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Political Persecution or Economic Deprivation? A Time-Series Analysis of Haitian Exodus, 1990–2004

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This study addresses the factors that lead individuals to flee their homes in search of refuge. Many argue that individuals abandon their homes in favor of an uncertain life elsewhere because of economic hardship, while others argue that threats to their lives, physical person, and liberty cause them to flee. This study engages the debate by analyzing flight patterns over time from Haiti to the United States as a function of economic and security factors. Which factors have the largest influence on Haitian-U.S. migratory patterns? Our results show that both economics and security play a role. However, our analyses are able to distinguish between the effects of different individual economic and security indicators on Haitian-U.S. migration.

Keywords Haiti, persecution, political violence, refugees, US foreign policy.

Introduction

This study explores the determinants of migration and attempts to differentiate the impact of economic and political causes. More specifically, we focus on the economic and security push and pull factors that cause people to flee their homes and seek refuge abroad. Our motivating question is: What factors explain the variation in migration movements over time? This study builds on previous work done at the global level; we apply the arguments from that work to Haitian migrants over the period 1994–2004, and test the implied hypotheses

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using time-series data and methods. Moreover, we independently model a few short-run and long-run impacts of key political events (e.g., 2004 coup) during the last 10 years on Haitian flight.

Skepticism over the label “refugee” used to describe Haitian immigrants to the United States is common. Instead, many view such immigrants as fleeing economic deprivation rather than political persecution. The view of Haitian migrants as economically motivated contorts the meaning of the word “refugee” in the popular lexicon. For example, in May of 2004 following a coup in Haiti, George W. Bush proclaimed that the U.S. “will turn back any [Haitian] refugee that attempts to reach our shores.”¹ The administration’s position would have you believe that those fleeing the country at the time were “economic migrants.” According to the United Nations (UN) definition of a refugee (one who, owing to a “well-founded fear” of persecution, has abandoned his or her home in favor of relocating abroad) the U.S. policy constitutes a direct violation of the 1951 Geneva Convention and the principle of “nonrefoulement.” State parties to the Convention are legally bound not to forcibly return “refugees” to their homeland if such a fear is demonstrable.

Just as the debate over what distinguishes “political refugees” from “economic migrants/refugees” exists within policy communities, it also surfaces in the academic literature. For example, both Moore and Shellman (2004a) and Schmeidl (1997) show that while the size of the economy matters, violence in the country of origin has a larger effect on refugee flows than macroeconomic variables. Alternatively, Neumayer (2005a) argues that economic hardship and economic discrimination lead to higher flows of asylum seekers (to Western Europe) than do political oppression and violent conflict. The study concludes that many asylum seekers are best described as “bogus refugees” in search of a better economic situation rather than genuine refugees fleeing persecution.

This article engages the policy and academic debates on political and economic refugees. The study builds on the Moore and Shellman (2004a, 2004b) global studies by applying the argument contained therein and systematically evaluating its predictions in a particular case over time. This study assesses the impacts that different economic and security variables have on Haitian migration to the United States. Previous systematic empirical investigations of asylum and refugee trends analyze annual-level data for many countries, which only reveal the aggregate tendencies of migratory populations over space and time.² We argue that these data mask the details of the migration process. Instead, we employ a longitudinal design to capture “an empirically rich dynamic underlying the process tendencies” (Wood, 1988, p. 229). To address this concern, we divide the temporal units into weeks to provide a closer look at the migration process. Moreover, we use a quasi-experimental design (Campbell & Stanley, 1966; Wood, 1988) to trace the impacts of particular events on migration over time. Using this method, we can more readily detect the sequences, magnitudes, and durations of key events—like coups d’état—on the migratory process. Finally, the case study complements other global studies and serves as one opportunity to evaluate the applicability of general global models to a particular case.

The article proceeds as follows. First, we begin with a general argument about when we should observe migration and the implied hypotheses. Then we discuss Haiti’s politics and economics, as well as key events and their predicted effects on Haitian migration. We then present our research design, which covers issues related to measurement, specification, and estimation of statistical equations. Finally, we report our results and conclude by discussing the implications of those results in terms of policy and the literature.

¹<http://www.refintl.org/content/article/detail/3897>.

²See Schmeidl (1997, 1998, 2000), Davenport, Moore and Poe (2003), Moore and Shellman (2004a), and Neumayer (2005a).

The Argument and Implied Hypotheses

In this study, we apply an argument consistent with that of Moore and Shellman (2004a, 2004b) and Neumayer (2005a). Both arguments contend that individuals will flee their homes when the costs of staying exceed the benefits. Moore and Shellman (2004b) take it a step further and factor the costs and benefits of fleeing to another country into the equation, such that the individual compares the costs and benefits of staying in the origin country to those of going to the potential asylum country. We similarly assume that to make such decisions, individuals examine the information available to them in the origin and potential asylum environments.

We also assume that individuals are purposive and value their liberty, physical person, and life in addition to economic prosperity. Moreover, they monitor their environments and those around them to develop expectations about becoming a victim of persecution as well as potential economic distress or opportunity. When economic distress and/or the probability of being persecuted rises, the expected utility of staying decreases, while the utility of leaving increases. Finally, origin domestic policies and asylum foreign policies will also affect an individual's utility calculation. Below, we hypothesize how economics, security, and domestic and foreign policies should influence migratory flows.

Domestic Security

We identify two main domestic sources of threat to the physical person of an individual. The first is state-sponsored violence and the second is dissident/rebel violence. Most of the literature tends to focus on state-sponsored violence. Some scholars focus on human rights abuses (e.g., Gibney, Apodaca, & McCann, 1996), while others focus on genocide (e.g., Rummel, 1995) or ethnic victimization (e.g., Kaufman, 1998). Yet, others focus on dissident violence and its threat to the population at large (e.g., Moore & Shellman, 2004a). Previous studies find that human rights abuses and dissident violence increase the annual expected number of asylum applicants in Western Europe (Neumayer, 2005a) and annual expected number of refugees around the globe (Moore & Shellman, 2004a; Davenport et al., 2003). We similarly contend that as the publicly visible behavior of the government and/or the dissidents becomes increasingly hostile, larger numbers of individuals will attempt to flee the country.

Moreover, we hypothesize that hostile changes in power, such as coups, will have dynamic short-term effects on migration. A violent coup will increase international migration flows in the short-run and over time return to their previous levels. Thus, we expect an inverted U-shaped relationship between time and Haitian migration in the short-run following a coup.

Economics

The second broad factor that should impact migration decisions is the economy. Bauer and Zimmermann (1994) suggest that wage differentials in the origin and destination countries will be a key factor in international migration decisions. As the economy declines in the origin country, potential foreign destination choices appear more attractive. Borjas (1994) and Massey and colleagues (1993) contend that workers migrate if they feel they can increase their standards of living. As such, we submit that economic opportunity (or lack thereof) in the origin country should affect migration, as well as economic opportunity in the potential destination country. As the origin economy decreases in size, larger numbers of individuals will migrate abroad. In contrast, as the potential destination country's economy increases in size, more individuals will migrate to that destination country.

Foreign Policy

Additionally, foreign policy should impact an individual's decision to flee. Generally, we hypothesize that as a destination country's foreign policy toward an origin country increases in hostility, the expected number of migrants/refugees to flow between dyads (origin to destination) decreases. In particular, the potential destination country's immigration policies may aid or hinder refugees attempting to enter. Countries with strict entrance policies tend to turn refugees away, whereas countries with liberal entrance policies allow more refugees to cross the borders.

As Zolberg and colleagues (1989, p. 6) correctly point out, "people cannot leave their country if they have no place to go." Thus, government policies of potential host countries determine the ease with which refugees can enter a particular country. Some policies place restrictions on granting asylum even if individuals meet the UN declaration definition. Zolberg and coworkers (1989, p. 7) report that some countries attempt to avert flows and that the best way to accomplish this is for both sending and receiving states to "slam the door shut." Still other countries have political motivations. For example, U.S. foreign policy during the Cold War was extremely "anticommunist." Consequently over 95% of refugees admitted to the United States between 1945 and 1989 were from communist countries (Ferris, 1998, p. 72). As a result, other peoples were denied asylum.

One example of hostile foreign policy is Operation Able Manner, a reinforcement of the U.S. Coast Guard designed to drastically decrease the number of Haitian migrants reaching the U.S. At its height, Operation Able Manner involved 17 Coast Guard cutters, 9 aircraft and 5 navy ships patrolling the waters between Haiti and Cuba. We believe that this U.S. anti-immigration policy/US Coast Guard operation will decrease migration to the U.S. In other words, the Coast Guard presence should deter migration to the U.S.

Natural Disasters

Finally, natural disasters, like hurricanes, earthquakes, and volcanic eruptions, affect one's probability of dying and thus lead to changes in one's cost/benefit calculus of staying or going. Such disasters kill and injure many people, demolish homes and buildings, and destroy crops and ultimately economies. As such, we expect migration to increase following natural disasters. Specifically, such events should have similar effects on migration as coups. Individuals will flee their homes in search of refuge following major damage to their homes. The flow will grow over time until it reaches its peak and then flows will fall off. We expect an inverted U-shaped relationship between time and Haitian migration in the short-run following a hurricane.

Research Design

To test our hypotheses, we design a longitudinal study to analyze Haitian migration to the United States. We also simulate an experimental design by collecting data on migration before and after key events and comparing the values on the dependent variable prior to and after each event (Manheim & Rich, 1995, p. 96–97). Before elaborating on the data and techniques, we turn attention toward our case.

Case Selection

There are a number of cases we could choose to test our economic and political hypotheses and then make comparisons to the results obtained at the global level. Haiti is representative of those cases because it exhibits all of the independent variables included in our theory of forced migration. Within our temporal domain (1994–2004), Haiti experienced a *coup d'etat*, economic instability, natural disasters, dissident violence, state violence, and foreign intervention and influence. This range of events in Haiti makes it a representative case for

testing the competing hypotheses implied by our theory. Moreover, migrant flows varied over the period allowing us to analyze the different impacts of the independent variables on Haitian-U.S. migration over time. The case study approach allows for more micro-level analysis of key variables on migration rather than the breadth traditionally afforded by macro-level global studies. By comparing the results of these micro-level analyses to previous cross national studies, we are able to corroborate or call into question the findings of macro-level studies. Additionally, Haitian migration, in particular, is an important contemporary political issue in the U.S., the study of which can yield powerful policy implications. For example, our analyses can be used by the U.S. government to forecast migrant flows (Rubin & Moore, 2005) to the US, allowing them to better prepare for such crises. The study's policy relevance and complement to global-level studies makes it a valuable contribution to the body of literature.

Unit of Observation

In this study, we analyze migratory flows in smaller temporal units than traditional quantitative studies. We do so for two reasons. First, King and colleagues (1994) contend that it is important to design studies that analyze as many observations as possible. Although we analyze a single case in this study, we analyze many observations within the case and make comparisons among them.

Second, we contend that more fine-grained temporal units provide better resolution for sensing the causal mechanisms at work (Wood, 1988, p. 215). Political science scholarship all too often ignores the literature on temporal aggregation.³ For example, the discipline is dominated by large-n pooled cross-sectional time-series studies that analyze country-years, a rather crude measure that oftentimes is over-aggregated. Empirically, studies reveal that "temporal aggregation usually alters most properties existing at the disaggregated frequency" (Marcellino, 1999, p. 133). Rossana and Seater (1995, p. 441) go so far as to say that it "alters the time series properties of the data at *all* frequencies, systematically eliminating some characteristics of the underlying data while introducing others." Goldstein and Pevehouse report that (1997, p. 207) "High levels of aggregation (such as quarterly or annual data) tend to swallow up important interaction effects," and Franzosi (1995, p. 72) shows that "the more aggregated the series, the less likely it is to detect the effects of strikes on production." Using conflict and cooperation event data measures, Shellman (2004a, 2004b) finds that aggregation decisions affect coefficient estimates, block exogeneity tests, and standard errors. Shellman's results are consistent with Goldstein and Pevehouse and Franzosi in that smaller temporally aggregated units tend to reveal stronger statistically significant partial-correlation coefficients than larger units. The results support Wood's (1988) contention that smaller temporal units allow one to better sense the causal mechanisms at work. In sum, the literature on this topic generally concludes that over-aggregation can mask important effects.

With the literature in mind, daily aggregated data prove to be too small of a unit; there is almost certainly a lag effect at the daily level between conflict and migration and it is difficult to model such a lag structure. Following Goldstein and Pevehouse (1997), we choose to aggregate our conflict-cooperation data and interdiction data by the week, which allows better sensing of causal mechanisms and increases our observations.

Data and Measurement

Unfortunately, some of our economic indicators only came disaggregated as small as the month. However, our inflation and wages measures, which we discuss in more detail below,

³See Shellman (2004a) for a review of the economics and political science literatures on temporal aggregation.

are not likely to vary much by week. Thus, we inserted the monthly economic indicators over each month's corresponding weeks. The coefficients (β 's) on such variables indicate that, on average, a one unit change in the monthly economic variable of interest leads to a β -unit change in weekly Haitians interdicted at sea.

When estimating regression models, it is important that time-series variables entering the equation are stationary (i.e., have a constant mean and variance). We perform Augmented Dickey-Fuller ADF tests on each variable entering the statistical equations described below. Initial tests of the economic series revealed non-stationary series. However, we took the first difference of each economic series and ADF tests on each of the differenced series show that they are all stationary, which minimizes the chances of finding spurious relationships.

Dependent Variable

Disaggregated yearly Haitian migrant and refugee data are not currently obtainable. Thus, we have to choose a measure that corresponds indirectly to the concept of a migrant. We use weekly Haitian interdictions at sea by the U.S. Coast Guard from October 1994 through June 2004 as an indirect measure of weekly US-Haiti migration. The data themselves come from the USCG's publicly obtainable interdiction logs.⁴ According to the USCG, the interdiction statistics are updated every morning of each business day.⁵ Moreover, the USCG's goal is to capture 87% of the undocumented immigrants trying to enter the U.S.⁶ Thus, we contend that our indicator is a reliable measure of U.S. interdictions of Haitians at sea.

With respect to validity, Manheim and Rich (1995, p. 73–78) contend that researchers should demonstrate an indicator's internal and external construct validity to show that the proposed measure corresponds to the concept it is intended to represent. To demonstrate such validity requires that we have an alternative indicator that we can check our indicator against. To demonstrate the indicator's internal construct validity, we correlated the annual sums of interdictions with the available Moore and Shellman (2004b) measure of refugee flows obtained from the United Nations High Commissioner for Refugees (UNHCR). We found a statistically significant ($p < 0.05$) 0.67 correlation between the two annually aggregated series.⁷ This tells us that our measure reflects other similar aggregate measures and that our indicator is internally valid. Our results below demonstrate external validation. That is to say that we show statistically significant partial-correlations between our interdiction measure and our independent variables in the anticipated directions. Such results show that our measure is related to other variables in the ways in which our theory predicts. Specifically, as expected, increases in rebel violence lead to increases in interdictions and interdictions rise shortly after the 2004 coup and gradually return to normal. Finally, we contend that our measure has face validity. We are trying to capture migration from Haiti to the U.S. We know from primary and secondary sources that the most likely choice of transportation by Haitian migrants to the U.S is by boat. The U.S. Coast Guard patrols the U.S. coastline to impede such migrants from reaching land. In most cases, the U.S. Coast Guard is the first agency to have contact with such migrants and such contacts are logged daily by the agency. All of these migrants are interviewed and then either returned to Haiti or forwarded to another agency such as Immigration and Naturalization Services (INS) for further processing. Thus, on the face, our measure is a valid indicator of U.S.-Haitian migration.

Of course, the measure is not without its limitations. To begin, the measure only captures those individuals who are caught trying to enter the U.S. and ignores those who successfully

⁴We filed a written request to obtain the U.S. Coast Guard's logs.

⁵See www.uscg.mil/hq/g-cp/comrel/factfile/, accessed 9/5/05.

⁶See www.uscg.mil/hq/g-cp/comrel/factfile/, accessed 9/5/05.

⁷Week-level refugee/migration data is not available.

enter the U.S. illegally. Second, it only captures those individuals traveling to the U.S. by boat (however, boats are the dominant form of transportation) and ignores individuals applying for refugee and asylum status in the U.S. “in-country” office located in Port-au-Prince. However, the interdiction data provide a unique view of migration patterns, allowing us to track responses to individual events in a way that data aggregated at higher levels would not allow. We contend that our measure serves as a good indicator of weekly migratory flows from the U.S. to Haiti because of its demonstrated internal, external, and face validity. Moreover, the data allow for a new lower level of temporal aggregation.

Domestic Security Indicators

To measure the threat to one’s physical person, we used event data from Project Civil Strife (PCS).⁸ According to Goldstein (1992, p. 369), event data are “day-by-day coded accounts of who did what to whom as reported in the open press,” and offer the most detailed record of interactions between and among actors. Most event data projects convert events into a measure of conflict-cooperation.⁹ The conflict-cooperation variable is said to measure the intensity of one actor’s behavior directed toward another actor. We use the automated coding program Text Analysis By Augmented Replacement Instructions (TABARI), developed by Phil Schrodt, to generate domestic political event data.¹⁰ TABARI uses a “sparse-parsing” technique to extract the subject, verb, and object from a sentence and performs pattern matching using actor and verb dictionaries.¹¹ In short, TABARI matches words from an electronic text file (news story) to words contained in the actor and verb dictionaries and assigns a corresponding code to each actor and verb, and finally, spits out the date.¹² Verbs and verb phrases are assigned a category based on the WEIS coding scheme.¹³ Then, these categories are scaled on an interval conflict-cooperation continuum using the Goldstein (1992) scale.¹⁴ These data now represent a conflict-cooperation measure of behavior by one actor directed toward another.

Our theory contends that individuals monitor the behavior of government forces and guerrillas and flee when the perceived threat is heightened. Thus, we aggregated rebel actors together, government actors together, rebel targets together, and government targets together.¹⁵ Finally we averaged the conflict-cooperation values associated with each directed dyad (rebels to government and government to rebels) by week. In the end, we created directed dyadic event scores on a -10 (hostility) to $+10$ (cooperation) continuum that summarize the weekly level of behavior directed by the rebels toward the government and the government toward the rebels.

⁸See Shellman and Stewart (2007) for more information on coding rules and procedures.

⁹Such projects include: Cooperation and Peace Data Bank (COPDAB), World Events Interaction Survey (WEIS), Integrated Data for Events Analysis (IDEA), Protocol for the Assessment of Nonviolent Direct Action (PANDA), Intranational Political Interactions Project.

¹⁰See <http://web.ku.edu/keds/> for information on the KEDS and TABARI projects.

¹¹TABARI recognizes pronouns and dereferences them. It also recognizes conjunctions and converts passive voice to active voice (Schrodt, 1998).

¹²These particular data are coded from Associated Press reports available from Lexis-Nexis.

¹³See “World Event/Interaction Survey (WEIS) Project, 1966–1978,” ICPSR Study No. 5211.

¹⁴KEDS has introduced new codes in addition to those used by McClelland and the WEIS project. Most of these are borrowed from the Protocol for the Assessment of Nonviolent Direct Action (PANDA) project. The KEDS project investigators assigned weights to the new codes that are comparable to the Goldstein weights, and we used those weights in tandem with the Goldstein weights to create the scaled event data series analyzed in this study. See <http://web.ku.edu/keds/data.html> for WEIS codes and adaptations PANDA.

¹⁵We also experimented with separating out the military from the government.

Domestic Economic Indicators

To measure the economic environment in Haiti, we use the monthly Consumer Price Index from the International Labor Organization (ILO) LABORSTAT database.¹⁶ The CPI measures changes in the prices of goods and services that are directly purchased in the marketplace. Most think of the CPI as measuring the inflation rate, while others refer to it as a cost of living index. While many point out the distinctions between CPI and a complete cost of living index, the CPI can convey the changes in the prices of goods and services, such as food and clothing. Therefore, it serves as a good indicator of the monthly economic environment in Haiti over time.

Unfortunately, the data came in two series, each having a different base year, which did not overlap.¹⁷ Furthermore, there were eight months of missing data in 1996. The first series runs from October 1994 to December 1995 (1990 = 100). The second series runs from September 1996 to June 2004 (2000 = 100). To begin, we linearly extrapolated the first series through August 1996. Then, we merged the two together and created a dummy variable set equal to 1 from September 1996 through the end of the time series. The dummy variable tells us if the level of the time series changes as a result of the second series.¹⁸ We also interact Haitian CPI with the dummy variable to see if the estimated effect of CPI changes as a result of the “new” series. After constructing the “level” indicator, we tested it for stationarity using the ADF test. We found that it was not stationary. So we took the first difference ($\Delta\text{HAITICPI}$). We chose to do this in the original monthly dataset such that when we merged the monthly change series with our weekly dependent variable, each week in each month would have the same value of $\Delta\text{HAITICPI}$ associated with it.¹⁹ An ADF test confirmed that the newly created “change” series is stationary. Moreover, the differenced variable makes the series more comparable than the two “level” series.²⁰ As such, we expect our dummy variable representing the second series to be insignificant.

To measure the U.S. economic environment, we used monthly U.S. CPI as well as monthly U.S. wages. These measures capture the economic pull of the United States. We expect inflation to be negatively signed and wages to be positively signed. We downloaded both series from the ILO LABORSAT website. Both series were determined to be nonstationary using ADF tests. Like $\Delta\text{HAITICPI}$, we took the first difference in the monthly series and merged them into our weekly master dataset. ADF tests of both differenced series confirmed that they are both stationary.

Foreign Pressures

Not only will domestic conflict and cooperation affect migration, but foreign pressures should also affect Haitian migration, especially U.S. foreign policy toward Haiti. To measure U.S. foreign policy, we use event data summarizing the U.S.’s net conflict-cooperation directed toward Haiti. These data were also generated using TABARI but instead of coding domestic conflict and cooperation, they represent international conflict-cooperation levels and events. We originally sought to use Goldstein and Pevehouse’s dataset available on the

¹⁶See <http://laborsta.ilo.org/>.

¹⁷However, the data range from similar starting and ending values and have similar means.

¹⁸It would not be surprising to find that there is a level shift, since it is clear from looking at the series that there is a clear downward shift in the series though the means are similar and share a similar range.

¹⁹If we had merged the level in first and then taken the first difference, this would not be the case as several observations would be zero since the monthly value did not change from week 3 to week 4.

²⁰To illustrate, a change from 0 to 5 and a change from 50 to 55 both result in a five unit change, while 0 and 50 and 5 and 55 are very different levels.

KEDS website. However, the temporal span of the data ends in mid-1997. We chose to use the existing dictionaries to regenerate data for 1990–1997 and extend the series through 2004 using full-text AP news reports.²¹ We then created U.S. to Haiti Government, U.S. to Haiti Military, U.S. to Haiti Rebels and U.S. to Haiti (all) directed dyads. Finally, we averaged the Goldstein weighted event scores for each directed dyad by the week.

We also control for the political climate within Haiti by including dummy variables for each leader's time in office. Specifically we include dummy variables for Aristide from 1994–1996, Preval from 1996–2001, and Aristide from 2001 to 2004.

Estimation and Method

Our dependent variable is a count and is not normally distributed. Histograms reveal Poisson-like distributions which are “derived from a simple stochastic process . . . where the outcome is the number of times something has happened” (Long, 1997, p. 219). However, most situations in the social sciences rule out the Poisson statistical model because it assumes that each event is independent of one another; each event has no effect on the probability of the event occurring in the future. Moreover, the model assumes that the conditional mean of the outcome is equal to the conditional variance. We argue that decisions are linked via a common set of information such that they are not independent. As such, our theory excludes the use of a Poisson model to estimate our dependent variable.

The appropriate statistical technique used to analyze such a distribution is the negative binomial regression model (NBRM). This model includes a parameter, α , which enables one to estimate the extent to which the events influence one another within each observation (King, 1989, p. 764–769). Our argument implies that α will be positively signed and statistically significant. We choose the NBREG model because the use of a linear regression model on these data can result in inefficient, inconsistent, and biased estimates (Long, 1997, p. 217).

Finally, two thirds of our dependent variable's observations are zero. To model this characteristic in our data, we use a zero modified estimation strategy. Given our argument, our negative binomial distribution, and our zero-inflated counts, the most appropriate model is the Zero-Inflated Negative Binomial (ZINB) regression model.²² Finally, we report robust standard errors.

Impact Assessments: Hurricane Georges and the 2004 Coup

We also sought to measure the short-term impacts of two particular events on Haitian flight to the U.S.: the 2004 coup and the disastrous 1998 hurricane. To do so, we employ a form of multiple interrupted time-series (MITS) analysis which uses a series of dummy and counter variables to assess the impacts of such events on our dependent variable. While a visual inspection may confirm or deny our hypotheses, this method allows one to assess “whether the observed change is statistically significant thereby reducing the likelihood of chance differences” (Lewis-Beck & Alford, 1980, p. 474). Consider the following simple regression equation:

$$Y_t = \beta_0 + \beta_1 X_{1t} + \beta_2 X_{2t} + \beta_3 X_{3t} + \beta_4 X_{4t} + e_t \quad (1)$$

²¹The leadership and groups remain consistent from 1997–2004 so we feel that using the existing dictionaries rather than creating new ones does not pose great threat to the data's reliability and validity.

²²See Moore and Shellman (2004a) for more on the use of a ZINB on these types of data.

where Y_t = weekly interdictions; X_{1t} = a counter for weeks (1 to N); X_{2t} = a dichotomous variable representing the presence of the 2004 coup; X_{3t} = a counter for weeks during the coup period (1 to 11); $X_{4t} = X_{3t}^2$; $\beta_0, \beta_1, \beta_2, \beta_3, \beta_4$ = parameters to be estimated, e_t = error.

The parameters β_0 and β_1 indicate the level and slope of the time series prior to the 2004 coup. To analyze whether or not the level and/or slope of the relationship change when the coup is introduced, we examine β_2, β_3 , and β_4 . If the estimate for β_2 is not statically significant, then we infer that the level of the time-series is unaltered by the intervention. We then examine β_3 and β_4 in tandem. We include the squared term to capture the curvilinear nature of our hypothesized relationship. Our inverted-U-shaped hypothesis is supported if $\beta_1 + \beta_3 > 0$ and $\beta_1 + \beta_4 < 0$. The predicted slope will rise (+) and then fall (-). On the other hand, if the slope is unaltered by the coup neither coefficient will be significant. In short, we can introduce interventions and take them out by adding a series of dummy variables and counter variables.

We generated dummy, counter, and counter-squared variables for Hurricane Georges and the 2004 coup to test our curvilinear hypotheses. In some sense this became an empirical model-fitting exercise, yet all consistent with our general hypothesis. Similar to trying different lag lengths in fitting a vector autoregression model to the data, we introduced the stimulus and examined its impacts over different time periods. We examined the model fit based on the Wald Chi-Squared values, Vuong Tests, and the correlation between the actual and model-predicted values. We ultimately settled on 11 weeks for the 2004 coup, and 8 weeks for the hurricane. We report the descriptive statistics for each of our variables in Table 1.

TABLE 1 Descriptive statistics

Variable	Mean	Standard Deviation	Minimum	Maximum
U.S. Interdictions of Haitian Migrants	31.91	93.05	0	918
Monthly Δ Haiti CPI	1.21	3.79	-20.09	17.57
Haiti CPI Dummy 1996-2004	0.78	0.41	0	1
Average Weekly Rebel to Government Behavior	-0.76	2.44	-10	10
Average Weekly Government to Rebel Behavior	-0.83	2.44	-10	8.3
Average Weekly U.S. Foreign Policy towards Both Government & Rebels	-.03	2.09	-10	7.4
Operation ABLE MANNER (1994)	0.11	0.10	0	1
Monthly Δ U.S. CPI	0.20	0.24	-0.41	0.81
Monthly Δ U.S. Wages	0.03	0.06	-0.11	0.20
Hurricane Georges Dummy (1998)	0.02	0.13	0	1
Hurricane Georges Counter (8 weeks)	0.08	0.66	0	8
Hurricane Georges Counter Squared	0.44	4.33	0	64
2004 Coup Dummy	0.23	0.15	0	1
2004 Coup Counter	0.14	1.03	0	11
2004 Coup Counter Squared	1.08	9.21	0	121
Count	462.5	135.24	229	696

Results

We report the coefficient estimates for our model in Table 2. The first thing to inspect in Table 2 is our model choice and fit. Our alpha parameter is statistically significant and positively signed as expected, indicating the appropriate choice is the NBRM over the

TABLE 2 Zero inflated negative binomial estimates of weekly haitian interdictions by U.S. Coast Guard (1994–2004)

<i>Category</i>	Count	Inflate
Variable	Coefficient (SE)	Coefficient (SE)
<i>Haiti Economy</i>		
Monthly Δ Haiti CPI	0.07 (0.032)**	0.00 (0.033)
Haiti CPI Dummy 1996–2004	–0.83 (0.504)**	–0.35 (0.423)
<i>Haiti Domestic Security</i>		
Average Weekly Rebel to Government Behavior	–0.12 (0.047)***	–0.04 (0.045)
Average Weekly Government to Rebel Behavior	0.01 (0.051)	–0.04 (0.045)
Coup 2004 Dummy	–3.25 (0.818)***	–0.94 (10.15)
Coup 2004 Counter (11 weeks)	2.15 (0.417)***	
Coup 2004 Counter Squared	–0.24 (0.039)***	—
<i>Haiti Politics</i>		
Aristide 1994–96 Dummy	–0.17 (0.466)	–0.34(0.496)
Préval 1996–2001 Dummy	–1.54 (0.675)***	0.63 (0.991)
Aristide 2001–02 Dummy	–1.28 (0.504)***	–0.03 (0.992)
<i>United States Foreign Policy</i>		
Average Weekly U.S. Foreign Policy towards Both Government & Rebels	–0.05 (0.033)*	–0.00 (0.052)
Operation ABLE MANNER (1994)	–.50 (0.602)	0.469 (1.30)
<i>United States Economy</i>		
Monthly Δ U.S. CPI	–0.47 (0.346)*	0.60 (0.487)
Monthly Δ U.S. Wages	1.21 (1.88)	2.38 (1.74)*
<i>Natural Disasters</i>		
Hurricane Georges Dummy (1998)	.812 (0.569)*	–0.54 (0.794)
Hurricane Georges Counter (8 weeks)	1.37 (0.351)***	—
Hurricane Georges Counter Squared	–0.24 (0.043)***	—
<i>Time</i>		
Count	0.00 (0.002)	
Constant	6.18 (1.22)***	0.36 (1.10)
N (zeros)	464 (313)	
<i>Model Fit</i>		
Alpha (Poisson v. Negative Binomial)	1.55 (0.159)***	
Wald Chi-Square	4706.87***	
Vuong Tests ^a (Likelihood Ratio Tests)		
Negative Binomial v. ZINB	3.69***	
Baseline ZINB v. MITS	13.25***	

Significance Levels: *** = 0.01 level; ** = 0.05 level; * = 0.10 level (one tail tests).

^aThese tests were run without robust standard errors (given the limitations of the test).

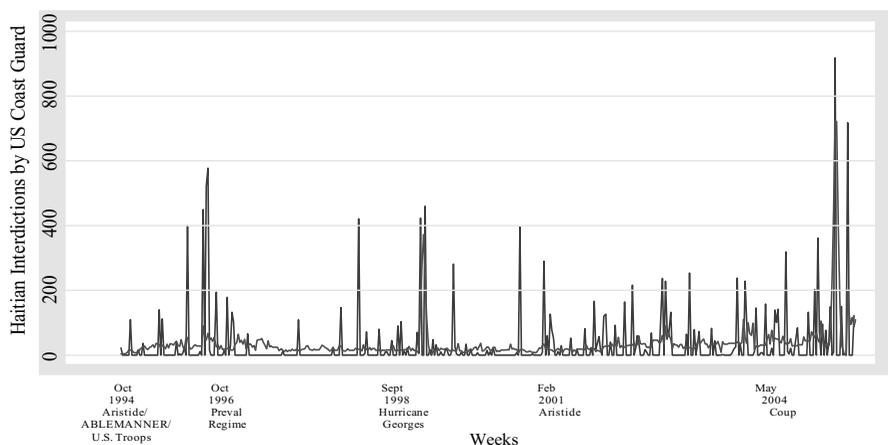


FIGURE 1 The model-predicted values versus the actual values.

Poisson model. In addition, we performed two different Young (1989) (likelihood ratio) tests to determine if our specification fit the data better than alternative specifications.²³ The first Vuong test reported in Table 2 compares the negative binomial model to the ZINB model. The second reported test compares the restricted ZINB model containing only interval level variables and the CPI dummy to the unrestricted ZINB MITS model. Both reported Z statistics are statistically significant indicating that the ZINB outperforms the NBRM model and the ZINB MITS model outperforms the vanilla ZINB model.

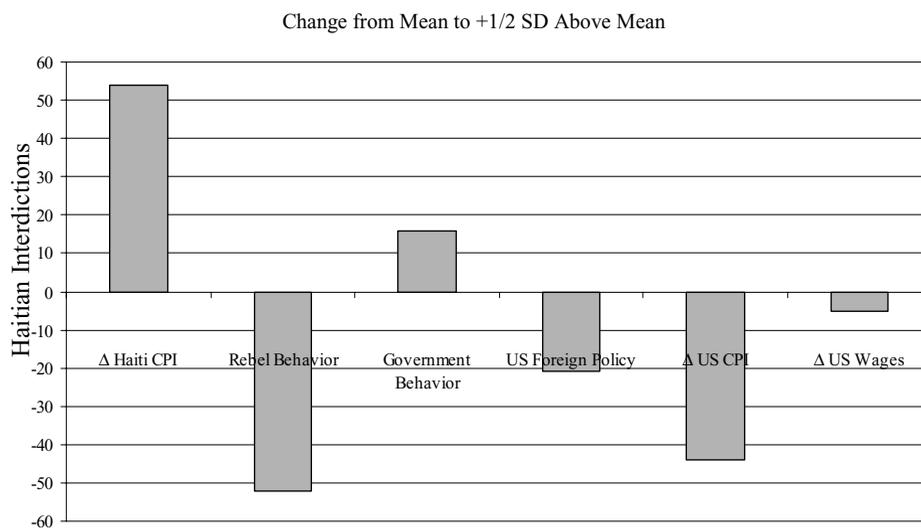
We choose to focus on the count equation results rather than the zero-inflated estimates. Overall, the model does not do a great job at modeling the zeros. However, the model does a much better job in terms of explaining the variance in the positive counts. Figure 1 plots the time-series actual values and the model-predicted values against one another. The grey line represents the actual values while the black line represents the predicted values. Along the X-axis, we plot the key events over the period 1990–2004. Visual inspection shows that the model does a decent job of explaining the variance in the series. In particular, visual inspection reveals the predicted values spike with the actual values after the 2004 coup as well as the 1998 hurricane, as predicted. Below, using the impact assessment results, we determine whether or not these visual inspections are statistically significant. But for now, we turn our attention towards the coefficient estimates and the predicted changes in the dependent variable (given changes in the independent variables).

To begin, Table 2 reports that weekly Haitian government behavior directed towards the Haitian rebels is not statistically significant. Yet, weekly Haitian rebels' behavior directed towards the Haitian government is negative and significant. To further inspect its impact turn attention towards Figure 2.

Figure 2 illustrates the predicted change in interdictions given a change in the independent (interval-level) variable of interest from its mean to a half standard deviation above its mean. All calculations are performed by setting all dummy, counter, and counter-squared variables to zero and all other variables to their mean.

In Figure 2, an increase in the rebels' cooperation levels from -0.75 to 0.47 yields a reduction of more than 50 interdictions. Alternatively, an increase of hostility moving from -0.75 to -1.97 increases interdictions by more than 50. This is no small effect. Many of the violent rebel groups in Haiti are primarily remnants of the Duvalier regime and the Tonton Macoutes. These groups represent the previous repressive regime that the people

²³The test basically compares the log-likelihood values from restricted and unrestricted models.



Note: For the calculations, all dummy and counter variables are held at zero and all other variables at their means.

FIGURE 2 Discrete change in interdicted counts.

detest. By contrast, Aristide and Préval represent leaders who won elections by very large margins as well as retained a sizeable popular following, and this was even in their worst states. The varying perceptions of the government and the dissidents who are committing the acts of violence may be influencing the variation in results, particularly the finding that state violence is statistically not significant. The Haitian government is arresting rebels and “protecting” the people, while the rebels wreak havoc on the population. These findings are further confirmed by the Haitian leader dummy variables. Table 2 shows that the leader variables are negative and the Preval variable and second Aristide variable (2001–2004) are both statistically significant.

In terms of the economic effects of the Haitian economy on Haitian flight patterns, we observe a positive and statistically significant coefficient for our Δ HAITICPI indicator. This implies that as the change in inflation increases, more people flee the country to the U.S.²⁴ To assess how change in CPI affects interdictions turn attention towards Figure 2. As change in Haiti CPI moves from 1.2 to about three, the predicted change in interdictions increases by about 55. From the results, we infer that short-run changes in the Haitian economy in-part explain variance in Haiti-U.S. migration.

That said, U.S. wages do not appear to be much of a pull factor for Haitians. For example, in Table 2 the coefficient on wages is not statistically significant. This is consistent with Moore and Shellman’s (2004b) global finding in their directed-dyad study of annual origin to asylum refugee flows. They found that asylum GNP did not have a statistically significant impact on destination choices. Neumayer (2005b), on the other hand, finds that

²⁴Note that the Haiti CPI dummy variable is negative and statistically significant. This means that the level of the series changes when the new CPI series begins. This is not surprising, given the large downward shift in the actual CPI series. The negative coefficient on the dummy variable accounts for this change in the series. We then checked to see if there was a different slope prediction for the second series by inter-acting the dummy variable with Δ HAITICPI. A significant coefficient would indicate that the second part of the series has different effect on the dependent variable, which would be disturbing. However, the results confirmed no such relationship, as the interaction term was not statistically significant.

asylum applicants in Western Europe are attracted to richer countries when controlling for fixed effects. A comparison of the findings should be done with caution, given that the measures and units are not the same. However, both measures are tapping the same concept—economic opportunity—and studies show that measures of GNP and wages are highly correlated.²⁵

While U.S. wages do not seem to impact Haitian-U.S. migration, U.S. inflation does affect Haitian migration to the U.S. Although this finding is only statistically significant at the 0.09 level, Figure 2 shows that a half standard deviation increase in U.S. CPI decreases the number of interdictions by nearly 45. We infer that as prices increase in the U.S. migration from Haiti to the U.S. declines.

The findings suggest that while Haitians are necessarily attracted to the short-run increases and decreases in U.S. wages, they are discouraged from migrating to the U.S. when U.S. prices increase in the short-run. We know that U.S. wealth is much greater than Haiti and so perhaps U.S. wages are so great in comparison to Haiti's that changes up and down are relatively unimportant. Of course, a better test would look at migration from Haiti to Canada, the Dominican Republic, and France. Perhaps, then, we could more accurately test whether or not Haitian migrants were particularly drawn to the U.S. economy over the French, Canadian, and/or Dominican Republic economies (controlling for distance). However, given these data and our design, Haitian-U.S. migration levels are virtually unaltered by rising U.S. wages. Changes in inflation, however, do have a substantive and statistically significant impact on Haiti-U.S. migration.

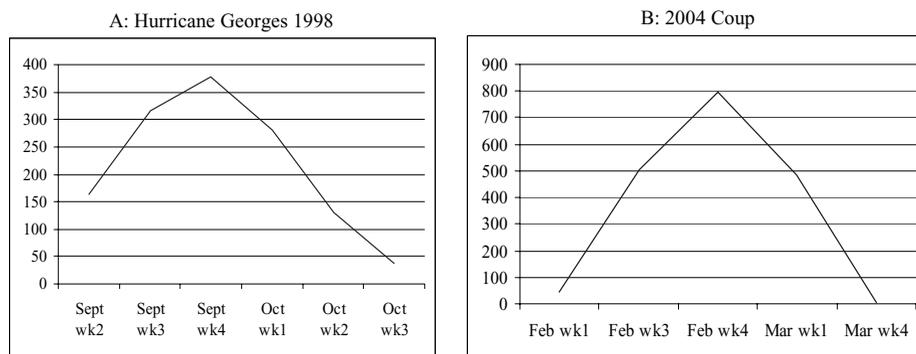
Next, we turn attention toward U.S. foreign policy and the other foreign pressure variables. To begin, we experimented by creating U.S. to Haiti military, U.S. to Haiti Government, U.S. to Haiti Rebels, and U.S. to Haiti ALL variables. Different combinations revealed similarly signed and similarly sized coefficients. Joint F-tests indicated that the effects were the same across our different combinations. As such, we chose to report the U.S. to Haiti ALL findings. This variable represents all conflict and cooperation sent by the U.S. towards the Haitian rebels, government, military, and general society in each week from 1994–2004. Table 2 indicates a negatively signed and statistically significant coefficient estimate and Figure 2 shows a similar but smaller effect on interdictions than rebel behavior. An increase in U.S. cooperation directed towards Haiti from -0.02 to about one (on a scale from -10 to $+10$) yields a predicted decrease in the interdiction count of about 21. Of course, the opposite holds true if the U.S. government increases its hostility from -0.02 to about -1 . This results in an increase of about 21 interdictions. Thus, in the aggregate, friendly U.S. policy towards Haiti decreases migration, while hostile foreign policies tend to increase migration from Haiti to the U.S.

One particular type and example of hostile U.S. foreign policy towards Haiti is the U.S. Coast Guard Operation Able Manner. While the coefficient for ABLEMANNER is negative and in the anticipated direction, it is not statistically significant. The operation was begun in 1993 and may have had a more significant impact in its beginning and middle stages than at the end of its tenure. Now we turn attention toward the results of the impact assessments.

Impact Assessments

Figure 3 graphs the results of the impact assessments. Specifically, they show the predicted impacts for each event on Haitian interdictions and actually reveal similar patterns as expected. The coefficients for the hurricane and coup dummy are both significant indicating changes in the levels of the series. While the 2004 coup decreases the overall level of

²⁵For an analysis of the relationship between GNP and wages, see the U.S. Government Import Administration's report on the topic at: <http://ia.ita.gov/wages/98wages/98wages.htm>.



Note: All predicted values are calculated holding all interval level variables at their means and non-event-associated dummy variables at zero. The dummy applicable to each event is set equal to 1 and the event-associated counter and counter squared variables are set across a range of sample values for each point estimate.

FIGURE 3 Predicted impacts of key events on Haitian interdictions by U.S. Coast Guard.

migration, the hurricane variable increases the overall series. This is evident when comparing the graphs in Figure 3. Next, both counter variables are positive and statistically significant and both counter-squared variables are negative and significant. The results communicate that the functional form of the relationship appears to be specified correctly. In both graphs displayed in Figure 3 we see a spike in the interdiction count just after the hurricane and coup events and then the level drops off as expected. Overall, the results confirm short-run increases in migration from Haiti to the U.S. after the 1998 hurricane and the 2004 coup. This effect eventually drops off and migration flows return to their pre-event levels after a few weeks.

Conclusion

This article set out to examine the debate over whether or not migrants were political refugees fleeing persecution or bogus refugees fleeing failing economies, particularly within the context of Haitian migration to the U.S. We found evidence for both factors. To begin, the Haitian economy tends to push people out as it worsens. Yet, we failed to find evidence that short-run increases in the U.S. economy measured by wages attract Haitians. In contrast, we found that rebel violence has a large substantive and statistically significant impact on Haitian migration. Moreover, we observed large flows of Haitian migrants following hostile changes in government power such as the 2004 coup. Finally, foreign pressures and Hurricane Georges also tended to increase migratory flows.

Our results are consistent with most of the large- N quantitative studies in the literature. For example, dissident violence has a large impact on migration as reported in Davenport and colleagues (2003), Moore and Shellman (2004a), and Neumayer (2005a, 2005b). On the contrary, state-sponsored violence did not have a statistically significant impact. As for the U.S. economy, short-run changes in wages do not appear to impact Haitian migration to the U.S. However, changes in U.S. and Haitian inflation do alter flows. Specifically, as Haitian inflation climbs, Haiti to U.S. migration also climbs and as U.S. inflation climbs, migratory flows from Haiti to the U.S. decrease.

In terms of its impact on the literature, the study makes several contributions. First, we confirm the results of several large- N studies, which often use crude “over-aggregated” annual measures, using the week as the unit of analysis. Pooled studies produce average effects across space and time. Herein we are able to say something more about effects over

time for a specific case and compare the results to the global models. Surprisingly, our results are similar to the pooled studies. Nonetheless, we contend that our design allows detection of more nuanced changes in the migratory process. Moreover, time-series case studies will bear more fruit in terms of building and developing contingency planning models. Policy-makers are more apt to pay attention to case specific forecasts than forecasts derived from pooled models and average effects. Time-series case specific forecasts will prove more valuable to a policy-maker dealing with contingency planning for a specific case. Finally, it opens new avenues for exploration. Our study in many places assumes indirect effects of some of the variables yet tests them as direct effects. In the future, for example, we can model government-dissident dynamics (Shellman, 2006) which would lead to predictions in the escalation of conflict and serve as an early-warning mechanism for subsequent Haitian flight. Similarly, we can model the impact that foreign policy has on domestic policy and subsequently on migration. In short, the study opens up the possibility of exploring the migration process using multiple-equation modeling techniques.

In sum, our study provides evidence that many Haitian migrants are in fact refugees under the 1951 UN Convention's definition. U.S. foreign policy continues to reject the notion that the Haitian people flee their homeland in fear of persecution. Rather, the U.S. government promotes the idea that such people are fleeing economic deprivation. Although it is difficult to separate the impact of the failing economy from the impacts of security, there appears to be a direct impact of violence on Haitian migrants even when the economy is not fluctuating so rapidly. This suggests that, while there are economic concerns, there are also distinct security concerns that cause Haitians to flee. Nevertheless, the U.S. policy of rejecting Haitian migrants on the grounds that they are economic migrants calls into question whether or not they are often (or even systematically) violating the UN's principle of "nonrefoulement." The U.S. "gets away with it" by claiming that Haitians are "bogus refugees" and by not acknowledging the evidence of security concerns. Finally, aside from calling into question U.S. policy on the handling of Haitian migrants, the study has additional implications for how best to handle the problem of increased Haitian immigration in the U.S. The findings suggest that cooperative foreign policies that seek to stabilize the government in Haiti as well facilitate the growth of their economy can decrease the number of Haitian migrants to the U.S.

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