Sanctions on Venezuela Are Not Driving Migration to the US Southwest Border: An Empirical Assessment

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Introduction

After the decision of the Venezuelan regime to disregard the results of the presidential election of July 28, 2024, and subsequently swear in Maduro for a new term on January 10, 2025, the international community faces a new reality. The Venezuelan people, essentially, have tried every single tool in the kit to try to transition to democracy without success.

As the administration will define a new strategy on Venezuela, one of the tools at it disposal is reenacting and deepening economic sanctions on the regime. While the effectiveness of sanctions as the optimal tool to restore democracy in Venezuela is hard to assess empirically, part of the policy discussion is centered on one of its consequences: whether this strategy could result in more migration and irregular crossings at the US Southwestern border.

This note explores the empirical evidence about the relationship between sanctions and migration in the context of Venezuela. In particular, we study the relationship between oil prices and income (for which its variation could proxy for the imposition of sanctions) and outmigration of Venezuelans, measured through Venezuelans crossing the US border. Our main findings suggest that higher oil income or prices results in more, not less, crossings of Venezuelans migrants.

In theory, the relationship is not obvious. On the one hand, greater sanctions, and hence, lower oil revenues, could make matters worse for Venezuelan citizens, prompting them to leave. On the other hand, migration is a costly investment, and lower income might make it less affordable.[1] In addition, greater income to the regime might imply that it makes it more capable of stabilizing its support coalition, making a political transition less likely (de Mezquita and Smith, 2011). For those outside of

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[1] Clemens and Mendola (2024) make this argument regarding the positive impact of development and higher incomes on higher outmigration and shows evidence to this effect.

the ruling coalition and their supporters, this may constitute a greater incentive to leave. Combining this incentive with a short-term improvement in economic conditions may make outmigration not only more desirable but also more affordable. This would justify a positive relationship between oil income and outmigration.

This means that, a priori, it is not obvious what is the sign of the relationship between oil income and outmigration in Venezuela. Different theories predict different outcomes, meaning that the question should be settled empirically. This note explores this empirical question.

Data and methods

We use data from Venezuela oil production (estimated by OPEC from secondary sources), the price of oil (proxied by the Brent price), and encounters of Venezuelans crossing the Southwest border as reported by US CBP from January 2020 to September 2024 monthly. Based on oil production and price we compute oil income from Venezuela for each month during the period under consideration.

Our goal is to explore the relationship between migration and the oil income of the Venezuelan regime. Figure 1 visualizes this relationship using the raw data. In particular, the figure plots oil income (top) / prices (bottom) Vs. border crossings, both in levels (left) and year-over-year variation (right), using monthly data from January 2020 until September 2024.

Figure 1. Monthly variation of Venezuela oil income / prices and border crossings of Venezuelans
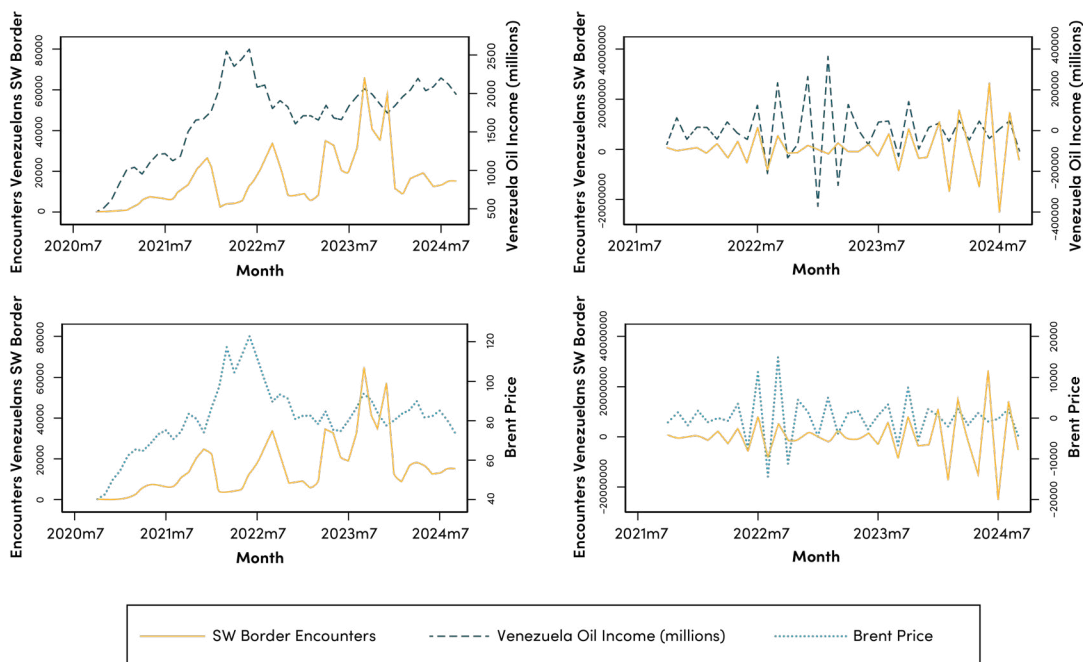
Note: This figure plots several time series used in the empirical analysis. The upper graphs plot border encounters of Venezuelans and Venezuelan oil income, whereas the lower graphs plot the border encounters and the price of Brent crude oil. The two graphs on the left plot the levels, whereas the graphs on the right plot the year-on-year differences.

Visually it can be appreciated that both variables tend to co-move in the same direction, implying that there is more outmigration from Venezuela to the US when there are increases in oil income or in prices. Consistently, when the Engle-Granger cointegration test was applied in these two monthly series (using first differences), the test produced a test statistic of -7.903, above the critical value of -4.145 at the 1 percent significance level. This result suggests the presence of cointegration between the series, indicating that they share a long-term equilibrium relationship.

A more analytical way of looking at these numbers follows Bahar (2024) and relies on the estimation of two alternative models. The first one (titled "levels") estimates the elasticity of the number of crossings to oil income or prices, using logs of the levels of both variables, including month and year fixed effects, as reflected in the following specification:

$$\log(crossings_{my}) = \beta_{levels} \log(oil_{my}) + \eta_m + \gamma_y + \varepsilon_{my}$$

where the subscript my indexes a month-year period, $\log(crossings_{my})$ is the total crossings of Venezuelans during that month-year (in logs), and (oil_{my}) is, depending on the specification, either the international price of Brent crude oil or, alternatively, income from oil (based on production of oil from secondary sources multiplied by international price of Brent crude oil). The log transformation allows us to deal with outliers in the distribution and, at the same time, allows us to interpret the coefficient of interest as an elasticity. ε_{my} represents the error term. In this specification β_{levels} represents the elasticity to be estimated. The estimation also includes month fixed effects and year fixed effects to account for monthly seasonality and common year-long shocks to both variables. It also deals with fact that the leadership and policies of the US changed over the years.

The second one (titled "yoy"), is an Autoregressive Distributed Lag (ARDL) model that estimates the elasticity of both variables using a year-over-year difference and including several standard control variables. This model follows the following specification using the same subscripts as above:

$$\begin{aligned}\Delta \log(crossings_{my}) \\ = \beta_{yoy}\Delta \log(oil_{my}) + \Delta \log(crossings_{my-1}) + \Delta \log(oil_{my-1}) + \text{ECT}_{my-1} + \varepsilon_{my}\end{aligned}$$

where Δ represents year-over-year differences; and ECT_{my-1} represents the error correction term, which is nothing more than the residual regression of $\log(crossings_{my})$ on $\log(oil_{my})$ lagged by one month. This term represents the long-term equilibrium relationship between the two variables, which is added as a control. This term represents the long-term equilibrium relationship between the two variables. The inclusion of this and the other controls (such as the lagged variables) allows us to interpret the estimated value of β_{voy} as a short-term elasticity.

Results

The results from estimating both equations in the above section are presented in Table 1. Columns 1 and 2 present results from the "levels" and "YoY" equations using oil income as the main dependent variable, and Columns 3 and 4 uses the price of oil established in international markets, a variable that suffers from less endogeneity than oil income.

Across all different estimations, the elasticities are positive and statistically significant. This implies there is a positive relationship between oil income or prices and crossings of Venezuelans through the US southwest border between 2020 until September 2024. This means that higher price –and therefore income—from oil results in more, not less, migration, according to our analysis.

The magnitude of these elasticities is substantial. For instance, the elasticity of oil income on border crossings in the "levels" model is 1.611, which means that a 10 percent increase in oil income is associated with approximately a 16.1 percent increase in border crossings. Similarly, in the "YoY" model, the elasticity is 1.540, indicating that a 10 percent year-over-year increase in oil income corresponds to a 15.4 percent increase in border crossings compared to the same month of the previous year.

When using oil price directly as the independent variable—which we claim does not suffer from as much endogeneity as oil income—the elasticities are even larger. In the "levels" model, the elasticity is 2.345, meaning a 10 percent increase in oil prices is associated with a 23.5 percent increase in border crossings. The "YoY" model yields an elasticity of 3.485, implying that a 10 percent year-over-year increase in oil prices corresponds to nearly a 35 percent increase in border crossings compared to the same month in the previous year.

These results are consistent across different specifications and are statistically significant at conventional levels. The models also exhibit high explanatory power, with R^2 values ranging from 0.78 to 0.86, indicating that a substantial portion of the variation in border crossings can be explained by the variation in oil income or prices (note that the fit is high even when excluding fixed effects).

Concluding remarks

The empirical evidence presented in this paper suggests that higher oil income in Venezuela is associated with higher—not lower—crossings at the US southwest border. This finding has important implications for the ongoing policy debate about sanctions on the Venezuelan regime. Our results contradict the notion that economic sanctions would increase migration flows to the United States. In fact, the data shows the opposite relationship: when Venezuela's oil income decreases (as would be expected under stricter sanctions), migration flows also tend to decrease.

Table 1. Estimations of elasticity of oil price / income on border crossings of Venezuelans

	LEVELS b/se	YoY b/se	LEVELS b/se	YoY b/se
Oil Income (logs)	1.611 (0.853)*	1.540 (0.753)**		
Brent Price (logs)			2.345 (1.210)*	3.485 (1.107)***
N	48	35	48	35
R^2	0.86	0.78	0.86	0.81
Month FE	Y	N	Y	N
Year FE	Y	N	Y	N

Note: Columns 1 and 3 reports estimations of the "levels" model, which uses levels and includes month and year fixed effects. Columns 2 and 4 report estimations of the "YoY" or ALDR model using year-over-year values. These columns include non-reported controls shown in the equation. Robust standard errors are presented in parenthesis. *p < 0.10, **p < 0.05, ***p < 0.01

This pattern can be explained by two complementary mechanisms. First, migration is a costly investment that requires financial resources. When economic conditions deteriorate significantly, many Venezuelans may lack the necessary resources to finance their journey to the United States, even if they desire to leave. This aligns with the migration hump theory described by Clemens (2014), where development and higher incomes enable more people to migrate rather than keeping them at home.

Second, and perhaps more importantly, our findings support the hypothesis that what drives Venezuelans to leave their country is not merely economic hardship but the political hopelessness that comes with seeing an entrenched authoritarian regime become more stable. When oil prices and revenues increase, the Maduro regime gains additional resources to fund its repression system and to compensate those who remain loyal to maintaining the dictatorship against the will of the Venezuelan people. This strengthens the ruling coalition as described by de Mesquita and Smith (2011), making democratic transition less likely and fueling the desire to emigrate among those outside this coalition.

Our findings contrast with Rodriguez (2024), who argues that migration from Venezuela is a result of economic contractions which in turn can be largely explained by sanctions rather than policy failures. Rodriguez uses a two-step methodology—examining the effect of sanctions on GDP and then GDP's effect on migration.[2] This approach fails to account for confounding variables that could influence both economic performance and migration simultaneously, such as political repression and institutional deterioration. Our direct analysis of oil income and migration flows provides a more straightforward assessment of how sanctions might affect migration patterns, avoiding these methodological limitations.

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2   This approach also ignores the fact that much of Venezuela's economic decline proceeded the 2017 sanctions (Bahar et al. 2021).

For policymakers concerned with both promoting democratic change in Venezuela and managing migration flows, these results suggest that properly designed sanctions targeted at pressuring the regime could be compatible with both objectives. By limiting the regime's resources, sanctions could affect the likelihood of regime change and therefore reduce the intention to migrate.

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