Assumptions

- **We use as the baseline the projected total population of Venezuela for 2018, 31,820,110**, based on the projection made by the Venezuelan Census in 2011. When the baseline estimates for the population of 2011 were made, the number of Venezuelans living abroad at the time were not considered. Similarly, the Census projections moving forward assumed that the totality of the population would be living in Venezuela. Hence, we can assume this number to be the expected total number of people living in Venezuela if there was no massive exodus.

- **We assume that 87% of the population need support of some sort to finance their caloric intake for survival.**
    - This number comes from ENCOVI, a survey led by three Venezuelan Universities (UCAB, USB and UCV) in 2017, which highlighted that 87% of the population were under the income poverty line (and that 61% were considered to be in extreme poverty).
    - This number is a conservative estimate. This is because the survey was done before the spike of hyperinflation. By the end of October 2018 the Venezuelan National Assembly estimated year-on-year inflation to be over 833.997% and accelerating. Independently, the IMF estimated that inflation in Venezuela would approximate 1.000.000% in 2018.

- **We assume that the minimum cost of meeting basic nutritional requirements is less than a dollar a day (90 cents per day per person), or just around 27$ a month.** This is to meet a minimum caloric intake, appropriately distributed across the consumption of protein, carbohydrate and fat. We calculate the cost of meeting these base nutritional needs by using the cheapest combination of calorie sources in the market.
    - Using reference prices from sources across Colombia (given the lack of data from Venezuela), we estimate the minimum cost of meeting these requirements to be less than a dollar a day (90 cents per day per person), or just around 27$ a month

- **We assume that among those that need support, they can still cover, on average, 25% of the daily intake of their household.**
    - Even after the latest announced increase, the minimum wage, which is the median wage in the country, could only purchase approximately 12.5% of the caloric requirements of the household if they were to consume only the cheapest calorie available. This share would be much lower if we were to consider base nutritional needs which also consider the type of calories. Two minimum wages per household, thus, would account for 25% of the basic nutritional needs.
    - It is hard to disentangle the combined effect of a sharp increase in wages, with a significant rise in unemployment and a rapidly accelerating hyperinflation, but

overall, we estimate that "poor" households can finance only 25% of their base nutritional needs, which is likely an optimistic scenario.

- **We assume that there are remittances flowing in** which exclusively go towards supporting families in need (another generous assumption). In the base model, remittances are assumed to be USD $2,400 million a year, according to estimates made by private firms and development banks referenced in the local press.
  - We should also acknowledge that there is likely an endogenous relationship between migration and remittances, which depends on the number of migrants abroad, the number of family members still back home, the destination countries of migrants, the legal status of migrants, etc. To simplify these complex relations, we take the value of remittances to be constant.

- **We assume the existence of a government program designed to exclusively support families in need**. In the base model we assume that "Tax Revenues" and "Inflationary Tax Revenues" are leveraged to finance all current expenditures in local currency, other than this simulated program. We also assume that the non-oil foreign currency revenues to the Government (i.e.: Gold exports) are negligible or that are used to selectively finance arrears or debt repayments. Lastly, we assume that all of the "Effective Government Take of the Oil Sector" is used to finance this simulated program.
  - In order to simplify the calculation of "Effective Government Take of The Oil Sector" we don't limit the analysis to Central Government take, but rather consider the Restricted Public Sector as a whole. These are very generous assumptions as real "Tax Revenues" have collapsed, arrears and selective defaults continue to pile up and the lag of investments is crippling the already precarious public goods provision.
  - We approximate "Effective Government Take of The Oil Sector" by considering:
    - the average price of the Venezuelan oil basket;
    - production levels according to OPEC;
    - non-revenue generating share of production (we assume that close to 60% of production is devoted to heavily subsidized domestic consumption, leveraged as a vehicle for debt repayment with China and Russia or, supplied at a very large discount to Caribbean countries, mostly Cuba);
    - the weighted average cost of production considering the different types of resource according to industry sources;
    - an approximated share of Restricted Public Sector net revenue given the nature of production (i.e.: own effort, joint venture, production arrangement, etc.) according to industry sources;
    - We consider all these variables, except production levels and prices, to be constant.

- **We assume that those that are unable to <u>fully</u> self-finance their base nutritional needs are potential emigrants.** The gap between the estimated base population for 2018 and

the population that can be fully meet their nutritional intake, either through their own means or with the support of remittances and/or government programs, is the number of people we estimate will emigrate from the country at some point. Given that until 2015 the total number of Venezuelans living abroad (approximately 700 thousand according to the International Office of Migration), had not changed significantly from 2011 (approximately 550 thousand according to the International Office of Migration) we argue that our estimates of total emigrants are largely indicative of those that have left since 2015, when the massive exodus began.

- o This of course is contingent on the level of production and/or the price level of oil, as well as the levels of remittances, which we allow the user to adjust to create several scenarios.
- o Note that we estimate that remittances and government support is directed exclusively towards the population that requires support to cover their nutritional needs. Furthermore, it assumes that the beneficiaries receive just enough assistance to meet these needs, not any more or any less. This assumes perfect targeting, no leakage, and procurement and distribution efficiency comparable to major private stakeholders, which again, are very generous assumptions.