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US Economics Analyst

Could More Immigration Make a Dent in the Jobs-Workers Gap? (Phillips)

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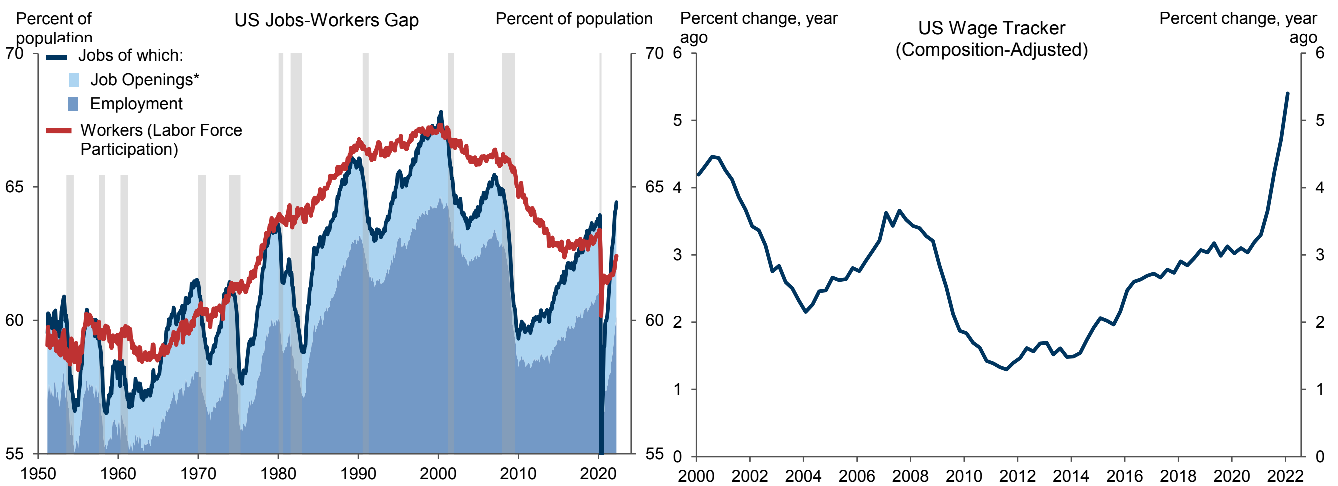
- The gap between the number of available jobs and the number of available workers has allowed wages to rise at a rate well above the pace of wage growth compatible with the Fed's inflation goal. While reduced labor force participation is primarily behind the lower number of available workers, reduced immigration has also played a role.
- From 2010 to 2018, foreign-born workers accounted for nearly 60% of the growth in the US labor force, but growth in the foreign-born population slowed to around 100k/yr between 2019 and 2021, leaving the US population around 2 million smaller than it would otherwise have been, and the labor force around 1.6 million smaller.
- More recently, immigration has rebounded. Green card issuance to new arrivals has roughly returned to its pre-pandemic level, and temporary work visas have gotten close to normal levels in just the last few months.
- However, immigration rates would need to increase further to make up the shortfall in foreign born workers. Immigration policies could make that difficult, as many immigration categories, including skilled and unskilled temporary workers, are limited by numerical caps that only Congress can change. While we would not rule out near-term congressional changes to the caps on lower-skilled workers in particular, broader legislative changes look unlikely.
- There are some administrative steps the administration could take. Waiving interviews and expediting other aspects of the green card process could clear backlogs; reinterpreting the application of numerical limits, allowing spouses of all temporary workers to work, and recapturing unused visa allocations from prior years could each boost net migration by around 200k.
- That said, major immigration changes might not be politically realistic even if there is procedural flexibility to make them. While easing inflation would have clear political benefits and there appears to be some public support for increased legal immigration, substantial changes seem unlikely before the midterm election in November.
- It seems more likely that the Biden Administration will make modest changes where there is clearer authority to do so, perhaps increasing net migration by a few hundred thousand above the normal pace. This would make a modest dent in the jobs-workers gap, but would still leave most of the work for the Fed.

Could More Immigration Make a Dent in the Jobs-Workers Gap?

As we have written recently, the substantial gap between the number of workers and the number of jobs (i.e., jobs filled plus job openings) has led to wage growth of 5 1/2% over the last year, according to our wage tracker. This implies unit labor cost inflation of 3-3 ½%, assuming 1 ½ productivity growth, which is likely incompatible with the Fed's 2% longer-run inflation target. This is the result of a quick recovery in labor demand following the pandemic but a much slower rebound in the labor force. We expect labor force participation to gradually increase, closing around 1-1.5mn of this gap over the coming year, but still leaving a sizeable gap.

Exhibit 1: The Tightest Labor Market In Postwar US History



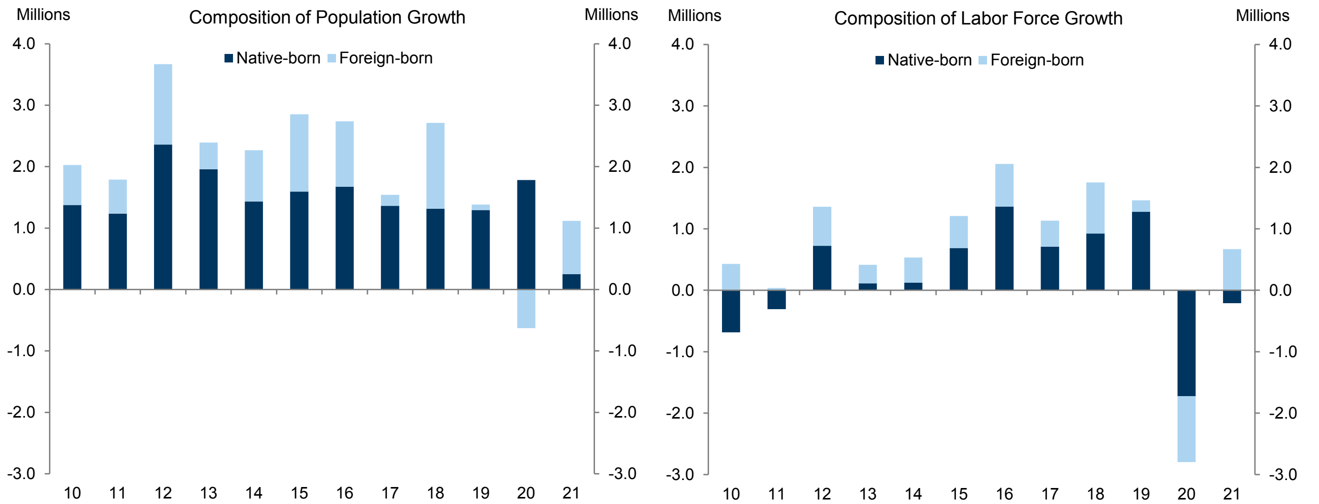
*Extrapolated before Dec 2000 using the newspaper help-wanted index based on methodology by Regis Barnichon, San Francisco Fed.

Note: The following series enter our leading indicator: Dallas Fed, Richmond Fed, and New York Fed manufacturing and service sector surveys, Bloomberg Consumer Comfort, NFIB survey, Conference Board and University of Michigan Household Income Expectations, Duke/CFO Business Outlook Survey.

Source: Haver Analytics, Goldman Sachs Global Investment Research

While the decline in labor force participation is the main driver of reduced labor supply, Fed Chairman Powell remarked recently that reduced immigration is also a "big part of the story." Since 2010, foreign born individuals have accounted for roughly 30% of US population growth but have accounted for nearly 60% of the growth in the US labor force. However, the foreign-born population grew by only 300k from 2019 to 2021, roughly 2 million below the trend over the last decade. The pattern is similar for the foreign-born labor force.

Exhibit 2: The Contribution of Immigration to Population and Labor Force Growth Slowed Meaningfully in 2020



Source: US Bureau of Labor Statistics

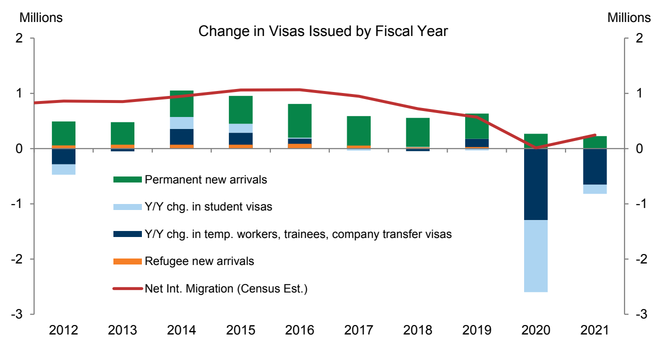
Much of the decline in net immigration was likely due to the pandemic itself, in light of temporarily high unemployment and substantially increased logistical obstacles. However, policy changes likely also played a major role. Immigration policy tightened substantially under the Trump Administration, before and particularly after the onset of the pandemic. Among the important changes:

- *Immigrant and nonimmigrant visa ban:* In April 2020, President Trump issued a proclamation temporarily suspending issuance of most categories of employment-based and family-based green cards. This expanded in June to also cover several non-immigrant categories, including H1-B and H2-B skilled and unskilled worker visas. President Biden rescinded these in February 2021.
- *Public charge:* US law prohibits visa issuance to anyone who is likely to become a "public charge" but this had not generally been an obstacle for green card applicants as they were not eligible for most public benefits in any case. The Trump Administration tightened the restrictions under this policy which led to the denial of some green card applications. The Biden Administration stopped applying the rule in March 2021.
- *Lower refugee caps:* The president sets a cap each year on the number of refugees, which has averaged around 75k per year over the last few decades. This was cut roughly in half during the Trump Administration and reached a low of 18k in 2020. For 2022, the Biden Administration has set a cap of 125k.
- *"Remain in Mexico":* In 2019, the Trump Administration implemented the Migrant Protection Protocols (MPP), also known as the "Remain in Mexico" policy, which requires asylum seekers to await their court dates outside the US, rather than detaining them or releasing them into the US while awaiting a ruling. The Biden Administration attempted to reverse the policy, but was blocked by a federal court, so the policy remains in place pending a Supreme Court decision expected by June.
- *Title 42:* In response to the pandemic, the Centers for Disease Control (CDC) issued

an order that prohibited many migrants from entering the US and led to the immediate expulsion of most individuals who crossed the border without authorization. This prevented migrants from seeking asylum and reduced the number of unauthorized migrants who were released into the US pending adjudication. However, it also reduced the consequences for unauthorized border-crossers, who would not face criminal penalties or detention. The Biden Administration has announced that the policy will end on May 23, though pending federal litigation may extend that date.

The economic and logistical effects of the pandemic, combined with much more restrictive policies, substantially reduced migration into the US. Visas for temporary workers, in particular, declined substantially in 2020 and again in 2021. This likely understates total net migration as it omits unauthorized entries, but fits reasonably closely with separate estimates of net migration from the Census Bureau.

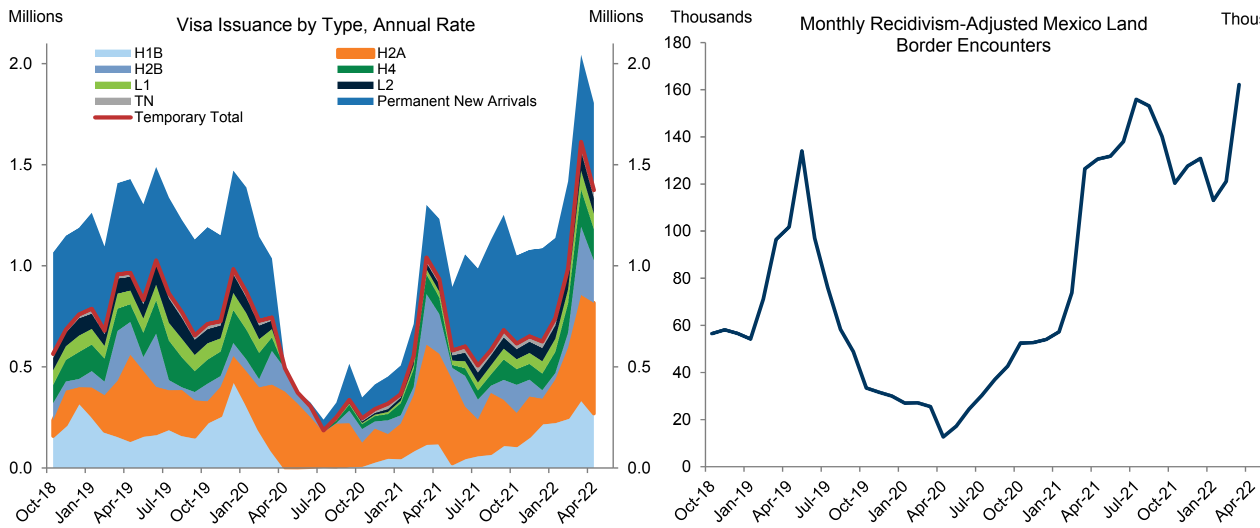
Exhibit 3: Pandemic Effects, Combined With More Restrictive Policies, Substantially Reduced Migration Into the US.



Source: US Census Bureau, US Department of Homeland Security

More recently, issuance of temporary visas and green cards for new arrivals (i.e., excluding visas that change the status of someone already in the US) have rebounded. Unauthorized crossings of the US-Mexico border have jumped more sharply, even after adjusting for the increased share of repeat encounters since the Title 42 policy went into place. (We note that while border encounters can provide a directional sense of unauthorized immigration trends, legal entrants who overstay their visas are responsible for the greatest share of unauthorized immigration.) Overall, the pace of immigration into the US appears to be at least what it was before the pandemic.

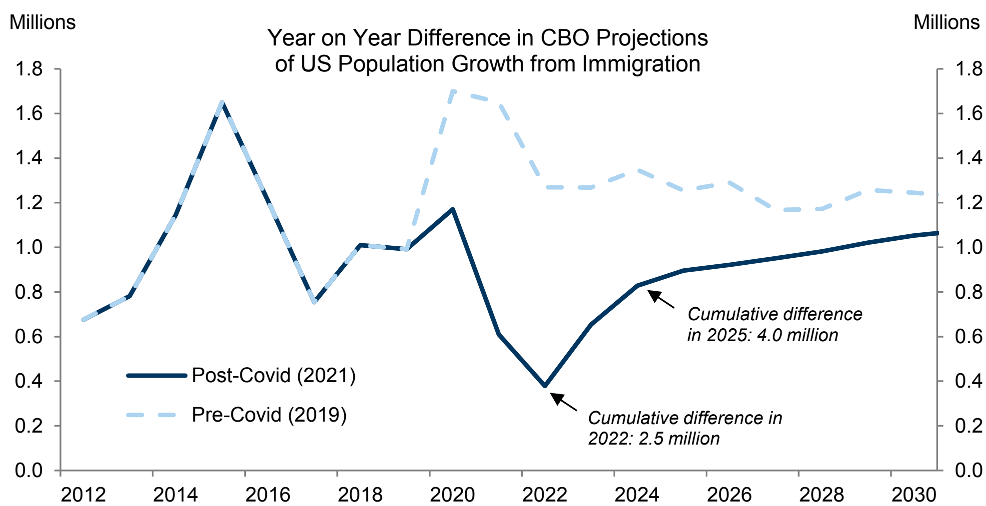
Exhibit 4: The Rate of New Arrivals Has Rebounded



Source: US Department of State, US Customs and Border Protection, Goldman Sachs Global Investment Research

While the annual change in the number of immigrants appears to be close to where it was several years ago, the level is still a couple million short of what it would have been absent policy changes and the pandemic. Estimates from the Congressional Budget Office (CBO) suggest that the gap might grow wider.

Exhibit 5: CBO Estimates Suggest the Immigration Gap Might Grow Wider



Source: Congressional Budget Office, Goldman Sachs Global Investment Research

Immigration Policy Makes It Hard to Catch Up

Existing immigration policies make catching up with those prior projections difficult. The most obvious challenge is that US immigration law imposes numerical limits on many categories of visas for immigrants and temporary workers.

Exhibit 6: US Immigration Cheat Sheet

Visa Type	Purpose	Max. duration	Cap	2017-2019 avg.	2021
Temporary admissions					
H1-B	Specialized workers	6 years with renewal	85k	182k	62k
H2-A	Seasonal agricultural workers	3 years with renewals	None	188k	258k
H2-B	Seasonal non-ag workers	3 years with renewals	121k*	88k	95k
H4	Spouses/children of H-visa holders	N/A	None	131k	55k
L-1	Intra-company transfers	5 or 7 years with renewals	None	77k	25k
L-2	Spouse/child of L1	N/A	None	82k	30k
TN/TD	NAFTA professional (incl. family)	Indefinite with renewals	None	29k	37k
E-1/E-2	Trader/Investor (incl. family)	Indefinite with renewals	None	50k	38k
				827k	600k
Immigrant (permanent) visas					
Immediate family	Spouses, minor children, and parents of US citizens	Permanent	None	500k	170k
Family-preference	Adult children of US citizens, relatives of perm. Residents	Permanent	226k**	217k	65k
Employment-based	Mostly skilled workers	Permanent	140k***	138k	64k
Diversity lottery	Countries <50k immigrants over prior 5 years	Permanent	55k	47k	17k
Other					
Refugee	Resettlment from outside the US	Permanent	125k****	35k	11k
Asylum	Granted upon arrival to US	Permanent	None	27k	0

* The statutory H2-B cap is 66k but Congress routinely raises it temporarily; the current cap is 121k.

** While immediate family visas are unlimited, overall family visas are capped at 480k plus unused employment-based visas from the prior year. Within this, there is a floor of 226k family-preference visas. In most years, this results in more than 480k family visas in total, with family preference visas at the 226k floor.

*** Employment-based visas can be increased by unused family-preference visas from prior year.

**** President sets cap annually. For 2022, the cap has been set at 125k, up from a low of 18k in 2020.

Source: US Department of Homeland Security, Goldman Sachs Global Investment Research

Only Congress can change these, but after failed attempts in 2007 and 2013, broad bipartisan immigration reform legislation looks out of reach. Last year, congressional Democrats sought to include immigration reforms in their Build Back Better legislation, but Senate rules that prohibit non-fiscal policies in "reconciliation" bills would have blocked those from passing with a simple majority in the Senate, had the bill even progressed that far.

That said, there are two remaining potential avenues for narrower legislative changes. A bipartisan group led by Senate Judiciary Committee Chairman Durbin (D-Ill.) and Sens. Cornyn (R-Tex.), Padilla (D-Calif.), and Tillis (R-N.C.) has met over the last few weeks in an attempt to put together a narrower package of reforms that might be able to win bipartisan support, though there is little reason to believe this will end in a different outcome than other bipartisan efforts.

An even more targeted set of changes might have a chance, however. The House passed legislation in March 2021 to reform farm worker visas and it is possible the Senate might act on this narrower issue, particularly in light of the bipartisan support (30 Republican votes) it won in that chamber. The House bill would establish a new "certified agricultural worker" status for undocumented immigrants, conferring work authorization for 5.5 years in any sector (i.e., not just agriculture). It would also reform the existing programs to allow for an additional 55k long-term or permanent unskilled worker visas per year. Separate legislation would exempt returning seasonal non-farm workers from caps, which could potentially increase seasonal worker visas by as much as 300k. There appears to be similar interest in expanding the H2B program for non-agricultural seasonal workers.

The Biden Administration could make meaningful changes without Congress. While the Biden Administration cannot simply dial up immigration approvals, there are other steps it might consider under its existing legal authority.[1]

- *A reduction in the administrative backlog.* Immigrant visa approvals have nearly caught up with pre-pandemic levels, but there continues to be a substantial backlog—421k applicants as of April 2022—of approved petitions awaiting interview. Expediting or waiving those interviews would likely lead to a bump in approvals.
- *A different application of numerical limits.* Even if the administrative backlog is cleared, most visa categories have statutory limits on the number issued each year, which could prevent a surge in visa issuance out of the backlog. Some immigration law experts have asserted that the State Department could, under existing law, count only the primary applicant toward the cap, excluding "derivative" visas for spouses and minor children who currently form around 40% of total immigrant visas issued under the caps. Although only some of these visas go to new arrivals, such a change might still allow for around 175k newly arriving immigrants per year.
- *Authorization for more non-employment visa-holders to work.* Most spouses of H1-B (skilled worker) and L-1 visa holders are currently allowed to work, but family members of most other non-immigrant visa types are not, including H2-A (agricultural) and H2-B (non-agricultural) workers. Workers in those categories typically do not bring family members, likely in part because of the prohibition. As of 2019, there were nearly 200k dependents of visa holders who lacked work authorization. If H2 visa holders brought family members in the same ratio as H1-B visa holders—this seems likely if they were allowed to work—this might increase temporary migration by another 200k or so.
- *Unused visa recapture.* Although immigration law calls for the rollover of unused visa allocations to the following year, quirks in the law often lead to some green card allocations disappearing instead. Congress has approved legislation in the past to recapture some of the unused allocation, and current sponsors of visa recapture legislation estimate that green card issuance has undershot the numerical limit by a cumulative 400k from 1992 through 2021 (another estimate puts the cumulative undershoot in green card issuance since 1922 at 4.5 million, though it is extremely unlikely Congress or the Biden Administration would reach back this far). Of the 400k in unused visa allocations, more than 200k are from FY2021 (Oct. 2020 start), but most of these will automatically roll over to employment-based visa allocations for 2022. This will roughly double the limit on employment-based green cards this year.
- *Broader use of extraordinary authorities.* The Administration has particular discretion when it comes to refugees and asylum seekers. The president is responsible for

[1] For a useful compendium of potential administrative actions to liberalize US immigration policies, see David Bier, et. al, Deregulating Legal Immigration: A Blueprint for Agency Action. Most of the options listed are discussed in more detail in this report.

setting the cap on refugee admissions (125k for FY2022) and there is no cap on grants of asylum (the share of asylum requests granted has risen from less than 30% in 2020 to 50% currently). David Bier of the CATO Institute proposes raising the refugee cap to clear the backlog of family-based visa applications from countries that qualify that already have a substantial number of asylum seekers. In comments to the USCIS, immigration lawyer Cyrus Mehta proposes using "parole" authority to clear the visa backlog, modeled on smaller programs for certain countries (e.g. Haiti). This could allow for the entry of anywhere from a few hundred thousand to a few million immigrants, if it were deemed legally permissible.

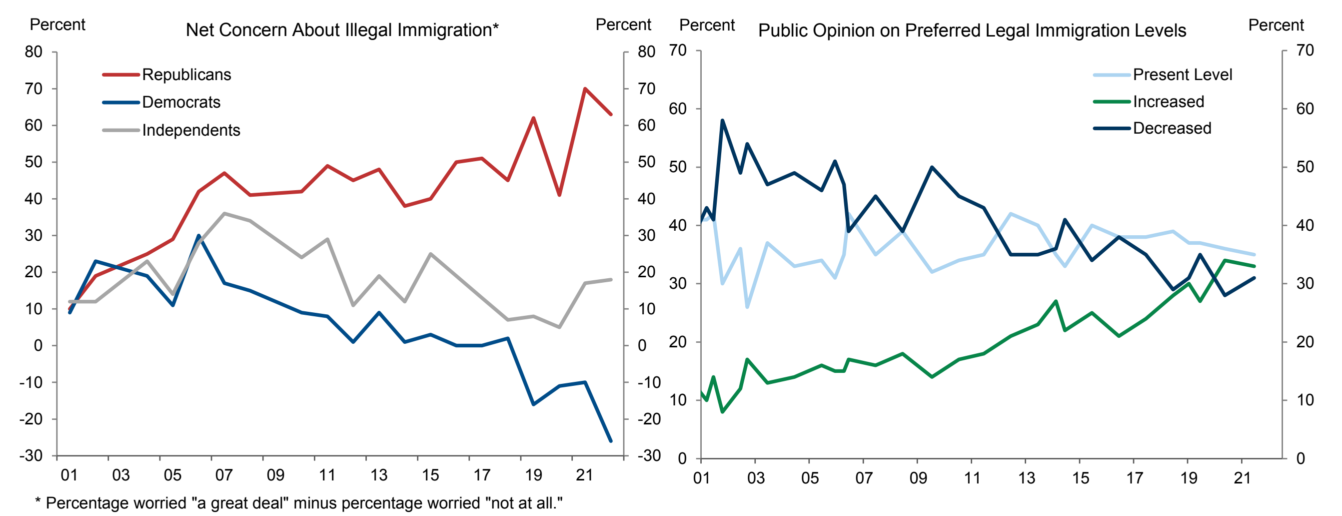
Overall, it seems likely the Biden Administration could increase annual legal immigration by as much as a few hundred thousand without congressional approval using some of the less controversial steps immigration experts have proposed.

Political Reality: Between a Rock and a Hard Place

A recent New York Times story cites internal White House polling from over a year ago, which was already showing immigration and inflation as the two biggest issues eroding President Biden's public support. Recent polling from Morning Consult suggests that among President Biden's major executive actions over his first year in office, reversing the Trump Administration's immigration restrictions are some of the least popular (COVID-related policies tended to be the most popular). Many Democratic candidates in competitive swing-state elections this November have come out on the opposite side of the White House on border issues, in particular.

Still, there are reasons to believe some liberalization of immigration policies could be politically beneficial. Inflation ranks as a higher priority than immigration among voters of all parties, with the greatest difference among Democrats. President Biden's approval rating on handling inflation is lower than on handling immigration among voters of all parties, with the greatest divergence among Democratic voters (only 59% approve of his handling of inflation).

Exhibit 7: Polarized Public Opinion Makes Major Immigration Reform Unlikely but Smaller Changes Are Possible



Source: Gallup

Political concerns about immigration also appear to be driven primarily by unauthorized immigration and largely concentrated among Republican voters. Sentiment toward legal immigration is more positive in comparison, with a general uptrend in public support for increased legal immigration. While major changes might be too politically controversial, smaller changes—particularly around temporary work visas and potentially regarding green card recapture—might be in the realm of political reality.

Increased Immigration Might Make a Small Dent in the Jobs-Workers Gap

The steps the Biden Administration has taken to date suggest that immigration policy is likely to move in a less restrictive direction, but that changes will be incremental and will take time. One recent indicator is the decision by the Department of Homeland Security to increase the cap on H2-B visas for non-agricultural workers. Earlier this year, Congress authorized DHS to increase the H2B cap by around 65k through Oct. 2022, essentially tripling it (33k were already allocated for the April to October period). Instead, DHS increased the cap by only 35k. While the exact number of H2B visas has little impact on the broader US labor market, the decision suggests that the Biden Administration remains cautious in its interpretation of immigration laws and is unlikely to take extraordinary steps.

Overall, it seems likely that immigration policy changes might make a small dent in the jobs-workers gap. We have estimated that the gap would need to close by around 2 ½ million to return wage growth to the 4-4½% range, a level that would be consistent with the FOMC's inflation goals. As noted earlier, increased labor force participation might close 1-1 ½ million of this over the next year. An increase on the order of few hundred thousand above the normal pace might be realistic, but a larger boost seems unlikely. This would make a modest dent in the jobs-workers gap, but would leave most of the work of closing it for the Federal Reserve.

Alec Phillips

We thank Tim Krupa for his contributions.

The US Economic and Financial Outlook

THE US ECONOMIC AND FINANCIAL OUTLOOK
(% change on previous period, annualized, except where noted)

	2020	2021	2022 (f)	2023 (f)	2024 (f)	2025 (f)	2022 Q1	2022 Q2	2022 Q3	2022 Q4	2023 Q1	2023 Q2	2023 Q3	2023 Q4
OUTPUT AND SPENDING														
Real GDP	-3.4	5.7	2.4	1.6	1.8	1.9	-1.4	2.5	2.3	1.5	1.3	1.5	1.5	1.8
Real GDP (annual=Q4/Q4, quarterly=yoy)	-2.3	5.5	1.2	1.5	1.9	1.9	3.6	2.5	2.5	1.2	1.9	1.6	1.4	1.5
Consumer Expenditures	-3.8	7.9	3.1	1.6	1.7	1.9	2.7	3.2	2.0	1.5	1.3	1.5	1.4	1.5
Residential Fixed Investment	6.8	9.2	-3.6	-1.1	2.0	2.0	2.1	-8.4	-7.5	-3.0	1.0	2.0	2.0	2.0
Business Fixed Investment	-5.3	7.4	4.2	2.6	3.5	3.6	9.2	1.9	0.8	2.8	2.8	3.0	3.2	3.4
Structures	-12.5	-8.0	-4.5	-0.8	2.4	3.0	-0.9	-7.8	-4.0	0.0	0.0	0.0	1.0	2.0
Equipment	-8.3	13.1	5.0	1.9	2.8	3.0	15.4	1.5	0.0	2.0	2.0	2.5	2.5	2.5
Intellectual Property Products	2.8	10.0	7.8	5.0	4.7	4.5	8.1	7.5	4.0	5.0	5.0	5.0	5.0	5.0
Federal Government	5.0	0.6	-4.4	-1.6	-0.1	0.0	-5.9	-3.0	-3.0	-3.0	-1.0	-1.0	0.0	0.0
State & Local Government	0.9	0.4	0.5	1.0	1.0	1.0	-0.8	0.9	1.0	1.0	1.0	1.0	1.0	1.0
Net Exports ($bn, '12)	-943	-1,284	-1,459	-1,391	-1,384	-1,407	-1,542	-1,446	-1,435	-1,414	-1,405	-1,394	-1,387	-1,379
Inventory Investment ($bn, '12)	-42	-33	148	104	63	60	159	124	160	148	125	110	100	80
Industrial Production, Mfg.	-6.6	6.2	3.3	0.6	1.3	1.6	4.9	1.1	0.9	0.1	0.1	0.7	1.1	1.1
HOUSING MARKET														
Housing Starts (units, thous)	1,395	1,605	1,692	1,720	--	--	1,724	1,687	1,658	1,699	1,719	1,765	1,703	1,692
New Home Sales (units, thous)	828	774	809	888	887	887	814	782	803	836	859	903	901	891
Existing Home Sales (units, thous)	5,638	6,127	5,672	5,640	5,751	5,863	6,057	5,561	5,499	5,571	5,598	5,626	5,654	5,682
Case-Shiller Home Prices (%yoy)*	9.5	18.8	9.0	2.7	3.5	3.8	12.5	11.3	10.1	9.0	--	--	--	--
INFLATION (% ch, yr/yr)														
Consumer Price Index (CPI)**	1.3	7.1	6.0	2.8	2.6	2.4	8.0	7.8	7.7	6.4	4.8	3.7	2.8	2.8
Core CPI **	1.6	5.5	4.6	2.6	2.6	2.5	6.3	5.7	5.5	4.9	4.0	3.3	2.8	2.7
Core PCE** †	1.5	4.9	3.8	2.4	2.3	2.2	5.2	4.5	4.4	4.0	3.5	3.3	2.8	2.5
LABOR MARKET														
Unemployment Rate (%)^	6.7	3.9	3.5	3.7	3.7	3.7	3.6	3.5	3.4	3.5	3.6	3.6	3.7	3.7
U6 Underemployment Rate (%)^	11.7	7.3	6.6	6.7	6.7	6.5	6.9	6.6	6.5	6.6	6.7	6.7	6.7	6.7
Payrolls (thous, monthly rate)	-774	562	270	74	83	60	549	293	153	87	62	70	80	83
Employment-Population Ratio (%)^	57.4	59.5	60.3	60.2	60.1	59.9	60.1	60.2	60.3	60.3	60.3	60.2	60.2	60.2
Labor Force Participation Rate (%)^	61.5	61.9	62.6	62.5	62.4	62.2	62.4	62.4	62.5	62.6	62.5	62.5	62.5	62.5
Average Hourly Earnings (%yoy)	4.9	4.2	5.0	4.2	3.8	3.5	5.4	5.3	4.9	4.5	4.3	4.2	4.1	4.0
GOVERNMENT FINANCE														
Federal Budget (FY, $bn)	-3,129	-2,772	-1,100	-1,050	-1,150	-1,300	--	--	--	--	--	--	--	--
FINANCIAL INDICATORS														
FF Target Range (Bottom-Top, %)^	0-0.25	0-0.25	2.5-2.75	3-3.25	3-3.25	3-3.25	0.25-0.5	1.25-1.5	2-2.25	2.5-2.75	2.75-3	3-3.25	3-3.25	3-3.25
10-Year Treasury Note^	0.93	1.52	3.30	3.15	3.15	3.15	2.32	3.20	3.25	3.30	3.20	3.15	3.15	3.15
Euro (€/$)^	1.22	1.13	1.11	1.20	1.25	1.25	1.11	1.06	1.07	1.11	1.13	1.15	1.18	1.20
Yen ($/¥)^	103	115	126	115	107	107	121	128	127	126	123	120	118	115

* Weighted average of metro-level HPIs for 381 metro cities where the weights are dollar values of housing stock reported in the American Community Survey. Annual numbers are Q4/Q4.
** Annual inflation numbers are December year-on-year values. Quarterly values are Q4/Q4.
† PCE = Personal consumption expenditures. ^ Denotes end of period.
Note: Published figures in bold.
Source: Goldman Sachs Global Investment Research.

Source: Goldman Sachs Global Investment Research

Economic Releases

Date		Time (ET)	Indicator	Estimate GS	Consensus	Last Report
Tue	**May 24**	9:45	S&P Global US manufacturing PMI, May pre.	n.a.	57.8	59.2
		9:45	S&P Global US services PMI, May pre.	n.a.	55.3	55.6
		10:00	Richmond Fed manufacturing index, May	n.a.	10	16
		10:00	**New home sales, April**	**-2.0%**	**-1.7%**	**-8.6%**
Wed	**May 25**	**8:30**	**Durable goods orders, April pre.**	**-0.4%**	**+0.6%**	**+1.1%**
		8:30	**Durable goods orders ex-transportation, April pre.**	**+0.4%**	**+0.6%**	**+1.4%**
		8:30	**Core capital goods orders, April pre.**	**+0.3%**	**+0.5%**	**+1.3%**
		8:30	**Core capital goods shipments, April pre.**	**+0.5%**	**+0.5%**	**+0.4%**
Thu	**May 26**	**8:30**	**GDP, Q1 second**	**-1.7%**	**-1.3%**	**-1.4%**
		8:30	**Personal consumption, Q1 second**	**+2.0%**	**+2.9%**	**+2.7%**
		8:30	**Initial claims, week ended May 21**	**218k**	**210k**	**218k**
		8:30	Continuing claims, week ended May 14	n.a.	1,310k	1,317k
		10:00	**Pending home sales, April**	**-2.3%**	**-2.0%**	**-1.2%**
		11:00	Kansas City Fed manufacturing index, May	n.a.	18	25
Fri	**May 27**	**8:30**	**Personal income, April**	**+0.6%**	**+0.5%**	**+0.5%**
		8:30	**Personal spending, April**	**+1.1%**	**+0.7%**	**+1.1%**
		8:30	**PCE price index, April**	**+0.14%**	**+0.2%**	**+0.87%**
		8:30	**PCE price index (yoy), April**	**+6.13%**	**+6.2%**	**+6.59%**
		8:30	**Core PCE price index, April**	**+0.21%**	**+0.3%**	**+0.29%**
		8:30	**Core PCE price index (yoy), April**	**+4.75%**	**+4.9%**	**+5.18%**
		8:30	**Advance goods trade balance, April**	**-$114.0bn**	**-$114.7bn**	**-$127.1bn**
		8:30	Wholesale inventories, April pre.	n.a.	+1.9%	+2.3%
		8:30	Retail inventories, April	n.a.	+2.0%	+2.0%
		10:00	**Michigan consumer sentiment, April final**	**58.1**	**59.1**	**59.1**

Source: Goldman Sachs Global Investment Research

Disclosure Appendix

Reg AC

We, Jan Hatzius, Alec Phillips, David Mericle, Spencer Hill, CFA, Joseph Briggs, Ronnie Walker and Manuel Abecasis, hereby certify that all of the views expressed in this report accurately reflect our personal views, which have not been influenced by considerations of the firm's business or client relationships.

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