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Evaluating the Use of Humanitarian Parole as a Border Management Strategy in the United States

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Abstract

The number of arrivals at the U.S.-Mexico border increased dramatically from 2021-2024. To accommodate this increased flow, the Biden administration introduced a new program that allowed migrants from 'non-deportable' countries - Cuba, Haiti, Nicaragua, and Venezuela (CHNV) - the opportunity to apply for parole while still in their home countries and arrive for U.S. Customs and Border Protection (CBP) appointments at a given port of entry, alleviating the numbers of unsolicited arrivals along the border. In this article, we analyze CBP data to assess the program's effectiveness in reducing irregular migration along the southern U.S. border. Our results show that the CHNV parole program demonstrated varying levels of success in reducing border encounters, with pronounced, long-term effects for Cuban and Nicaraguan nationals and only temporary for Venezuelan and Haitian individuals. We explore the potential causes for these different outcomes and recommend program adjustments to facilitate the growing number of individuals pursuing lawful entry into the United States.

Keywords: Migration; encounters; Cuba; Haiti; Nicaragua; Venezuela; CNHV

Introduction

Unsolicited arrivals at the U.S.-Mexico border increased to a historic high from 2021-2024. To accommodate this increased flow, the Biden administration introduced several mechanisms that attempt to expand lawful pathways to enter the U.S. and reduce irregular arrivals at the border. Chief among these is the use of 'humanitarian' or 'sponsored' parole to divert migrants who otherwise would likely travel to the border to seek asylum. Parole, a discretionary component in U.S. immigration law, is a temporary mechanism that has allowed unprecedented numbers of families and unaccompanied children into the U.S. while they await their immigration court date. In this article, we discuss the uses of the program and analyze U.S. Customs and Border Protection (CBP) data to understand the effect of the program at the height of migrant arrivals at the U.S.-Mexico border in 2022 and 2023. One of the key findings is the program's success in significantly lowering irregular migration.

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Early assessments of the program indicated a successful decrease in the number of immigrants apprehended at the southern U.S. border from the targeted countries. Though politically controversial, the program received acclaim from across the political spectrum, being hailed as a "transformative" and "innovative" immigration policy (Bier, 2023; Di Martino, 2023; Wong, 2024). This paper provides a comprehensive assessment of the program's impact. Our research, conducted through statistical analysis, indicates that the program demonstrated effectiveness for individuals from Cuba and Nicaragua, while its impact was less pronounced for those from Venezuela and Haiti. The reasons behind migration are complex, and thus, so are the solutions. However, we propose that this program has the potential to be effective for a significant number of migrants. We stress the urgent need for modifications that could alleviate the ongoing challenges at the U.S. southern border through the expansion of the program to migrants from more countries experiencing political and economic turmoil.

This analysis of the humanitarian parole program carries significant implications for the future of U.S. immigration policy and global migration trends. By examining the program's successes and limitations, this research can inform the development of more effective and humane border management strategies, potentially shaping how the U.S. addresses future migration flows. Furthermore, the findings offer valuable insights for other nations grappling with similar challenges. Ultimately, this study aims to contribute to a more informed and nuanced discussion on immigration policy, one that prioritizes both border security and the humanitarian needs of migrants.

The CHNV Parole Program

The Cuban, Haitian, Nicaraguan, and Venezuelan (CHNV) Parole Program targeted these four countries in response to an increase in border arrivals and an inability or backlash to the deportation of nationals from these countries back to their country of origin. Political and economic turmoil related to COVID-19 economic downturns, increased organized crime, U.S. economic sanctions, failed or ineffective governance, climate-related displacement, and other factors (Jokisch & Blue, 2024; Massey, 2020) led to a rapid increase in unsolicited migration to the U.S.' southern border from the CHNV countries in recent years. Encounters at the southern border from just the four CHNV countries rose from just 181,000 in FY 2021 to over 600,000 in FY 2022. Unlike nationals from most countries arriving at the U.S. border, the U.S. was unable to expel CHNV migrants under Title 42 (in effect from March 2020 – May 2023) due to poor diplomatic relations with these countries. The governments of Cuba, Venezuela, and Nicaragua refused to accept expelled migrants and Mexico refused to accept migrants other than those from Mexico and Central America. The assassination of President Moise in 2021 plunged Haiti into a state of chaos, causing the collapse of its government and institutions, preventing the country from accepting deportees.

The CHNV parole program exemplified the Biden Administration's use of existing immigration law to provide legal pathways to entry and lower the number of unsolicited arrivals at the U.S.-Mexico border. Following in the wake of the successful Uniting for Ukraine Program, the U.S. expanded a humanitarian parole program for nationals for Venezuela in October 2022 and in January 2023 added three more countries–Cuba, Haiti, and Nicaragua–to accommodate the increased demand for a means to migrate from countries where deportation is expensive and legally complex or impossible (Di Martino, 2023). Under this program, parolees were eligible to apply for asylum and could apply to legally work in the

United States during the duration of their parole. Individuals granted parole received permission to directly enter the United States. This eliminated the need to cross the southern border, often a perilous journey over land through multiple countries.

To qualify for CHNV Parole, migrants must have a sponsor who initiates the process by filling out an I-134 form, which includes proof of legal residency or citizenship, sufficient income (125% of the poverty line) to support the beneficiary(ies), and a written justification of why a grant of parole is warranted 'for urgent humanitarian reasons or significant public benefit.' The beneficiary must be outside of the United States and possess an unexpired passport. Once approved, migrants must provide their own commercial air travel to the United States. After undergoing national security and public safety vetting and demonstrating that they have proper vaccinations, migrants were paroled into the U.S. for up to two years (Lozano, 2024; Sanchez, 2024).

Both finding an eligible sponsor and obtaining a valid passport were significant barriers to accessing this program - obtaining a passport can be expensive and time-consuming, compounded by the fact that many migrants from these countries, especially Haiti and Venezuela, had already fled their countries. While the requirements of a valid passport and a qualifying financial sponsor limited the number of eligible applicants, they also targeted the population that would otherwise be more likely to migrate to the U.S. illegally–those with some connection to the U.S. and funds for a plane ticket but without a legal means to migrate (Di Martino, 2023). DiMartino (2023) argued that by creating a high barrier to entry, these requirements would reduce total immigration and shift the composition of immigrants toward "those who can more easily support themselves or rely on their social and family networks rather than on government welfare."

Though critics characterized this program as excessively permissive and 'a parallel immigration program', Gillespie (2024) argued that the CHNV program is one of the more conservative compared to previous parole programs used by every U.S. president (except for Trump) since the passage of the 1952 Immigration and Nationality Act. This is due to the considerable eligibility restrictions, statutory caps (limiting 30,000 parole entries per month across all four nationalities), and a combined enforcement policy that included the expulsion of an equal number of migrants from these countries to Mexico as were paroled into the U.S. each month. After the announcement of the CHNV Program, crossing into Panama, Mexico, or the U.S. without authorization or interdiction at sea rendered a migrant ineligible for parole (Gillespie, 2024).

As of May 2024, 98,200 Cubans, 177,100 Haitians, 80,700 Nicaraguans, and 106,100 Venezuelans were paroled into the U.S. under this program, making it the largest humanitarian admissions program in modern U.S. history (CBP, 2024b). At the Southern border, encounters steadily increased from 912,000 in 2019 to 3.3 million in 2023, apart from 2020 when the COVID-19 pandemic reduced the migration flow to 547,000. Figure 1 shows the number of CBP encounters by country of citizenship, with aggregated non-paroled countries in blue and the five countries in the parole program in other colors. Figure 1 does not include Title 42 expulsions, which were the individuals encountered and expelled from the U.S. and denied the right to seek asylum (more than 2.8 million people). Title 42 was used during the COVID-19 pandemic to quickly turn back migrants at the U.S.-Mexico border from March 21, 2020 - May 11, 2023. The data show a drop in encounters for the countries participating

in the parole program shortly after its initiation. This suggests that the program had a positive effect on lowering the immigration pressure at the border. However, positive and negative fluctuations in the number of migrants are also visible for citizens from non-paroled countries (blue line). Therefore, rigorous statistical analyses are required to identify the specific impact of the parole programs on the number of immigrants arriving at the southern border.

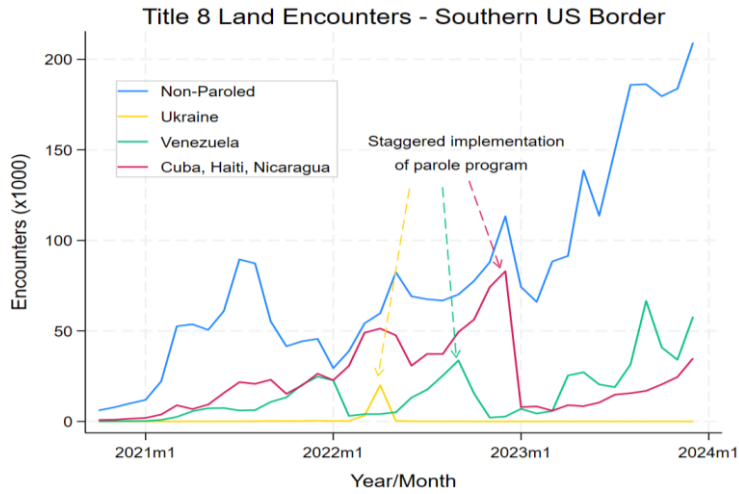

Figure 1. CBP Encounters at the U.S. Southern Border, October 2020 – December 2023 for paroled and non-paroled countries. Includes Title 8 apprehensions and Title 8 inadmissibles. CBP categorizes as "inadmissible" individuals who are seeking lawful entry to the U.S. (often seeking humanitarian protection) but lack a visa or those who withdraw their application for admission and return home quickly. "Apprehensions" refers to temporarily detaining individuals unlawfully present, which may or may not lead to detention. Source: CBP 2024.

Statistical Analysis

Nationwide migrant encounter datasets are publicly available from the CBP website (CBP, 2024a) and include the monthly number of encounters by the type of encounter (expulsion, inadmissible, apprehension), basic demographic information (single adult, unaccompanied minor, family) and land border (southern, northern, or other). For this analysis, we use southern land border encounters by country of citizenship only. We limited our analysis only to those who were encountered and not immediately expelled under Title 42 to avoid artificial fluctuations caused by the expiration of Title 42 in May 2023.

The impact of the parole program on the number of encounters at the U.S. southern border can be estimated by comparing the outcomes of countries that had the option of the CHNV parole program ("treated") and those that did not ("control group"), before and after the policy was enacted. We implement methods known as difference-in-differences (DiD) in econometrics because the causal effect of the policy is identified as the difference before-after for the treated and untreated groups and the difference between the resulting difference, yielding a "treatment effect," which in the present application corresponds to the average reduction in encounters attributed to the parole program. DiD thus eliminates and controls for time-varying potential confounding variables that affect all countries, regardless of the group (paroled or not), potentially producing less biased estimates of the true policy impact.

Because the intervention, i.e., the parole program implementation, was staggered and launched in two different periods, first for Venezuelans and then for Cubans, Haitians, and Nicaraguans, we opted to use Wooldridge's extended two-way fixed effect estimator (TWFE) and a regression augmentation method (CSRA) that uses never-paroled countries as control groups (Callaway & Sant'Anna, 2021; Wooldridge, 2021). These methods allow us to estimate policy effects that vary by cohort (i.e., countries that were paroled in different periods) and across time. Stata 18 software was used in the analysis, and a more formal description of the models is included in the Supplementary Information document, which also includes different statistical approaches that check for the robustness of our results.

Results

Figure 2 presents the results of the extended TWFE, showing the post-policy effect grouped according to the policy's implementation timeline for a country or cohort of countries. The horizontal solid black line is the zero-effect line; values below the line imply a reduction in encounters attributed to the parole program, and the shaded area corresponds to the 95% confidence interval of the estimates.

The statistical analysis shows that the parole program was effective for Venezuela from the first full month after its implementation, November 2022, until March 2023 (Figure 2A). In this span of five months, 21,713 fewer encounters in the southern land border can be attributed to the program. Beginning in April 2023 until the end of our dataset in December 2023, however, the program no longer showed any reduction in encounters. In fact, the estimated effect of the policy after March 2023 is positive for Venezuela, suggesting that it did not reduce the number of encounters at the Southern U.S. border after those first few months.

The program had a more lasting impact on migrants from Cuba, Nicaragua, and Haiti (CNH), countries that were added to the parole program in January 2023 (Figure 2B). In aggregate, 44,093 fewer encounters from those three countries were attributed to the program in the first six months and 32,336 in the second half of 2023. However, the program was not statistically significant (at the 0.05 significance level) in six out of the 12 months of the year (Figure 2B). These results were mostly driven by Haiti. Panel C shows the results once pre- and post-parole observations from Cuba and Nicaragua are removed from the analysis to examine the parole effect on Haiti alone. The program did not show any statistically significant effect on the number of encounters for Haitian citizens. On the other hand, once Haiti data are removed, Panel D shows that the program was highly effective for Cubans and Nicaraguans, especially in the first ten months after the inception of the program. From January to December 2023, the analysis estimates that 116,972 fewer Cubans and Nicaraguans were apprehended at the border because of the parole program.

As a robustness test, we used the same dataset and repeated the analysis using the Callaway and Sant'Anna regression augmentation (CSRA) estimator, with the results presented in Figure 3; the vertical dashed line identifies the month when the parole program was implemented and, as before, the horizontal zero-line is the null policy effect. Although results are qualitatively similar, this method estimates a larger policy effect. According to the CSRA estimator, the parole program was effective for the first 11 months of the policy implementation and reduced the number of Venezuelan citizens encounters by 179,466 (Figure 3A). Similarly, this estimator shows that, for Venezuela, the parole program lost its

effect after September 2023 when more apprehensions of Venezuelans occurred at the border (estimated effect above the zero-line in Figure 3A).

For CNH countries, the CSRA method estimates that the policy led to a significant (0.05 level) reduction in southern border encounters over the year, with a decrease of 275,510 encounters as shown in Figure 3B. The analysis also indicates that the wide standard error margins are primarily attributed to Haiti, as seen in the combined effect graph. Panel C indicates that Haitian migration and southern border encounters remained relatively unchanged by the policy, with pre- and post-policy figures showing little variation and hovering near the zero mark. As with the TWFE, the CSRA method estimated a substantial policy impact on Cuban and Nicaraguan migration (Panel D), with an estimated reduction of 419,465 encounters at the border for these two nationalities since the parole program began in January 2023 until the end of that year.

In summary, the results from all statistical analyses showed that the parole program's effectiveness was consistently high for Cuban and Nicaraguan migrants but lower for Venezuelans and Haitians. In the following section, we explore possible reasons for these variations in effectiveness.

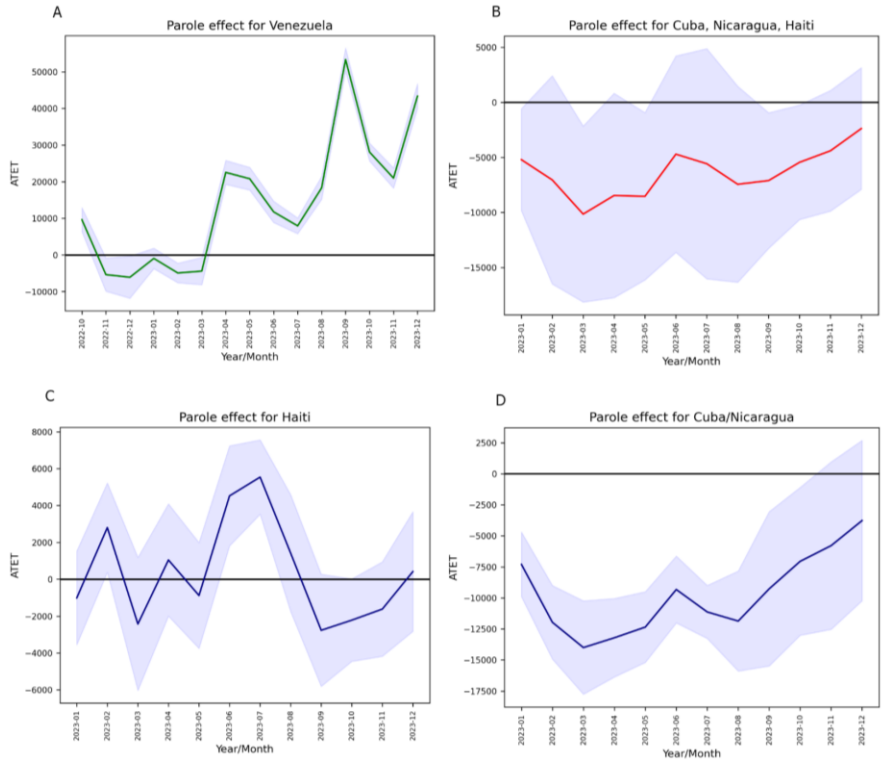

Figure 2. Aggregated parole effect on encounters at the southern U.S. border by country of citizenship since the program's inception until December 2023, using the extended two-way-fixed-effect regression. A) Venezuela; B) Combined effect for Cuba, Nicaragua, and Haiti; C) Parole effect for Haiti only; D) Parole effect for Cuba and Nicaragua only. The shaded blue background denotes the 95% confidence interval.

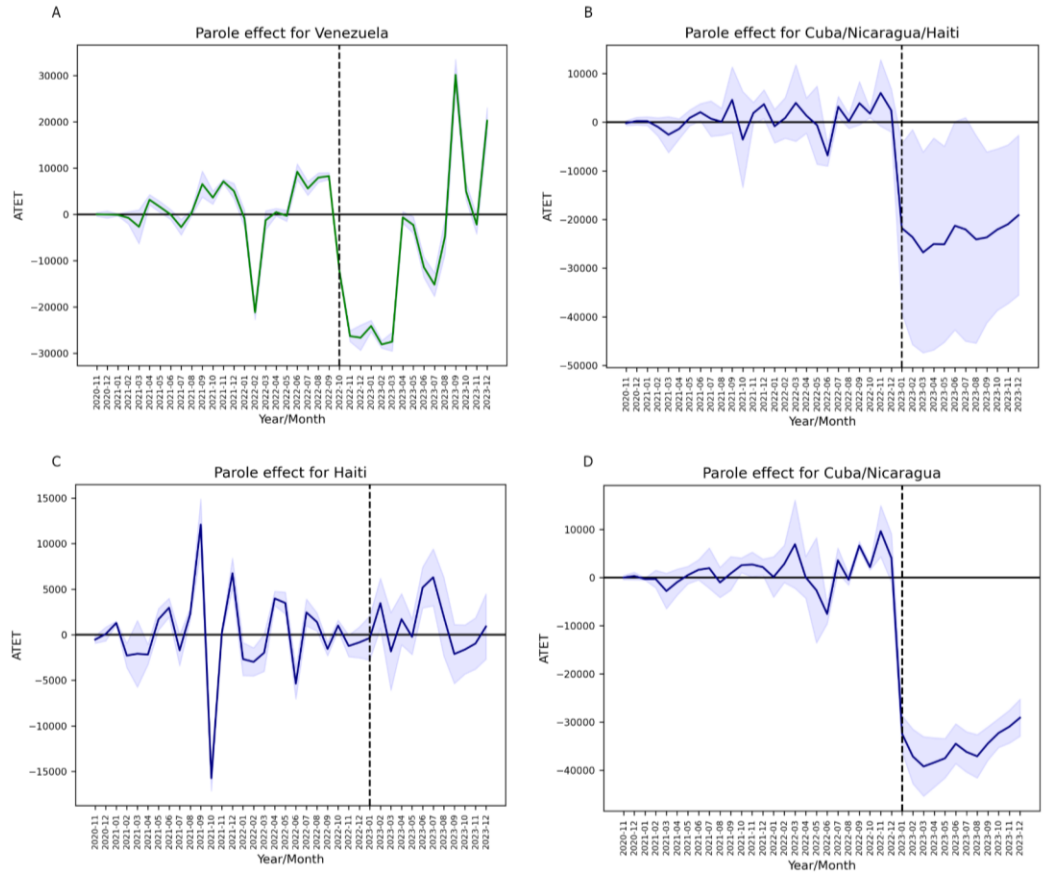

Figure 3. Average parole effect by country of citizenship since the program started until December 2023, using results from the Calloway and Sant'Anna regression augmentation method. A) Venezuela; B) Combined effect for Cuba, Nicaragua, and Haiti. C) Parole effect for Haiti only; D) Parole effect for Cuba and Nicaragua only. The vertical dashed line identifies the beginning of the parole program. The shaded blue background denotes the 95% confidence interval.

Discussion

The statistical analyses provide strong evidence that the parole program helped reduce the number of encounters at the southern U.S. border of Cuban and Nicaraguan citizens but its effect on reducing border arrivals was short-lived for Haitians and Venezuelans. This result invites speculation about the factors contributing to these different outcomes. Two key considerations may explain the effectiveness of the CHNV parole program for Cubans, Haitians, Nicaraguans, and Venezuelans: (1) a national group's history of access to legal residency and thus potential eligible sponsors and (2) a would-be migrant's current state of political and economic stability or turmoil. Cubans, Nicaraguans, and Haitians have a longer history of migration to the U.S. than Venezuelans, whose large-scale migration to the U.S. is much more recent (Noe-Bustamante, 2023). This results in a larger pool of potential sponsors for CHNV program applicants, who are likely to be more financially secure and willing to

help relatives or friends from their home country. Cubans are unique among migrants to the U.S., in that the Cuban Adjustment Act (CAA) of 1966 allows them to adjust their status to legal permanent residency one year after entry (Eckstein, 2022). After decades in which Cuban migrants were able to enter irregularly and receive parole before adjusting their status under the CAA, they became more attentive to *legal* entry after the repeal of the "dry foot" policy of paroling illegal entrants. Cubans are generally reluctant, therefore, to cross into the U.S. illegally if there is a legal option. Cubans overwhelmingly are opting to apply for parole - including through the CHNV mechanism - rather than risk crossing the border illegally, which would jeopardize their future legal status in the country. Nicaraguan migrants have had greater historical success relative to other Central American groups in obtaining permanent legal status (Mahler, 1995), which may provide a greater likelihood of financially stable sponsors to support them. Access to U.S. permanent legal status is harder for Haitian and Venezuelan migrants, many of whom more recently became eligible for Temporary Protective Status (TPS). TPS was extended to Haitian immigrants after the 2010 earthquake and to Venezuelan immigrants only in 2021. A lack of permanent legal status and a more recent migration history is likely to affect potential CHNV applicants from having relatives or friends who can serve as sponsors for these nationalities.

The mixed results of the CHNV parole program for Haitians likely reflect two realities for Haitian migrants. We can imagine one group that has greater economic stability, due in part to the support of family already settled in the U.S., who are able to provide sponsorship under the CHNV program; and a second, more precarious group, who do not have close family or friends to provide sponsorship and who may or may not have already left Haiti. The first group is more likely to be in possession of a valid passport and have the means to support themselves while awaiting parole, while the second may not be in possession of nor have resources to obtain a passport and does not have the economic stability–either in Haiti or in another country of residence–to wait for the parole to arrive. Anecdotal reports also exist of the widespread circulation of misinformation about the CHNV parole program within the U.S.-based Haitian community, creating a disincentive for sponsorship, especially of distant- or non-relatives. Examples include pervasive but false rumors that sponsors in the U.S. must pay lawyers and their direct liability for any crimes committed by the parolees they sponsor (Padgett, 2023). Similarly, would-be Venezuelan migrants who currently have relative economic stability, a valid passport, and a U.S. sponsor are more likely to wait for parole admission under CHNV. In contrast, a much larger group of Venezuelan migrants who do not have economic stability, a passport, or an eligible U.S. sponsor are more likely to take their chances and enter the U.S. without waiting for parole. Further complicating access to the CHNV program for Venezuelans is the lack of direct flights to the United States and the difficulty in obtaining or renewing a valid passport for the millions who have already left the country. Venezuelan nationals must often find alternative routes to reach the U.S. and many countries prohibit air travel without a valid passport. For Venezuelans and Haitians who have already left their home country, crossing the southern border might appear to be a more attainable option than applying for the parole program, particularly if they are already in Mexico.

The statistical findings are robust across various estimation methods, but some important considerations exist. Difference-in-differences estimators assume a "parallel trend" between paroled and non-paroled countries regarding encounters over time (see SI document). This means that, aside from the period when the CNHV program began, both groups should have

experienced similar patterns in encounters. One potential violation of this assumption was the large-scale use of the CBP One App to schedule appointments to enter the U.S., another mechanism aimed at discouraging unsolicited arrivals and irregular crossings at the southern border, that began in January 2023 and expanded to 1,000 and then 1,450 entries per day by June 2023 (DHS 2024). Parolees entering under CBP One (636,600 between January 2023 and May 2024) are typically paroled into the U.S. for up to two years with a Notice to Appear (NTA) in immigration court. While the CBP One app is available to all migrants, it has been reported a disproportionate use by a few nationalities, including Venezuelan, Cuban, and Haitian citizens. This could lead to an overestimation of the CHNV program's impact on encounters because citizens from these countries might avoid crossing the southern border, at least temporarily, not due to the CHNV parole program, but because they may stay in Mexico while waiting for their CBP One appointments.

Conclusions - Policy Implications and Future Directions

The CHNV Parole Program has provided an additional safe and legal avenue to enter the United States for over a million qualifying individuals since October 2022. These programs, however, are a temporary solution to the large increase in unsolicited arrivals and irregular crossings at the U.S.' southern border and are ultimately a short-term stopgap measure. While allowing a reprieve to those fleeing political and economic turmoil and seeking safe haven in the U.S., the limited parole period (up to two years from entry) and the restricted and backlogged asylum system are adding hundreds of thousands of new migrants to the several million existing undocumented migrants currently living in legal limbo, without a path to permanent residency (Hartsell & Blue, 2023). Only Cubans have a clear path to legal residency under the Cuban Adjustment Act. After the October 2024 decision that the 2-year parole granted to CHNV entries would not be extended, Venezuelans and Haitians will likely be able to transition their status to Temporary Protected Status (TPS) but most Nicaraguans who entered the U.S. under the CHNV program will no longer have a legal status when their parole expires (Lind 2024). It is likely that the Trump Administration will terminate the program in 2025.

We agree with other political analysts who have argued for the expansion of the use of parole. This includes adding more countries with a high number of citizens arriving in the U.S. without legal means of entry - Bier (2023) identifies eight such countries. This expansion would offer several advantages: bringing economic benefits to the U.S. by granting work permits to these individuals (Bier 2023), enhancing border management, prioritizing the entry of those who are less likely to become reliant on government assistance (Di Martino 2023), while utilizing a legal mechanism that has successfully withstood legal challenges (Gillespie 2024). Furthermore, processing times should be expedited to prevent migrants from resorting to irregular border crossings. For instance, demand for the parole program quickly exceeded the cap of 30,000 a month across all four countries, creating a backlog that exceeded 1.6 million before the end of the program's first year in mid-October 2023 (Bier 2023). We recommend increasing the cap and potentially adding a processing fee to finance additional screeners (Bier 2023, Di Martino 2023). Additionally, these individuals should be granted work permits upon being paroled into the U.S., rather than the current process of applying and awaiting work authorization, allowing them to work immediately and support themselves throughout their stay in the U.S.

The success of the CHNV program in the U.S. in reducing irregular border crossings underscores the importance of creating and expanding legal pathways for migrants. Countries facing similar challenges could explore implementing programs that allow for controlled and regulated entry, potentially based on sponsorship, humanitarian need, or specific skills. While parole programs offer temporary relief, they are not a substitute for addressing the root causes of migration or providing pathways to permanent residency. Countries should consider these programs as part of a broader strategy that includes diplomatic efforts to address instability in sending countries and reforms to immigration systems to increase opportunities for legal entry and long-term integration.

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Appendix: Supplementary Materials

1 Difference-in-difference Method

Let C_{it} denote the number of encounters of citizens belonging to country i in month t and p_{it} an indicator that equals one if the country i is paroled in month t. Denote $C_{it}(g)$ as the number of encounters if the country i is first paroled in month g and $C_{it}(0)$ the number of encounters for never-paroled country i. Cuba, Haiti, and Nicaragua, who were paroled simultaneously, belong to the same co- hort g whereas Venezuela and Ukraine belong to other cohorts. Let G_{ig} be an indicator that equals one if first paroled at time g. The parole program continues to this day for those countries, and there was no interruption of the policy in the interim, i.e., no country was dropped out of the program as of December 2023. The methods im- plemented estimate the evolution of the parole effects across cohorts and time.

Extended Two-Way-Fixed-Effects (TWFE) Estimator

Define a post-parole period as f_s with s going from q to T, where q is the first month a country was paroled, and T is the last month of the dataset (Dec 2023) since no country was removed from the program. The extended TWFE is defined as:

$$C_{it} = \lambda + \sum_{g=q}^{T} G_{ig}\alpha_g + \sum_{s=q}^{T} f_s\gamma_s + \sum_{g=q}^{T} G_{ig} \sum_{s=g}^{T} p_{it}G_{ig}f_s\tau_{gs} + \mu_{it}$$

This model incorporates interaction terms between the parole program, cohort, and post-parole months; λ represents the time and country fixed effects. The parameter τ_{gs} is the cohort-time treatment effect. This model is estimated using the Mundlak 1978 estimator, as described in Wooldridge 2021.

Callaway and Sant'anna's (CSRA) Estimator

We can also measure the so called "average treatment effect on the treated" (ATET) by aggregating by cohorts and by time. ATET for cohort g at time t is:

$$ATET(g,t) = E\{C_t(g) - C_t(0) \mid G_g = 1\}$$

The values $C_t(.)$ are not observable. To define the parole effect, we use the never-paroled countries as the "control group" G_0 .

then,

$$ATET(g,t) = E\left[\frac{G_g}{E(G_g)}\{C_t - C_{g-1} - m_{g,t}\}\right]$$

where $m_{g,t} = E(C_t - C_{g-1} \mid month, G_0)$. The $m_{g,t}$ values are es- timated by a linear regression where the dependent variable is the difference between encounters in month t and the month prior to the parole for each cohort, regressed against categorical monthly dummy variables but using only observations that were never treated (G_0), i.e., never-paroled countries. We substitute the expectation operator by the sample averages of the estimates through either g or t to calculate the ATET by cohort or by month. See Callaway and Sant'Anna 2021 for details.

2 Assumptions

In general, difference-in-difference methods require two assump- tions to correctly identify the policy effect.

Pre-treatment parallel trends

This assumption implies that before the parole program was imple- mented, the trends in encounters for both paroled and non-paroled countries were similar, or that they experienced the same fluctua- tions in encounters over time until the start of the program. In other words, in the absence of the parole program, both groups would have experienced the same encounters evolution pattern. A few tests ex- ist to test the pre-treatment assumption, but they come with caveats (Kahn-Lang and Lang 2020; Roth 2022).

No antecipation of treatment

This assumption implies that the decision of migrants to cross the border remained unchanged prior to the initiation of the parole pro- gram, without being influenced by the expectation of its forthcoming enactment.

3 Synthetic Difference-in-Difference

This method creates a "synthetic" non-paroled group by combining multiple non-paroled countries through a weighting procedure that enforces parallel trends between the synthetic and treated groups in the pre-treatment period. This method relaxes assumption 2.1. (Arkhangelsky et al. 2021).

Synthetic Difference-in-Differences Estimator using bootstrap with 500 repetitions to calculate the variance-covariance matrix.

The effect is negative, with approximately 10,000 fewer encoun- ters per month, but not statistically significant.

```
------------------------------------------------------------------------------
encounters |   ATT          Std. Err.   t  P>|t|  [95% Conf. Interval]
-----------+------------------------------------------------------------------
Parole     | -9582.49    8.20e+03  -1.17   0.242  -2.56e+04   6.48e+03
------------------------------------------------------------------------------
```

95% CIs and p-values are based on Large-Sample approximations. Refer to Arkhangelsky et al., (2020) for theoretical derivations.

Using the placebo option, results become statistically significant.

```
------------------------------------------------------------------------------
encounters |       ATT      Std. Err.    t      P>|t| [95%Conf. Interval]
-----------+------------------------------------------------------------------
Parole     | -9582.49        2.57e+03  -3.73  0.000    -1.46e+04            -4.55e+03
------------------------------------------------------------------------------
```

95% CIs and p-values are based on Large-Sample approximations. Refer to Arkhangelsky et al., (2020) for theoretical derivations

4 Event Analysis

To test the robustness of our findings, we apply a basic event study methodology. This allows us to compare the outcomes before and after the events of interest. The CBP data is formatted into a time series dataset to estimate the following model:

$$C_t^i = \beta_0^i + \beta_1^i C_t^{Nev} + \beta_2^i p_t + \mu_t^i$$

where the number of encounters for a particular paroled country i in month t is regressed against a dummy variable $p_t = 1$ for all the months under parole and zero for the months prior to parole, and the corresponding parameter to be estimated β_2 is the policy effect. The variable C^{Nev} is the number of encounters for the never- paroled countries and serves to control for all the other factors that might coincide with the parole program in explaining fluctuations in encounters. We regress each paroled country or cohort in this formulation (i superscript) separately. Results are presented below and corroborate the difference-in-difference estimators presented in the paper: the program was effective for Cuba and Nicaragua but not for Venezuela and Haiti.

Venezuela: the monthly average effect is negative (-8,352 encoun- ters) but not statistically significant.

```
      Source |       SS           df       MS      Number of obs   =        39
-------------+----------------------------------   F(2, 36)        =     26.45
       Model |  5.6113e+09         2              Prob > F        =    0.0000
             |  2.8057e+09
    Residual |  3.8191e+09        36              R-squared       =    0.5950
             |  106084885
-------------+----------------------------------   Adj R-squared   =    0.5725
       Total |  9.4304e+09        38              Root MSE        =     10300
             |  248168488

------------------------------------------------------------------------------
 Venezuela   | Coefficient  Std. err.      t    P>|t|     [95% conf. interval]
-------------+----------------------------------------------------------------
Non-paroled |    .2800653   .0471674     5.94   0.000     .1844053    .3757253
Parole      |   -8351.683    5095.7    -1.64   0.110    -18686.24    1982.876
Intercept   |   -3968.783   3126.211    -1.27   0.212    -10309.03    2371.467
------------------------------------------------------------------------------
```

Cuba/Nicaragua/Haiti (CNH) Combined: This regression esti- mates that because of the policy, there were 41,814 fewer encounters per month from CNH countries at the border.

```
      Source |       SS           df       MS      Number of obs   =        39
-------------+----------------------------------   F(2, 36)        =     14.92
       Model |  6.9171e+09         2              Prob > F        =    0.0000
             |  3.4585e+09
    Residual |  8.3448e+09        36              R-squared       =    0.4532
             |  231798770
-------------+----------------------------------   Adj R-squared   =    0.4229
       Total |  1.5262e+10        38              Root MSE        =     15225
             |  401626825

------------------------------------------------------------------------------
 CNH         | Coefficient  Std. err.      t    P>|t|     [95% conf. interval]
-------------+----------------------------------------------------------------
Non-paroled |    .3405608   .0696668     4.89   0.000     .1992701    .4818516
Parole      |   -41814.76   7933.522    -5.27   0.000    -57904.68   -25724.83
Intercept   |    9280.625   4764.598     1.95   0.059    -382.4265    18943.68
------------------------------------------------------------------------------
```

Cuba: An estimated 21,901 fewer Cuban monthly encounters at the border due to the parole program.

Source	SS	df	MS	Number of obs	=	39
				F(2, 36)	=	11.26
Model	1.9052e+09	2	952580870	Prob > F	=	0.0002
Residual	3.0448e+09	36	84577031.7	R-squared	=	0.3849
				Adj R-squared	=	0.3507
Total	4.9499e+09	38	130261444	Root MSE	=	9196.6

Cuba	Coefficient	Std. err.	t	P>|t|	[95% conf.	interval]
Non-paroled	.1793693	.042082	4.26	0.000	.094023	.2647155
Parole	-21901.26	4792.219	-4.57	0.000	-31620.34	-12182.19
Intercept	3418.574	2878.04	1.19	0.243	-2418.363	9255.51

Nicaragua: An estimated 19,620 fewer Nicaraguans monthly en- counters at the border due to the parole program.

Source	SS	df	MS	Number of obs	=	39
				F(2, 36)	=	16.91
Model	1.4208e+09	2	710377698	Prob > F	=	0.0000
Residual	1.5123e+09	36	42008398.8	R-squared	=	0.4844
				Adj R-squared	=	0.4557
Total	2.9331e+09	38	77185730.4	Root MSE	=	6481.4

Nicaragua	Coefficient	Std. err.	t	P>|t|	[95% conf.	interval]
Non-paroled	.1232497	.0296577	4.16	0.000	.063101	.1833984
Parole	-19620.35	3377.369	-5.81	0.000	-26469.97	-12770.73
Intercept	4348.272	2028.331	2.14	0.039	234.6272	8461.917

Haiti: the monthly average effect is negative (-293 encounters) but not statistically significant.

```
      Source |       SS           df       MS      Number of obs   =        39
-------------+----------------------------------   F(2, 36)        =     12.37
       Model |  140106945          2  70053472.4   Prob > F        =    0.0001
    Residual |  203928151         36  5664670.85   R-squared       =    0.4072
-------------+----------------------------------   Adj R-squared   =    0.3743
       Total |  344035095         38  9053555.14   Root MSE        =    2380.1
------------------------------------------------------------------------------
      Haiti |      Coefficient  Std. err.      t    P>|t|     [95% conf. interval]
------------+-----------------------------------------------------------------
 Non-paroled |      .0379418   .0108907     3.48   0.001     .0158544    .0600293
     Parole |     -293.1399   1240.217    -0.24   0.814    -2808.417    2222.137
  Intercept |      1513.78    744.8315     2.03   0.050     3.191391    3024.368
------------------------------------------------------------------------------
```

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