-state moves as across-state moves during the pandemic. The set of reasons does not perfectly map between CPS and UniGroup and in the CPS survey the respondents are only able to select one reason. Even though the set of reasons for moving in the CPS survey does not

perfectly overlap with those in the UniGroup survey, there is enough similarity to make general comparisons across the two data sets.

We see broadly similar patterns in the CPS sample as in the UniGroup sample. We examine changes in reasons for moving among interstate movers in the CPS data in Panel A of Appendix Table IA.B3. Examining column 1, we see there is a large decrease in work-related reasons for moving with an 8.8 percentage point drop in "New Job or Job Transfer", a 1.3 percentage point drop for "Other Job-related Reason" and a small 0.2 percentage point increase in "To Look for Work or Lost Job". The reason with the second largest decrease is "For Easier Commute," this is consistent with the shift to remote work decreasing the importance of commute distance for some households. We find small increases in "Other Family Reason," "Change in Marital Status," and "Relationship with Unmarried Partner." These reasons are likely captured by "Family" reasons in the UniGroup data, suggesting there are a number of potentially interesting shifts in family-related moves during the pandemic. Finally, we find many housing-related reasons experienced an increase in relative frequency during the pandemic. Reasons such as "For Cheaper Housing," "Wanted Better Neighborhood," and "Want to Own Home, not Rent" all increased by at least 1.2%. These shifts are consistent with the observed increase in lifestyle reasons for moving in the UniGroup sample.

We further examine how responses changed across demographics in the CPS survey. We focus on interstate moves and calculate changes across income, household size, and age brackets. Results can be found in columns 2-7 of Panel A of Appendix Table IA.B3. We find similar patterns as documented above. For example, we find high-income households and larger households move less for work-related reasons and more for "Health," "Change of Climate," and "Other Family Reasons." These groups also move for more housing and neighborhood reasons. The patterns are not quite as stark when comparing younger to older respondents. This may be because survey respondents for CPS surveys include everyone within a household while UniGroup respondents tend to be head of household. Nevertheless, we find similar changes in reasons for moving across demographics for the CPS and UniGroup respondents.

In Panel B of Appendix Table IA.B3, we perform the same exercise of comparing changes in reasons for moving across the post-pandemic and pre-pandemic periods, focusing only on *intrastate* moves using the CPS data. We find similar, though more muted changes for intrastate moves. There is a relatively high correlation between the interstate and intrastate changes in reasons of 0.51. Overall, these results suggest there are broadly similar shifts in motivations for moving during the pandemic for within-state moves as for across-state moves.

Overall, we find some consistent patterns in both flows and reasons for moving across the different samples, but there are some distinct patterns for our sample of higher-income movers suggesting they are experiencing differential shifts in motivations for moving than the more general population.

TABLE IA.B1

CPS Migration Survey Statistics

The table presents an overview of demographics and reasons for moving drawn from the CPS ASEC migration surveys between 2017-2021. We use all surveys for interstate moves (migrate1=5) and the associated ASEC weight to re-weight observations and get closer to a representative sample. There is virtually no difference in the distributions when not weighting. We bracket age, household income, and household size to match the brackets used in the UniGroup survey. The Age bracket is determined by the respondent's age. Income is defined as household income. Household size is taken from the number of survey respondents within the household. In Panel A, we present the demographic distributions. In Panel B, we present a breakdown of reasons for moving. Respondents are able to select from a variety of reasons for moving but may only select one choice.

Panel A: CPS Survey Demographic Distributions

Age Bracket	Pct.	Income Bracket	Pct.	Household Size	Pct.
18 to 24	12%	Less than $15,000	7%	1	17%
25 to 34	30%	$15,000 to $24,999	7%	2	31%
35 to 44	23%	$25,000 to $34,999	8%	3	19%
45 to 54	13%	$35,000 to $49,999	12%	4	19%
55 to 64	12%	$50,000 to $74,999	17%	5+	15%
65 to 74	6%	$75,000 to $99,999	15%		
75 or older	4%	$100,000 to $149,999	16%		
		$150,000 or more	17%		

Panel B: CPS Reason for Move Frequency

Reason	Proportion
New Job or Job Transfer	33.8%
Other Family Reason	15.5%
To Establish Own Household	5.4%
Attend/leave College	4.7%
For Cheaper Housing	4.5%
Wanted New or Better Housing	4.2%
Other Reasons	4.2%
Change in Marital Status	3.8%
For Easier Commute	3.1%
Change of Climate	2.7%
To Look for Work or Lost Job	2.7%
Other Housing Reason	2.6%
Retired	2.5%
Want to Own Home, Not Rent	2.4%
Health Reasons	2.3%
Wanted Better Neighborhood	1.9%
Other Job-related Reason	1.7%
Relationship with Unmarried Partner	1.3%
Foreclosure or Eviction	0.4%
Natural Disaster	0.2%

TABLE IA.B2

IRS Adjusted Gross Income and Unigroup Moves

This table presents results from a panel fixed effects regression that examines the relationship between Unigroup moves and average adjusted gross income per move. The unit of observation is at the origin-destination county, year level. For this analysis, we only focus on interstate moves which aligns with the Unigroup data. The dependent variable, AGI_PER_MOVE, is the average adjusted grouss income per move. UNIGROUP_PROPORTION_OF_MOVES is the number of moves in Unigroup (NUMBER_OF_UNIGROUP_MOVES) divided by the number of IRS-indicated moves. %_OF_HIGH_INCOME_UNIGROUP_MOVES IS the number of moves originating from the top 25% of median-income zip codes, divided by all Unigroup moves between the origin-destination pair in that year. Standard errors clustered at the origin county level are shown below the estimates. ***, **, * indicates significance at the 1%, 5%, and 10% levels, respectively.

	Adjusted Gross Income Per Move		
	1	2	3
UNIGROUP_PROPORTION_OF_MOVES	151.275***		
	(15.33)		
%_OF_HIGH_INCOME_UNIGROUP_MOVES		39.767***	20.458***
		(3.13)	(2.98)
NUMBER_OF_UNIGROUP_MOVES			-25.141
			(37.11)
%_OF_HIGH_INCOME_UNIGROUP_MOVES × NUMBER_OF_UNIGROUP_MOVES			765.954***
			(80.96)
Observations	26,043	24,021	24,021
R^2	0.012	0.056	0.102

CPS Change in Migration Reasons by Mover and Move Type

This table presents the changes in reasons for moving using data from the CPS ASEC migration surveys between 2017-2021. We calculate the proportion of moves for each group in the post period (ASEC 2021) and subtract the proportion of stated reasons for the pre-pandemic period (2017-2020). Note, 2021 surveys will capture migration over the previous year, so we only have one year of pandemic period reasons for moving. By using proportional changes, we account for any change in the overall number of moves within each period. In Panel A, we focus only on interstate moves (migrate1=5), while Panel B presents results only for the subset of within-state movers (migrate1=3,4). We use all surveys and the associated ASEC weight to re-weight observations and get closer to a representative sample. When splitting on household income, we define "High-income" as those households making more than $100,000 and all others as "Not High-Income." "Family" denotes a serial observation that has more than three or more respondents, likely capturing a family. "Young" is defined as survey respondents whose age is below 55, while "Old" is any survey respondent 55 or older. These cuts are meant to approximate the cuts used for our analysis using the UniGroup data.

Panel A: Interstate Changes in Reasons

	1 Overall	2 High Income	3 Not High Income	4 Family	5 Not Family	6 Young	7 Old
Change in Marital Status	0.2%	1.5%	-0.6%	2.1%	-1.8%	0.2%	0.2%
To Establish Own Household	0.6%	0.9%	0.9%	-0.1%	1.4%	1.2%	-2.3%
Other Family Reason	0.3%	4.8%	-2.1%	1.6%	-0.9%	0.1%	1.7%
New Job or Job Transfer	-8.8%	-17.4%	-5.0%	-13.3%	-3.9%	-8.8%	-9.8%
To Look for Work or Lost Job	0.2%	-0.9%	1.1%	0.6%	-0.1%	0.4%	-0.9%
For Easier Commute	-1.5%	-1.3%	-1.6%	-2.1%	-0.8%	-1.6%	-0.9%
Retired	0.0%	1.0%	-0.7%	-0.1%	-0.2%	0.4%	-2.0%
Other Job-related Reason	-1.3%	-1.4%	-1.2%	-1.3%	-1.2%	-1.5%	-0.4%
Want to Own Home, Not Rent	1.2%	2.9%	0.1%	0.5%	1.8%	0.9%	2.7%
Wanted New or Better Housing	-0.5%	1.4%	-1.7%	0.1%	-1.1%	-0.7%	1.1%
Wanted Better Neighborhood	3.7%	3.0%	4.2%	5.4%	1.9%	3.5%	4.8%
For Cheaper Housing	2.2%	1.5%	2.8%	2.9%	1.5%	2.4%	1.1%
Other Housing Reason	0.1%	-0.3%	0.5%	-0.5%	0.7%	0.3%	-0.9%
Attend/leave College	0.0%	-0.8%	0.6%	1.7%	-1.9%	0.0%	-0.4%
Change of Climate	0.0%	2.1%	-1.4%	0.6%	-0.8%	-0.1%	0.6%
Health Reasons	0.9%	2.6%	-0.1%	1.7%	0.0%	0.5%	3.0%
Other Reasons	-0.2%	-1.6%	0.5%	-1.1%	0.5%	-0.4%	0.4%
Natural Disaster	0.5%	0.5%	0.6%	-0.1%	1.2%	0.4%	1.3%
Foreclosure or Eviction	0.3%	1.0%	-0.1%	0.6%	0.1%	0.4%	0.0%
Relationship with Unmarried Partner	2.2%	0.6%	3.3%	0.9%	3.5%	2.5%	0.7%

Panel B: Within State Changes in Reasons

	1 Overall	2 High Income	3 Not High Income	4 Family	5 Not Family	6 Young	7 Old
Change in Marital Status	-0.6%	-1.0%	-0.4%	0.3%	-1.8%	-0.6%	-0.2%
To Establish Own Household	-1.2%	-0.9%	-0.8%	-2.4%	0.0%	-1.5%	1.0%
Other Family Reason	-1.3%	-1.0%	-1.5%	-1.0%	-1.6%	-1.8%	1.9%
New Job or Job Transfer	-1.1%	-0.7%	-1.4%	-0.5%	-2.0%	-1.1%	-1.2%
To Look for Work or Lost Job	0.1%	0.2%	0.1%	0.0%	0.2%	0.0%	1.0%
For Easier Commute	-1.3%	-1.0%	-1.5%	-1.1%	-1.7%	-1.4%	-0.3%
Retired	-0.2%	-0.4%	-0.1%	-0.4%	0.1%	-0.2%	-0.2%
Other Job-related Reason	-0.4%	-0.5%	-0.4%	-0.6%	-0.3%	-0.5%	-0.3%
Want to Own Home, Not Rent	0.2%	-0.1%	0.0%	-0.1%	1.0%	0.5%	-1.6%
Wanted New or Better Housing	1.4%	3.7%	-0.1%	1.6%	1.8%	1.7%	-0.5%
Wanted Better Neighborhood	2.7%	2.4%	2.9%	3.7%	1.4%	2.6%	3.4%
For Cheaper Housing	1.0%	0.9%	1.4%	1.2%	0.6%	0.8%	2.2%
Other Housing Reason	-1.4%	-2.0%	-1.1%	-2.2%	-0.3%	-1.4%	-1.3%
Attend/leave College	0.6%	0.6%	0.8%	1.2%	-0.1%	0.8%	-0.1%
Change of Climate	0.2%	0.3%	0.2%	0.2%	0.2%	0.3%	-0.1%
Health Reasons	-0.6%	0.0%	-0.9%	-0.2%	-1.3%	-0.2%	-3.3%
Other Reasons	-0.3%	-1.3%	0.1%	-0.4%	-0.2%	-0.5%	0.8%
Natural Disaster	-0.2%	-0.2%	-0.2%	-0.1%	-0.4%	-0.1%	-0.9%
Foreclosure or Eviction	-0.4%	-0.4%	-0.4%	-0.6%	-0.2%	-0.3%	-1.1%
Relationship with Unmarried Partner	2.8%	1.7%	3.4%	1.5%	4.5%	3.1%	0.7%

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