



Economics & Financial

FY22-23 First Quarter

The Florida Department of Financial Services



July 2022

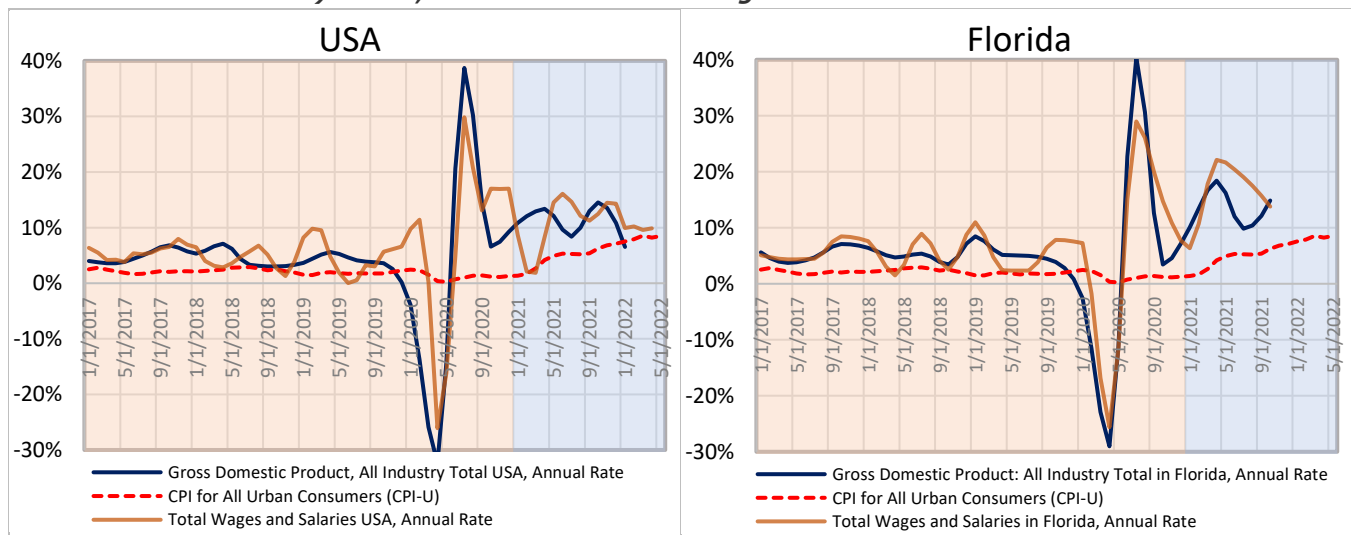
Growth and Migration

This memo examines Florida’s economic growth, Wages and Salaries, Inflation as well as Migration. Both GDP and wage growth in Florida outpaced the same for the nation. A significant strain on redistribution of the proceeds from production is not present in the data as analyzed. Hence, labor nor wages and salaries are key to inflation. A vintage approach on migration tells us that a surplus of \$4.4 trillion is added to Florida’s Adjusted Gross Income, albeit over 29 years.

Earnings, Growth, and Inflation

Is the labor market hot or not? Did wages and salaries keep up with economic growth? Is it a cause of inflation (wage-price spiral) or an effect (price-wage spiral)? To gauge the possibilities, relative changes in three data time-series were compared:¹ 1) Gross Domestic Product, 2) Total Wages and Salaries, and 3) CPI for All Urban Consumers (CPI-U), this both for the US and Florida, and both percent change from preceding period, seasonally adjusted annual rates. The time-series are depicted in Figure 1. The blue line represents the changes in GDP, the brown line represents changes in Wages and Salaries, and the red dashed line represents inflation or CPI.

Figure 1. Relative Changes in GDP, Wages and Salaries, and Inflation, a) USA and b) Florida, data on Years 2017 through June 2022 as Available.



CPI in both Figures 1a and 1b show the same timeseries. Inflation grew at an average annual rate of 2.3 percent (from 1/1/2017 through 10/1/2021 (all comparisons till 10/1/2021 due to comparative FL data constraints)). Wages and Salaries between the two figures show similar overall developments for the US and Florida, but with two marginal differences, i.e., both Covid-19 pandemic trough (-26.1% 4/1/2020) for the US was more severe, and the rebound shows a higher peak (+29.8% 7/1/2020), this as compared to Florida (-25.6% 4/1/2020 and +29.0% 7/1/2020). The average annual rate of growth for wages and salaries

¹ 1a) U.S. Bureau of Economic Analysis, Gross Domestic Product [GDP], retrieved from FRED, Federal Reserve Bank of St. Louis; <https://fred.stlouisfed.org/series/GDP>, June 21, 2022.

1b) U.S. Bureau of Economic Analysis, Gross Domestic Product: All Industry Total in Florida [FLNQGSP], retrieved from FRED, Federal Reserve Bank of St. Louis; <https://fred.stlouisfed.org/series/FLNQGSP>, June 21, 2022.

2a) U.S. Bureau of Economic Analysis, Compensation of Employees, Received: Wage and Salary Disbursements [A576RC1], retrieved from FRED, Federal Reserve Bank of St. Louis; <https://fred.stlouisfed.org/series/A576RC1>, June 22, 2022.

2b) U.S. Bureau of Economic Analysis and Federal Reserve Bank of St. Louis, Total Wages and Salaries in Florida [FLWTOT], retrieved from FRED, Federal Reserve Bank of St. Louis; <https://fred.stlouisfed.org/series/FLWTOT>, June 21, 2022.

3) U.S. Bureau of Labor Statistics, Consumer Price Index for All Urban Consumers: All Items in U.S. City Average [CPIAUCSL], retrieved from FRED, Federal Reserve Bank of St. Louis; <https://fred.stlouisfed.org/series/CPIAUCSL>, June 21, 2022.

in Florida for the period mentioned was **7.6** percent on average per annum, where the same for the US was **6.5** percent. Likewise, a similar development is shown with GDP. The US at large dipped 32.4 percent (4/1/2020) where Florida was set back by 29.0 percent (4/1/2020). Rebound peaks were 38.7 (7/1/2020) and 40.4 percent (7/1/2020) respectively. In sum, the average annual GDP growth rate in Florida was **6.3** percent, where the same for the US lands **5.4** percent. Hence, Florida fared better on both wages/salaries and GDP.

Since Wages and Salaries represent a rather constant percentage of GDP (at 43.9 and 45.5%² for the US and Florida respectively), a difference between GDP growth and wages/salaries growth is paramount. For example, a lackluster GDP growth, combined with higher wages/salaries distresses compensation for the use of other factors of production (such as capital for investments in natural resources and fixed capital,³ as well as entrepreneurial rewards and risk). The average differences, however, are small with the US at minus 1.1 percent ($\approx 5.4\% - 6.5\%$), and Florida at minus 1.3 percent ($\approx 6.3\% - 7.6\%$). If the mentioned time frame is cut in two, namely a pre- and post-pandemic phase, the average difference for the US comes out at minus 0.4 and minus 2.1 percent, where Florida comes out at minus 0.5 percent and minus 2.8 percent respectively. In short, post-pandemic some 1.7 percentage points were added to the US wage fund and 2.3 percentage points in Florida, percentages that needs to be taken out or redistributed from other factors' compensations as mentioned.

The last observation concerns the inflation or CPI as mentioned. Given that it is the same for both state and nation, the results will undergo a linear transformation only with no impact on the mentioned redistribution. From Figures 1a it may be taken that inflation surpassed GDP growth (last datapoint), resulting in negative real GDP. Whether the same applies to Florida needs to be seen, as data is not yet available for comparison. A univariate analysis with time-lags showed no evidence of a causal relation between wages/salaries and inflation.

State and Migration

The state- and county-level migration data for 2019-2020 for the United States is available on SOI's Tax Stats webpage.⁴ The data includes migration flows at the State level, by size of adjusted gross income, and is based on year-to-year address changes reported on individual income tax returns filed with the IRS. They present migration patterns by state or by county for the entire United States and are available for inflows—the number of new residents who moved to a state or county and where they migrated from, and outflows—the number of residents leaving a state or county and where they went. Table 1 shows the top five rows of the Florida file on inflow of migrants (Note: last two columns added).

Table 1. Individual Income Tax Returns: State-to-State Migration Inflow and Adjusted Gross Income, Years 2019-2020

State Code	Origin from		Number of IRS Returns	Number of Individuals*	Adjusted Gross Income (AGI)	Adjusted Gross Income (AGI) per Return	Adjusted Gross Income (AGI) per Capita
	State	State Name					
			(1)	(2)	(3)	(4) = (3 / 1)	(5) = (3 / (1+2))
96	FL	FL Total Migration-US and Foreign	342,653	635,103	\$41,403,563,000	\$120,832	\$42,345
97	FL	FL Total Migration-US	337,589	623,700	\$41,125,039,000	\$121,820	\$42,781
98	FL	FL Total Migration-Foreign	5,064	11,403	\$278,524,000	\$55,001	\$16,914
97	FL	FL Total Migration-Same State	359,463	650,868	\$22,307,426,000	\$62,058	\$22,079
12	FL	FL Non-migrants	7,902,463	15,730,788	\$656,859,077,000	\$83,121	\$27,794

* Beginning in 2018, personal exemption deductions were suspended for the primary, secondary, and dependent taxpayers. However, the data used to create the "Number of individuals"—filing status, dependent status indicator and identifying dependent information—are still available on the Form 1040. This field is based on these data.

Source: IRS

Total inflow of migrants is 635,103 individuals, which comprises of 623,700 from the US and 11,403 from abroad (row 1 is the sum of row 2 and 3). Taking the Number of Individuals over Number of IRS Returns (a mix between single filers and married couples filing jointly) the result is 1.85 and 2.25 for the two groups mentioned respectively. Given the significant difference, it may be deduced that on average foreign parties immigrate to Florida in larger family/group sizes than domestic migrants. Second, in taking Adjusted Gross Income (AGI) over Number of IRS Returns (see column 4), it shows that the average family party from abroad earned \$55,001 (= \$278,524,000 / 5,064), whereas domestic parties on average earned \$121,820 (= \$41,125,039,000 / 337,589). Per capita (column 5) these earnings are \$16,914 and \$42,781 respectively. Likewise, and in perspective, the same-state (or county) migrants earned a combined average of \$62,058 per filing (or \$22,079 per capita), and the non-migrants an average of \$83,121 per filing (or \$27,794 per capita).

² i.e., 43.3 % pre- and 44.7 % post-pandemic for the US, or a jump of 1.4%, and 44.7 pre- and 46.6 post-pandemic for Florida, or a jump of 1.9 %

³ Mind the elevated producer price indices and rising interest rates as well.

⁴ See <https://www.irs.gov/statistics/soi-tax-stats-migration-data>

Although the two main non-same state migrant groups are relatively small the overall average Adjusted Gross Income results in \$83,743 (or \$28,124 per capita). Without the non-same state migrants, these values would have been \$82,204 (or \$27,560 per capita). Hence the inbound group raised Florida's average Adjusted Gross Income by almost 1.9 percent (or 2.0% per capita). In sum, total migration inflow added well over \$41.4 billion to Florida's Adjusted Gross Income. That said, the picture wouldn't be complete if taken without the outflow of migrants as shown in Table 2.

Table 2. Individual Income Tax Returns: State-to-State Migration Outflow and Adjusted Gross Income, Years 2019-2020

State Code	State	Origin from State Name	Number of IRS Returns	Number of Individuals*	Adjusted Gross Income (AGI)	Adjusted Gross Income (AGI) per Return	Adjusted Gross Income (AGI) per Capita
			(1)	(2)	(3)	(4) = (3 / 1)	(5) = (3 / (1+2))
96	FL	FL Total Migration-US and Foreign	260,527	466,040	\$17,664,216,000	\$67,802	\$24,312
97	FL	FL Total Migration-US	256,188	456,993	\$17,447,441,000	\$68,104	\$24,464
98	FL	FL Total Migration-Foreign	4,339	9,047	\$216,775,000	\$49,960	\$16,194
97	FL	FL Total Migration-Same State	359,463	650,868	\$22,307,426,000	\$62,058	\$22,079
12	FL	FL Non-migrants	7,902,463	15,730,788	\$656,859,077,000	\$83,121	\$27,794

* Beginning in 2018, personal exemption deductions were suspended for the primary, secondary, and dependent taxpayers. However, the data used to create the "Number of individuals"—filing status, dependent status indicator and identifying dependent information—are still available on the Form 1040. This field is based on these data.

Source: IRS

Total outflow of individuals is 466,040. Both outflow categories are smaller in family/group-size at 1.78 and 2.09 (individuals over returns) respectively. Taking Adjusted Gross Income (AGI) over Number of IRS Returns, it shows that the average filing party size earns \$68,104 and \$49,960 respectively (\$24,464 and \$16,194 per capita), both well under the earnings of the same-state (or county migrants) and non-migrants. Likewise, the outbound group suppressed average Florida Adjusted Gross Income by 0.54 percent (-0.34% based on per capita). In outbound terms, the opportunity cost of filers leaving is almost \$17.7 billion in Adjusted Gross Income.

In sum (compiled table not shown) some 169,063 individuals were added to the Florida population due to net inbound migration in 2019-2020, representing some 82,126 new tax-returns. Provided the average filing at \$82,204, the new overall average is raised by almost 2.5 percent to \$84,240 per return. Per capita these values are \$27,560 and \$28,235 respectively. In absolute values, the net result of migration is that they added some \$23.7 billion to Florida's Adjusted Gross Income base.⁵

The above, however, represents only one annual difference data point. Even if all net contributions are added it only represents a timeseries on migration and AGI increments on each successive year of migration. Since people migrate to stay, a more comprehensive picture is needed on the structural or lasting impact of migration on Florida. This was done using a vintage approach, also called "cohort" analysis. A vintage analysis measures the performance of a migrant group in different periods of time after migration. A couple of necessary assumptions needed to be made, as supporting data is limited. First and foremost, it is assumed that the change in IRS methodology is relative and only impacts the last year of reporting (*i.e.*, returns on 2019).⁶ Next, the inflow, which will be reported under non-migrants the next year, is specifically set aside to paint the case for longer term impact. The average inbound "landing" is taken to be between the ages of 25 and 85 (as pensionado's are a known inflow group as well). Since it is unknown when a migrant lands in Florida an average time-span of 29 years is taken.⁷ From the year of landing (first year taken half as the date of landing is unknown, hence on July 1st), an average growth in "migrants" AGI is taken based on the growth on non-migrants AGI (*i.e.*, from the same IRS tables).⁸ No interest rate is considered (as interest is not part of y-to-y growth in AGI either). No career and/or subsequent individual income jumps are considered (just the average as indicated). Since in the end net inflow is measured, potential recurrent outflow is provided for. However, not calculated or considered are an average death rate on the age span of inflow, nor is considered the issue of dependents on becoming independent income return filers. Hence, and taking the assumption constraints as mentioned, a rough and ready estimate is obtained. It is explicitly noted that given the end date on available data, the known Covid-19 influx is not yet part of the analyses.

⁵ Likewise for e.g. California that is net minus \$17.8 billion, making the net difference for Florida on the one hand and California on the other \$40.4 billion.

⁶ It is noted that year-to-year comparisons of same data comes with a disclaimer, this in part due to the use of a new methodology. However, differences between most States were not significant, while some States had modest differences, and one State had a percentage difference that was greater than 10 percent. For a full description of the 2011–2012 migration data, see the Migration Data Users Guide available at <http://www.irs.gov/uac/SOI-Tax-Stats-Migration-Data>. For a description of the previous migration data, see Gross, Emily, "U.S. Population Migration Data: Strengths and Limitations," available on <https://www.irs.gov/statistics/soi-tax-stats-migration-data>

In addition, and as noted the last year of migration data is 2019-2020 or IRS returns filed on 2019 income.

⁷ 85 years in life expectancy minus 25 years as an average start on career, or earliest "landing" in Florida, leaves 60 years or 30 years on average for "landing" absent 1 year due to data constraints, or in sum 29 years.

⁸ One could perceive this as a synthetic lifespan using 30 year timespan to represent half the AGI over a 60 year historic data as available.

Final adjustments were made in basing all annual values on current or 2022 U.S. Dollars. The results of the analyses are as follows (based on 29 years of available IRS data):

- On inflow, some 8.2 million IRS returns were filled, involving some 23.3 million exemptions or dependents, at a total of \$10.5 trillion (in 2022 USD).
- On outflow (in terms of opportunity cost), some 6.4 million IRS returns were lost involving 18.2 million exemptions or dependents, at a total of \$6.1 trillion (2022 USD).
- Both leading to net migration inflow or surplus to Florida's Total AGI of \$4.4 trillion (note: this over 29 years) as per Figure 2b.

As the midpoint or lifespan of 29 years (as assumed) is reached, a newly added group or vintage will come at a loss of the oldest vintage. As per figure 2a, the first vintage (blue band at the bottom), will disappear and make way for the second oldest (orange band), while a new vintage is added in a new column.

Figure 2. a) Net Stacked Contribution to AGI per Vintage and b) Net Cumulative Contribution to AGI

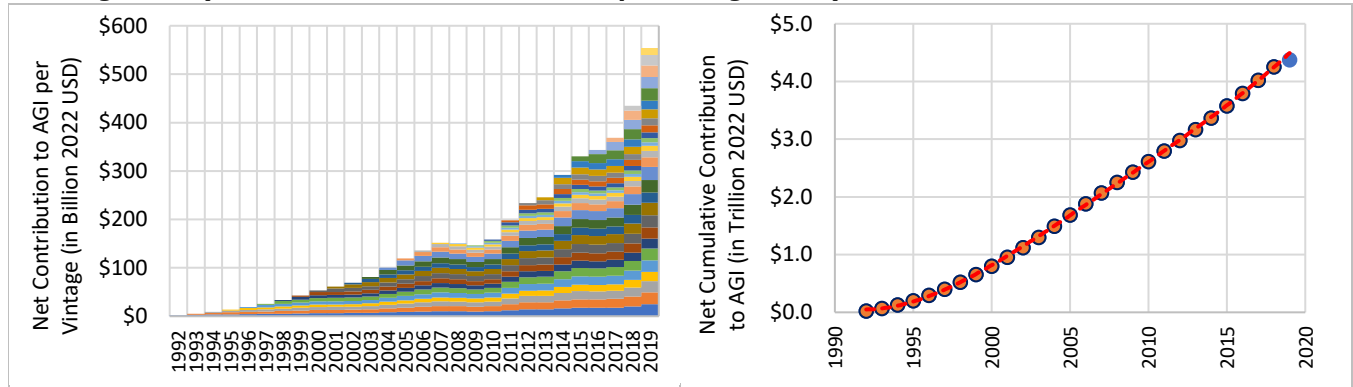


Table 3 is based on the same IRS tables and set up in pursuit of a potential motive for migration. The tables show the top-10 origins/destinations in average rank and average number of tax return filings.

Table 3. Top-10 list of Average ranking by States on In- and Outflow of Migrants to and from Florida, on Number of IRS Filed Returns (years 1992 through 2020)

State	INFLOW		OUTFLOW	
	Avg. Ranking	Avg. # of IRS Returns per year	Avg. Ranking	Avg. # of IRS Returns per year
New York	1.0	32,969	Georgia	21,904
Georgia	2.4	17,587	New York	17,369
New Jersey	3.3	14,761	Texas	18,252
Texas	5.8	13,812	North Carolina	14,077
California	5.8	12,693	California	12,538
Pennsylvania	6.2	12,395	Virginia	9,502
Ohio	6.7	12,006	Tennessee	8,602
Illinois	9.6	10,748	Pennsylvania	8,064
Virginia	9.9	10,705	Ohio	7,903
North Carolina	10.0	10,533	Foreign	7,635

From Table 3 it may be taken that Georgia as a neighboring state attracts some migrants from Florida. Clearly more migrants come to Florida from New York, New Jersey, Pennsylvania, Ohio, Illinois, and Virginia then go to the same. Provided the states of origin outflow, as well as the migrant AGI differences as shown, the cause of Florida's inflow migration may well be its no-state income tax policy.

Key Takeaways:

- Wages and Salaries, or for that matter labor, do not seem to pose a strain on nor is the cause of inflation.
- The net result (in- minus out-flow) of migration is that some \$23.7 billion was added to Florida's Adjusted Gross Income base in 2019-2020. A vintage approach tells us that a surplus of \$4.4 trillion is added to Florida's AGI (albeit over 29 years).

