Venezuelan immigration to Peru: Macroeconomic characteristics and impacts

October 2019
Key messages

As a country, Peru has received among the highest number of Venezuelan immigrants. There are currently more than 800,000 Venezuelan immigrants in Peru, with an annual influx that reached its peak in 2018. The majority of these Venezuelan immigrants are concentrated in Lima.

The Venezuelan immigrant population in Peru has the following characteristics:

- The majority are of working age and have completed a higher number of years of studies than the average for the Peruvian population.
- Their incorporation into the Peruvian labor market has not taken place under the best conditions: indicators of labor informality indicate that this level is very high (most immigrants do not have legal permission to work and have not validated their qualifications).
- More than 65% of immigrants over the age of 14 send remittances mainly on a weekly or fortnightly basis.
- Most people rent the house they live in and share a room with two or more people.
- There are almost ninety thousand immigrants who are of elementary school age, of whom only 40% are attending schools. The pressure on basic education services provided by the State will increase.
- It is healthier than the average Peruvian individual (as defined by chronic disease). However, Venezuelan immigrants who fall ill are not seeking health care because they have neither the necessary funds or insurance.

The requirements for entry into Peru for Venezuelan immigrants were tightened in mid 2019 with the introduction of a visa requirement (tourist or humanitarian), which together with similar requirements in transit countries has led to a marked decrease in the influx of immigrants in recent months.
Key messages

- According to our estimates, the fiscal impact of Venezuelan immigration is positive, albeit low in relation to the size of the Peruvian economy. Thus, the average net impact for 2018 and 2019 is equivalent to 0.08% of GDP.

- Venezuelan immigration has altered the supply of production factors in the Peruvian economy. Taking into account the increased availability of labor and human capital generated by Venezuelan immigrants, we estimate that Peru's potential GDP has made a significant discrete leap in 2018. Similarly, the demand for goods and services from Venezuelan immigrants has had a positive impact on the observed GDP, although this effect has been less than the effect that the incorporation of this population has had on potential GDP. As a result of the differentiated impacts on potential and observed GDP, the (currently negative) output gap has widened.

- As such, we estimate that potential GDP grew by 4.4% in 2018, almost one percentage point more than it would have if the immigration of Venezuelan citizens had not occurred. Since immigrants were not employed in the most effective manner (in activities for which they were educated or in a formal manner), their positive impact was more limited in terms of observed GDP than on potential. Against this backdrop, the output gap was smaller in 2018 (by almost six tenths of a percentage point of potential GDP, according to our estimates) than in a scenario in which Venezuelan immigration had not taken place.

- The more negative output gap has implications for our inflation forecast (lower price pressures). Furthermore, we have updated our estimate of the neutral interest rate, and we find that its level is lower than the previous figure (the Central Bank also recently cut its estimate for this variable), and therefore the size of the monetary stimulus is less than previously contemplated. These elements suggest that, in the future, a more accommodative monetary policy cannot be ruled out.
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  • Pressure on education services
  • Health situation
  • Entry restrictions

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Characteristics of Venezuelan immigrants
General information
Peru has been one of the largest receivers of Venezuelan immigrants

4.3 Million

Venezuelans have emigrated since 2015

They are distributed in the following countries:

Source: UN Agency for Refugees (UNHCR), 2019
There are currently more than 800,000 Venezuelan immigrants in Peru, with an annual influx that reached its peak last year,...

**ANNUAL MIGRATORY FLOW OF VENEZUELANs TO PERU**
(THOUSANDS OF PEOPLE, NET)

From 2016 to 2019, Venezuelan immigrants in Peru total

810 mil

The majority (75%) entered Peru with their current passport (see Annex 1)

**NET MONTHLY IMMIGRATION OF VENEZUELANs TO PERU**
(THOUSANDS OF PEOPLE)

Source: National Superintendence of Migration
... and they are concentrated in the city of Lima, mainly in its suburban areas

Source: ENPOVE (2018) - INEI. For details of this survey, see Annex 2

* Survey conducted from April 8 to May 5, 2019.
Source: Data from SJR (Venezuela), UCAT, UCAB, Centro Gumilla
Most Venezuelan immigrants are of working age and have had more years of education than the average for the Peruvian population.

**VENEZUELAN IMMIGRANTS IN PERU: AGE DISTRIBUTION**
(THOUSANDS OF PEOPLE, 2018)

![Age distribution chart]

**YEARS OF EDUCATION**
(AVERAGE, FOR PERSONS AGED 15 AND OVER)

- Peru: 10.5
- Venezuelan immigration: 13.4

Source: ENPOVE (2018) - INEI
Immigrants have entered the Peruvian labor market, but not under the best conditions...

**VENEZUELAN IMMIGRANTS IN PERU***
(NUMBER OF PEOPLE AND % OF THE WAP, 2018)

<table>
<thead>
<tr>
<th>WAP</th>
<th>531,956</th>
<th>100%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Inactive</td>
<td>45,216</td>
<td>8%</td>
</tr>
<tr>
<td>EAP</td>
<td>486,740</td>
<td>92%</td>
</tr>
<tr>
<td>Employed EAP</td>
<td>455,102</td>
<td>86%</td>
</tr>
<tr>
<td>Unemployed EAP</td>
<td>31,638</td>
<td>6%</td>
</tr>
</tbody>
</table>

WAP: Working age population (between 14 and 65 years).
Inactive: WAP, but not working or looking for a job.
EAP: WAP that is working or looking for a job.
Employed EAP: WAP in work.
Unemployed EAP: WAP not in work, but looking for a job.

**LABOR INFORMALITY INDICATORS FOR VENEZUELAN IMMIGRANTS**

- 89% of dependent workers have no contract.
- 76% work in very small enterprises (1 to 10 workers), which tend to be less productive and more informal (91% informality).
- 97% do not have health insurance provided by the employer (insurance that companies must obligatorily provide to its formal workers).

**HOURS WORKED PER WEEK**

<table>
<thead>
<tr>
<th>Peru</th>
<th>41</th>
</tr>
</thead>
<tbody>
<tr>
<td>Venezuelan Immigrants</td>
<td>60</td>
</tr>
</tbody>
</table>

Monthly avg. income
number of Venezuelan workers
S/ 1.116
(Peru: S/ 1.560)

* For details of the activities they engage in and the nature of their higher education, see Annex 3 and Annex 4.
Source: ENPOVE (2018) - INEI
... partly because they do not have legal permission to work or because they have not validated their qualifications

**DOCUMENTATION SITUATION**
(% OF VENEZUELAN POPULATION IN PERU, 2018)

- Applicant of TPP
- Only foreigner card or identity card
- Refugees or applicants
- Only tourist / student / work visa
- Illegal
- Peruvian nationalized

**TPP**
Temporary Permanence Permit.
It is valid for one year. It enables access to the formal labor market.

**HAVE YOU VALIDATED YOUR COLLEGE DEGREE?**
(% OF THE VENEZUELAN POPULATION IN PERU WITH COMPLETED COLLEGE STUDIES)

- 97% Yes
- 3% No

Source: ENPOVE (2018) - INEI
In terms of remittances, the majority of Venezuelans do send them.

**SENDS REMITTANCES?**
(% of Venezuelans over 14 years of age, 2018)

<table>
<thead>
<tr>
<th></th>
<th>No</th>
<th>Yes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Percent</td>
<td>34</td>
<td>66</td>
</tr>
</tbody>
</table>

**AMOUNT PER TRANSACTION**
(% of Venezuelans sending remittances)

<table>
<thead>
<tr>
<th>Amount</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>S/ 100 or less</td>
<td>74</td>
</tr>
<tr>
<td>from S/ 100 to S/ 200</td>
<td>21</td>
</tr>
<tr>
<td>More than S/ 200</td>
<td>5</td>
</tr>
</tbody>
</table>

Average monthly amount of remittances: Between S/ 240 and S/ 280 (own estimate)\(^1\)

**FREQUENCY**
(% of Venezuelans sending remittances)

<table>
<thead>
<tr>
<th>Frequency</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Weekly</td>
<td>26</td>
</tr>
<tr>
<td>Each 15 days</td>
<td>33</td>
</tr>
<tr>
<td>Monthly</td>
<td>35</td>
</tr>
<tr>
<td>Bimester</td>
<td>3</td>
</tr>
<tr>
<td>Other</td>
<td>2</td>
</tr>
</tbody>
</table>

**WHAT METHOD IS USED FOR SENDING REMITTANCES?**
(% of Venezuelans sending remittances)

<table>
<thead>
<tr>
<th>Method</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bank transfers and shipping agency</td>
<td>87</td>
</tr>
<tr>
<td>Independent people</td>
<td>13</td>
</tr>
</tbody>
</table>

57% use bank accounts of friends or acquaintances, 38% use private companies.

Source: Data for Latin America from SJR (Venezuela), UCAT, UCAB, Centro Gumilla

Source: ENPOVE (2018) - INEI

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1/ See Annex 5
Housing situation
Rented housing and rooms with more than two people are generally observed

**TYPE OF HOUSING IN WHICH VENEZUELAN IMMIGRANTS RESIDE** (% OF VENEZUELAN POPULATION IN PERU, 2018)

<table>
<thead>
<tr>
<th>Type of Housing</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Rented</td>
<td>96%</td>
</tr>
<tr>
<td>Hosted by another home</td>
<td>2%</td>
</tr>
<tr>
<td>Own home</td>
<td>2%</td>
</tr>
<tr>
<td>Temporary home</td>
<td>1%</td>
</tr>
</tbody>
</table>

**NUMBER OF PEOPLE WITH WHOM THE ROOM IS SHARED** (% OF VENEZUELAN POPULATION IN PERU, 2018)

- Sleeps alone: 12%
- Sleeps with 1 person: 31%
- Sleeps with 2 to 3 people: 41%
- Sleeps with more than four people: 16%

Source: ENPOVE (2018) - INEI
Pressure on education services
The basic education needs of immigrants are beginning to put pressure on State services in this area...

33 Thousand
Venezuelan immigrants of basic education age (ages 3 to 16) attended an educational institution in 2018.

Source: ENPOVE (2018) - INEI, Ministry of Education
... pressure that could increase...

Potential pressure on the Peruvian education system

- 87 thousand Venezuelans are of education age.
- 54 thousand are not currently educated.

Why not?

Financial problems (31%), lack of knowledge of the education system (30%), lack of documentation (22%).

Source: ENPOVE (2018) - INEI
Health situation
Venezuelan immigrants are healthier than the average Peruvian individual, but…

HAS CHRONIC DISEASES
(% OF THEIR RESPECTIVE POPULATION IN PERU, 2018)

- 39% Asthma
- 18% Hypertension
- 5% Arthritis
- 5% Diabetes

78% were not treated in 2018


HAD A HEALTH PROBLEM
(% OF THEIR RESPECTIVE POPULATION IN PERU, 2018)

- 49% Flu, colitis
- 7% Discomfort
- 5% Arthritis

81% sought medical attention

WHERE WAS HEALTH CARE SOUGHT?
(% OF VENEZUELAN IMMIGRANTS WHO HAD A HEALTH PROBLEM AND RECEIVED SOME FORM OF HEALTH CARE; MULTIPLE RESPONSE SURVEY)

- 55% Pharmacy or Apothecary
- 35% Self-medicated
- 18% Hospital MINSA
- 4% Private practice
- 4% Private Clinic
- 2% Center of attention EsSALUD

19% Venezuelan immigrants who had a health problem, but did not seek medical attention

...when they fall ill they don't go to health centers because they don't have the money or because they don't have health insurance

**REASONS FOR NOT GOING TO A HEALTH FACILITY**
(% of Venezuelan immigrants who had a health problem and did not go to a health facility; multiple response survey)

- It wasn’t necessary: 46%
- Didn’t have enough money: 40%
- Uninsured: 16%
- Self-medicated: 9%
- No time: 5%

Source: ENPOVE (2018) - INEI

**HAS HEALTH INSURANCE**
(% of Venezuelan population in Peru, 2018)

- Integral health - SIS: 54% (29,000 Venezuelans)
- Private health insurance: 17% (9,000 Venezuelans)
- EsSalud: 29% (16,000 Venezuelans)

Source: ENPOVE (2018) - INEI
Entry restrictions for Venezuelan immigrants
Entry restrictions and conditions of stay for Venezuelan immigrants in Peru

**Passport required for entry**
- A passport requirement for entry is re-imposed

**Modification of TPP guidelines**
- Those who enter after 10.31.18 cannot request a TPP.
- The deadline for submitting a TPP application is 12.31.18.

**Tourist visa or humanitarian visa requirement**
- It is granted for one year.
- Allows you to work formally.
- In the event of rejection or inadmissibility, the immigrant must leave the country within a maximum period of thirty days after the expiration of their tourist status. The departure order can be extended a single time for 15 calendar days.

**Tourist visa for Venezuelans entering Peru**
- Requirements:
  - Valid or expired passport
  - Criminal background
  - Identity card
  - Proof of economic solvency
  - Cost: USD 30

  Venezuelans with permanent residency in countries of the Pacific Alliance, with an immigration identity card, are exempt from the visa requirement.

**Humanitarian visa**
- Requirements:
  - No criminal record
  - Valid or expired passport
  - Birth certificate for children under 9 years old

**Exceptions (people who may enter without a visa):**
- Minors to be united with their parents (requirement: Birth certificate).
- Elderly adults in order to be united with their core family.
- Older people in vulnerable situations.
- Pregnant women and older adults in extremely vulnerable situations.

**Requirements:**
- Not leaving Peruvian territory for more than 183 days in one year without authorization from the Immigration Office.
- No previous Peruvian or international convictions, whether judicial or police.
- Inform the Immigration Office of the activities they have undertaken in the country during the validity of the issued TPP, providing the supporting documentation.

**Passport requirement for entry**
- A passport is required for entry to Peru

**Modification of TPP guidelines**
- They approve guidelines for granting TPP (Temporary Permanence Permit)
- Ecuador, a transit country to Peru, requires a visa for Venezuelans to enter their country

Source: Peruvian Consulate in Caracas, Supreme Decree No. 001-2018-IN, Supreme Decree No. 007-2018-IN

If an immigrant's TPP is about to expire and they wish to remain in Peru, they must apply for Special Resident Immigration Status. It is granted for one year, and may be extended.
Fiscal impact of Venezuelan immigration
Fiscal impacts map

Fiscal impacts

Revenues

General Sales Tax (Impuesto general a las ventas - IGV*)

Income tax (on labor income)

Expenses

Public education

Public health

Pension system

The impact has not been considered in this way. Although the majority of workers of Venezuelan nationality are currently informal, their eventual selection to benefit from the public pension system (ONP) will be an issue to be taken into account. On the one hand, during its active stage, the contribution to the ONP will increase, but, on the other hand, once in a retirement situation, the burden on this entity will increase.

* Equivalent to VAT in other countries.
Source: BBVA Research
Tax revenue impact: General sales tax (IGV*)

**Estimation of tax revenue by IGV**

\[
\text{Estimated Tax Revenue} = \left( \frac{\text{Average annual earned income}}{\text{Average annual remittances sent by immigrants}} \times 18\% \times (1 - 36\%) \times \text{Number of Venezuelan immigrants in work} \right)
\]

**Premise:**
the Venezuelan worker spends all of their labor income (net of remittances)

- **For tax collection in…**
  - **2018:** ENPOVE data is used (2018).
  - **2019:** considers (i) an estimate of the Venezuelan immigrant population in that year (base scenario projection on slide 40); (ii) that inactivity and unemployment rates remain unchanged; (iii) that the labor income of the Venezuelan immigrant grows at the same rate as that of a worker from Lima; and (iv) that the annual amount of remittances remains unchanged.

- **For potential tax revenue collection** it is assumed that a Venezuelan worker earns a labor income similar to that of a worker from Lima, both in 2018 and 2019.

**TAX REVENUE FROM VENEZUELAN IMMIGRANTS (IGV)**
(MILLIONS OF PERUVIAN SOLES)

<table>
<thead>
<tr>
<th>Year</th>
<th>Estimated</th>
<th>Potential estimated</th>
</tr>
</thead>
<tbody>
<tr>
<td>2018</td>
<td>574 (USD)</td>
<td>932 (USD)</td>
</tr>
<tr>
<td>2019</td>
<td>932 (USD)</td>
<td>1,204 (USD)</td>
</tr>
</tbody>
</table>

**Average 2018/19**
- **Revenue collection:** 0.09% of GDP
- **Potential tax revenue collection:** 0.14% of GDP

* Equivalent to VAT in other countries.
Source: INEI, SUNAT and BBVA Research
Impact on tax revenue: Income tax (IR)

Estimation of tax revenue by IR

- **Number of Venezuelan immigrants in work**
- **% of Venezuelan immigrants who work and have EsSalud (Social Health Insurance of Peru) health insurance**
- **Average annual IR (Income Tax) payment of a dependent worker**
  (tax revenue collection for 5th category income tax divided by the number of EsSalud affiliates)

For tax collection in…
- 2018: ENPOVE data is used (2018).
- 2019: considers (i) an estimate of the Venezuelan immigrant population in that year (base scenario projection on slide 40); (ii) that the rates of inactivity, unemployment, and formality remain unchanged; and (iii) that the average annual IR payment of a dependent worker grows in the year at the same rate as it grew year on year in 1Q19.

For potential tax revenue collection, it is assumed that Venezuelan workers enter the labor market with a similar level of formality as Peruvians (30%), both in 2018 and 2019.

Source: INEI, SUNAT and BBVA Research

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**VENEZUELAN IMMIGRANT INCOME TAX COLLECTION (MILLIONS OF PERUVIAN SOLES)**

![Graph showing tax revenue collection](chart)

- **Average 2018/19**
  - **Revenue collection:** 0.004% of GDP
  - **Potential tax revenue collection:** 0.04% of GDP

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1/ For the validation of the 2018 estimate, a further calculation of the IR amount was made taking into account Venezuelans' formal labor income level (data from ENPOVE) and tax brackets in Peru, which proved consistent.
Impact on fiscal spending: Public education

Calculation of fiscal expenditure for higher public education

- Fiscal cost per pupil age range difference: 3 to 5 years (preschool), 6 to 11 years (elementary), and 12 to 16 years (high school). Information provided by the Ministry of Education.
- For fiscal spending in 2019, we consider (i) an estimate of the population of Venezuelan immigrants in that year (base scenario projection on slide 40); and (ii) that we maintain the proportion of immigrants of basic education age and, of these, those who attend a public school.
- For potential fiscal spending, all Venezuelan immigrants of basic education age are counted as attending school, but the ratio between public and private education is maintained.

Source: INEI, Ministry of Education, and BBVA Research

**FISCAL SPENDING ON PUBLIC EDUCATION FOR VENEZUELAN IMMIGRANTS**
(MILLIONS OF PERUVIAN SOLES)

- **Average 2018/19**
  - Spending: 0.01% of GDP
  - Potential spending: 0.03% of GDP

- **2018**
  - Estimated: (USD) 27 million
  - Potential estimated: (USD) 34 million
  - Average: 0.01% of GDP

- **2019**
  - Estimated: (USD) 68 million
  - Potential estimated: (USD) 87 million
  - Average: 0.03% of GDP
Impact on fiscal spending: Public health

Calculation of public health fiscal spending

<table>
<thead>
<tr>
<th>Number of Venezuelan immigrants with any health insurance</th>
<th>% of insured Venezuelan immigrants whose insurance is provided by the SIS (Sistema Integral de Salud, an almost free medical service offered by the State)</th>
<th>Fiscal cost per person insured under the SIS</th>
</tr>
</thead>
<tbody>
<tr>
<td>💲 1.2 million</td>
<td>💲 45</td>
<td>💲 14 million</td>
</tr>
<tr>
<td>💲 1.4 million</td>
<td>💲 57</td>
<td>💲 17 million</td>
</tr>
</tbody>
</table>

For fiscal spending in…
- 2018: ENPOVE data used (2018)
- 2019: considers (i) an estimate of the Venezuelan immigrant population in that year (base scenario projection on slide 40); and (ii) that the proportion of immigrants with some type of health insurance remains unchanged, of these the proportion covered by SIS, and the fiscal cost per person insured under SIS (estimated as the budget allocated to SIS from the number of insured persons).

For potential fiscal spending, it is assumed that all Venezuelan immigrants have some type of health insurance and the proportion of those covered by SIS and the fiscal cost per person insured under SIS remain unchanged.

Source: INEI, Sistema Integral de Salud, and BBVA Research

VENEZUELAN IMMIGRANT PUBLIC HEALTH SPENDING
(MILLIONS OF PERUVIAN SOLES)

Average 2018/19
Spending: 0.001% of GDP
Potential spending: 0.007% of GDP
Based on these calculations, Venezuelan immigrants have had a positive fiscal impact, which could even be greater.

**FISCAL IMPACT** *(MILLIONS OF PERUVIAN SOLES)*

**ESTIMATED**

<table>
<thead>
<tr>
<th>Year</th>
<th>Income</th>
<th>Expense</th>
<th>Income</th>
<th>Expense</th>
</tr>
</thead>
<tbody>
<tr>
<td>2018</td>
<td>574</td>
<td>24</td>
<td>742</td>
<td>34</td>
</tr>
<tr>
<td>2019</td>
<td>223</td>
<td>45</td>
<td>113</td>
<td>5</td>
</tr>
</tbody>
</table>

* Based on the data, assumptions, and calculations considered in the previous slides.

Source: BBVA Research

**ESTIMATED POTENTIAL**

<table>
<thead>
<tr>
<th>Year</th>
<th>Income</th>
<th>Expense</th>
</tr>
</thead>
<tbody>
<tr>
<td>2018</td>
<td>932</td>
<td>45</td>
</tr>
<tr>
<td>2019</td>
<td>1,204</td>
<td>57</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Year</th>
<th>For IGV</th>
<th>For IR</th>
<th>For Public Education</th>
<th>For Public Health</th>
</tr>
</thead>
<tbody>
<tr>
<td>2018</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2019</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

S/ 507 million USD 154 million
S/ 659 million USD 200 million
S/ 906 million USD 274 million
S/ 1.2 billion USD 364 million

**S/ 507 million USD 154 million**
**S/ 659 million USD 200 million**
**S/ 906 million USD 274 million**
**S/ 1.2 billion USD 364 million**

0.08% of GDP
Impact of Venezuelan immigration on potential GDP and the output gap
Potential GDP is determined by the supply of production factors

\[ Y = A K^\alpha (HL)^{1-\alpha} \]

**Step 1**
Considering \( \alpha = 0.5 \) (see Annex 6), we get \( A \) (\( Y, K, H, \) and \( L \) are data)

**Step 2**
\( A, K, H, \) and \( L \) (Hodrick-Prescott) are filtered to obtain the trends for these variables: \( A^*, K^*, H^*, \) and \( L^* \)

**Step 3**
Potential GDP is constructed:
\[ Y^* = A^*(K^*)^\alpha (H^*L^*)^{1-\alpha} \]

1/ For details of the methodology, see Annex 6
Venezuelan immigration modified the supply of production factors in the Peruvian economy and, thus, the potential GDP

EFFECTS OF VENEZUELAN IMMIGRATION

\[ \uparrow L \quad \text{It increased labor availability.} \]

The EAP increased, a jump that was more accentuated in 2018.

\[ \uparrow H \quad \text{It improved human capital.} \]

Venezuelan immigrants have, on average, more years of schooling than the average Peruvian.

\[ \uparrow Y^* \]

Therefore, Venezuelan immigration must have increased the productive capacity of the Peruvian economy (potential GDP level)
Venezuelan immigration has increased labor availability and, in a more limited sense, the stock of human capital.

**WORK**
(MILLIONS OF PEOPLE)

**YEARS OF EDUCATION**
(AVERAGE, FOR PERSONS AGED 15 AND OVER)

* In the estimates (and in this graph) the EAP is considered and not the employed EAP (conceptually correct). The main reason is the limited availability of historical annual data for the employed EAP, which makes estimates difficult to generate. With L = EAP, *ceteris paribus*, the productivity level (TFP) is lower and perhaps more volatile. However, it is important to bear in mind that the unemployment rate in Peru does not vary much: in an environment of high informality and in the absence of unemployment insurance, the worker who loses their job must quickly find work in something else, even in activities for which they were not educated. Thus, the relevant factor in Peru is not so much unemployment, but the conditions of the employment. In this sense, the changes in the TFP obtained with the EAP do not differ much from what others obtain, such as, for example, The Conference Board. The use of employed EAP in the construction of the TFP could be considered in higher frequency calculations (e.g. quarterly).

Source: INEI, MTPE, MINEDU, and BBVA Research
Differentiated impacts of Venezuelan immigration on potential GDP and observed GDP

Comments

- On potential GDP
  - It is assumed that the impact is due to increased labor availability and, to a lesser extent, to the increase in the stock of human capital. These factors induce a one-time impact (mainly between 2017 and 2019). In addition, if it is assumed that: (i) there is no impact on the total factor productivity side, and (ii) going forward, the migratory influx normalizes and that labor force growth returns to its demographic trend, then potential GDP DOES NOT accelerate (we only have a discrete temporary jump between 2017-2019) in the following years (it returns to its previous growth trend).

- On observed GDP
  - The impact is caused by the contribution of Venezuelan immigrants to aggregate demand (consumption). This impact is lower than on potential GDP because the immigrant is not being employed according to their educational level and is mostly informal. Therefore, their income is lower than what they "potentially" could achieve.

- On the output gap
  - As a result of the above two points, the output gap would have widened between 2017 and 2019.
Estimating the impact of immigration on potential GDP...

The construction assumes that the impact of Venezuelan immigration on potential GDP comes through labor availability and human capital.

- Observed production (already includes the effect of Venezuelan immigration)
- Observed capital
- Sets of labor and human capital that incorporate the impact of Venezuelan immigrants

\[ Y = A \cdot K^\alpha (HL)^{1-\alpha} \]

Total factor productivity is constructed by residue using the production function method (see Annex 6).

Two versions of the variables labor and human capital are generated: One includes Venezuelan immigrants and the other does not. These are used to estimate potential GDP with \( (Y^*) \) and without \( (Y_{SV}^*) \) the impact of Venezuelan immigration. In both cases the production function method is used.
...and then the product output gaps are calculated with and without the effect of Venezuelan immigration

Product output gap that includes immigrants: \( Y - Y^* \)

Product output gap that excludes immigrants: \( Y_{SV} - Y_{SV}^* \)

How do we obtain a GDP that excludes Venezuelan immigrants (\( Y_{SV} \))? "Y" is subtracted from the consumption of Venezuelan immigrants. Our estimates suggest that this consumption amounts to between three and four tenths of a percentage point of GDP in 2018*. This estimate is not very different from that obtained, for example, by the Central Bank of Peru (three tenths of a percentage point of GDP).

\[ Y_{SV} \]

* The increase in consumption of Venezuelan immigrants was first identified in 2018. To this end, the income generated by immigrants who arrived in Peru in 2018 (net of remittances) was measured and it was assumed that everything was spent. Then, assuming also that all that expenditure was destined to locally manufactured products, the GDP increase was constructed in 2018 which, on the expenditure side, was due to the greater consumption of Venezuelan immigrants, an amount that was finally deducted from the GDP observed in 2018, obtaining the same year’s GDP minus the impact of Venezuelan immigration.
Results*: With immigration, the potential GDP growth and output gap (negative) have widened

**POTENTIAL GDP GROWTH**
(Year-on-Year % Variation)

<table>
<thead>
<tr>
<th>Year</th>
<th>Includes Venezuelan immigration</th>
<th>Excludes Venezuelan immigration</th>
</tr>
</thead>
<tbody>
<tr>
<td>2017</td>
<td>3.8</td>
<td>3.6</td>
</tr>
<tr>
<td>2018</td>
<td>4.4</td>
<td>3.4</td>
</tr>
<tr>
<td>2019</td>
<td>3.7</td>
<td>3.2</td>
</tr>
</tbody>
</table>

**OUTPUT GAP**
(As a % of the potential level in each scenario)

<table>
<thead>
<tr>
<th>Year</th>
<th>Includes Venezuelan immigration</th>
<th>Excludes Venezuelan immigration</th>
</tr>
</thead>
<tbody>
<tr>
<td>2017</td>
<td>-0.1</td>
<td>0.3</td>
</tr>
<tr>
<td>2018</td>
<td>-0.5</td>
<td>0.1</td>
</tr>
<tr>
<td>2019</td>
<td></td>
<td>-0.9</td>
</tr>
</tbody>
</table>

* Conditional upon the assumptions used in the previous slides and BBVA Research's forecasts.
Source: BBVA Research
The widening of the GDP gap (currently negative) shows that the cyclical weakness of the economy has increased... economic policy implications?

- The increased cyclical weakness of the economy has implications for inflation projections (downward bias) and suggests that stimuli are needed to stabilize the economy around its potential level.

- In this respect, it should be noted that the fiscal impulse estimates of the Ministry of Economy and Finance (MEF) and those of the Central Reserve Bank of Peru (BCRP) show that fiscal policy would be somewhat counter-active in 2019 and relatively neutral in 2020 ¹/²/.

- It is worth mentioning that BBVA Research recently updated its estimate of the neutral rate of interest on monetary policy for Peru and finds that, in real terms, it is about 30 basis points lower than the previous estimate ³/ (this is in line with the 25 basis points reduction in the estimate of this variable made by the Central Bank in its most recent Inflation Report).

- These factors suggest that a more accommodative monetary policy cannot be ruled out in the future.

---

¹/ An approximation of the difference between the structural economic balances of two consecutive periods, a difference that would be similar to that obtained with the structural primary balance (which is what usually occurs) since interest is not cyclical and relatively stable as a % of GDP (it is canceled out when the difference is made between two periods). See Multiannual Macroeconomic Framework, August 2019, page 71.

²/ Calculated by the BCRP, Inflation Report, September 2019, page 74.

³/ For a detailed methodology, see Annex 7.
04

APPENDICES
Annex 1. Most Venezuelan immigrants entered Peru with their current passport

DOCUMENT FOR ENTERING PERU (% OF VENEZUELAN POPULATION, 2018)

- Valid passport: 75%
- Identity card: 19%
- Birth certificate: 5%
- Expired passport: 1%
- No document: 0.5%

Source: ENPOVE (2018) - INEI
Annex 2. Methodological aspects of the survey focused on the Venezuelan population residing in Peru (ENPOVE 2018)

**Objective:** To provide information on the living conditions of the Venezuelan population living in the country, characterizing the demographic, social, immigration status, discrimination, and violence aspects. It also includes housing characteristics, access to basic services and household equipment.

1. **POPULATION UNDER STUDY**
   The study consists of houses, homes and people arriving from Venezuela, residents in the urban area of the capital cities of the regions of Tumbes, La Libertad, Arequipa, Cusco, the province of Lima, and the Constitutional province of Callao.

2. **SAMPLE FRAMEWORK**
   Constructed using information from the 2017 National Population and Housing Census and information from persons who requested the Temporary Permanence Permit (TPP), registered in the Venezuelan registry of the National Superintendence of Migration of the Ministry of the Interior.

3. **SAMPLE TYPE**
   The sample is probabilistic, stratified, and independent in each city and the areas of Lima considered in the population under study.

4. **COVERAGE**
   - Geography: cities of Arequipa, Cusco, Trujillo, Tumbes, Metropolitan Lima (Callao, Lima Central, Lima East, Lima North, and Lima South), and the Constitutional Province of Callao.
   - Duration: From November 26 to December 31, 2018.

4. **SAMPLE SIZE**
   - Housing: 3,611
   - People: 9,487

5. **INERENCE OF RESULTS**
   Results will be statistically valid by city and survey application area.

6. **TOPICS INVESTIGATED (117 questions)**
   - Housing and Household Characteristics (13 questions).
   - Household Member Characteristics (6 questions).
   - Migration (all people - 19 questions).
   - Health: (all people - 16 questions).
   - Education (people aged 3 and over - 13 questions).
   - Employment (people aged 5 and over - 32 questions).
   - Discrimination (people aged 5 years and over - 9 questions).
   - Gender and victimization (people aged 18 years and over - 9 questions).

7. **RESPONSE RATE**
   The response rate of the survey was 99.6%.
Annex 3. Most of the Venezuelan immigrants in work are dependent and engaged in services and commerce

VENEZUELAN EMPLOYED POPULATION BY OCCUPATIONAL CATEGORY
(EMPLOYED EAP, 2018)

- Employee and worker: 75%
- Unpaid family worker: 1%
- Household worker: 1%
- Independent worker or employer: 21%

Source: ENPOVE (2018) - INEI

BRANCH OF ACTIVITY IN WHICH THEY ARE ENGAGED (% OF TOTAL, 2018)

- Services: 57%
- Restaurants: 24%
- Services provided to third parties: 9%
- Other services: 8%
- Transportation and communications: 7%
- Services to non-merchant households: 5%
- Government services: 3%
- Financial intermediation: 0.3%
- Commerce: 22%
- Manufacture: 15%
- Construction: 7%
- Other (1): 0.3%

1: Includes: Agriculture, livestock, hunting and related service activities, mining of metal ores, among others.
Annex 4. Engineering and Education are among the most studied degrees by Venezuelan immigrants

<table>
<thead>
<tr>
<th>TECHNICAL DEGREES STUDIED* (% OF TOTAL)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Administration and management</td>
</tr>
<tr>
<td>Systems and Computing Analyst</td>
</tr>
<tr>
<td>Mechanics and Maintenance</td>
</tr>
<tr>
<td>Technical nursing</td>
</tr>
<tr>
<td>Education</td>
</tr>
<tr>
<td>Accounting and Finance</td>
</tr>
<tr>
<td>Electronics and Electricity</td>
</tr>
<tr>
<td>Gastronomy and Tourism</td>
</tr>
<tr>
<td>Health Careers</td>
</tr>
<tr>
<td>Drawing, Graphic and Advertising Design</td>
</tr>
<tr>
<td>Journalism, Communications and Telecommunications</td>
</tr>
<tr>
<td>Chemical and Industrial Production and Processes</td>
</tr>
<tr>
<td>Secretary</td>
</tr>
<tr>
<td>Commerce</td>
</tr>
<tr>
<td>Civil construction</td>
</tr>
<tr>
<td>Marketing</td>
</tr>
<tr>
<td>Sub Officers: Police and Military</td>
</tr>
<tr>
<td>Other careers</td>
</tr>
<tr>
<td>Unspecified Career</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>COLLEGE DEGREES STUDIED* (% OF TOTAL)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Engineering (1)</td>
</tr>
<tr>
<td>Business Administration</td>
</tr>
<tr>
<td>Education</td>
</tr>
<tr>
<td>Law and political science</td>
</tr>
<tr>
<td>Accounting and Finance</td>
</tr>
<tr>
<td>Nursing</td>
</tr>
<tr>
<td>Communication Sciences (2)</td>
</tr>
<tr>
<td>Agricultural Sciences / Ecology / Geography</td>
</tr>
<tr>
<td>Medicine</td>
</tr>
<tr>
<td>International Business (3)</td>
</tr>
<tr>
<td>Medical technology</td>
</tr>
<tr>
<td>Other health sciences careers (4)</td>
</tr>
<tr>
<td>National Police Officers / Armed Forces</td>
</tr>
<tr>
<td>Psychology</td>
</tr>
<tr>
<td>Design</td>
</tr>
<tr>
<td>Economics</td>
</tr>
<tr>
<td>Social and Assistance Services</td>
</tr>
<tr>
<td>Nutrition</td>
</tr>
<tr>
<td>Other professions</td>
</tr>
</tbody>
</table>

2: Includes: Journalism and Broadcasting.
3: Includes Marketing.
4: Includes: Dentistry, Pharmacy and Biochemistry, Obstetrics, among others.

* Completed and incomplete degrees are included.
Source: ENPOVE (2018) - INEI
Annex 5. Estimate of the amount sent in the form of remittances from Venezuelan immigrants

INCLUDED

- Immigrants that do send remittances
- The frequency with which it is sent (weekly, fortnightly, monthly, and bimonthly), and
- Shipping amount, across ranges (less than s/100, between s/100 and s/200, and more than s/200)
- The average amount per range is assumed to be s/100 for the lowest, s/200 for the intermediate, and s/250 for the highest

MONTHLY ESTIMATE

Number of people who frequently send:

- Weekly: X 4
- Fortnightly: X 2
- Monthly: X 1
- Bimonthly: / 2

This results in an estimated average monthly remittance amount of S/ 260 (this value is subject to the assumption of the average amount per range).
Annex 6. Main definitions and estimation assumptions (i)

- Potential GDP is defined as the amount of goods and services that an economy can produce when all its resources (machinery, labor force, technology, and others) are being employed at its maximum capacity and without generating macroeconomic imbalances (such as inflationary processes or external imbalances) on a sustained basis. An economy that produces at this level is said to be in a situation of full use of resources. The difference between the observed GDP and potential GDP is known as the output gap; it tells us how far we are in terms of production from a situation of full use of resources. It should be noted that, since these two variables are "non-observable" directly in the data, there is always uncertainty in the estimates, which depends on the method used.

- The estimation of potential GDP and the output gap can be achieved by various methods which are generally classified as statistical and economic. Statistical methods mainly use filters to isolate the trend or long-term component (Hodrick and Prescott\(^1\), Baxter and King\(^2\), inter alia). More complex economic methods have a more intuitive interpretation when using an analytical framework in which the potential product is an endogenous variable that relates to other variables, such as prices or unemployment. For Peru, however, the data do not seem to support a close relationship between potential GDP (or the output gap) and prices (Phillips curve), unemployment (Okun's Law) or investment ratios\(^3\). In this study, the production function method is used, an economic method that allows for the estimation of potential GDP based on its determinants on the supply side: productivity, labor, and capital.

- The production function used is a Cobb-Douglas with constant yield on a scale and adjusted for human capital (Fuentes and Lynn, 2009\(^4\), Hofman and Tapia, 2003\(^5\)):

\[
Y_t = A_t K_t^\alpha (h_t L_t)^{1-\alpha}
\]

Annex 6. Main definitions and estimation assumptions (ii)

where, \( Y_t \) is GDP, \( A_t \) is productivity, \( K_t \) is the stock of physical capital, \( h_t \) is the factor of human capital, and \( L_t \) is the number of workers. All the variables have an annual frequency. The exponent is also \( \alpha \) the participation of physical capital in the product, while \( (1 - \alpha) \) it represents the participation of labor.

- Stock of physical capital \( (K_t) \). Because there is no direct measurement, \( K_t \) it was chosen to generate a series using the perpetual inventory method.
  - The conventional capital accumulation function is used \( K_{t+1} = (1 - \delta)K_t + I_t \); where \( I_t \) is the investment level and \( \delta \) is the depreciation rate. A straight-line depreciation function, with a 30-year useful life span for the capital, is assumed.
  - \( K_0 \) In order to define the initial capital stock (a steady state scenario is assumed in 1950): \( K_0 = \frac{I^*}{g + \delta} \)
    - where \( I^* \) is the average investment/GDP ratio between 1950-1980.
    - and, on the other hand, \( g \) is the average of the GDP growth rate between 1950-1980.

- Human capital \( (h_t) \). The following equation is used to generate this variable: \( h_t = e^{\theta s_t - \psi} \)
  - where \( s_t \) represents the average years of schooling of the population aged over 15, while \( \theta \) and \( \psi \) are sensitivity and curve parameters of the function which adopt values of 0.32 and 0.58, respectively, in accordance with the proposals of Bils and Klenow (1998)\(^1\).

- Capital-product elasticity. The average \( \alpha = 0.50 \), of various estimates for Peru is taken:

<table>
<thead>
<tr>
<th>Study / Publication</th>
<th>( \alpha )</th>
</tr>
</thead>
<tbody>
<tr>
<td>Vega-Centeno (1989)(^2)</td>
<td>0.55</td>
</tr>
<tr>
<td>Seminario and Beltrán (1998)(^3)</td>
<td>0.40</td>
</tr>
<tr>
<td>Carranza, Fernández-Baca and Morón (2002)(^4)</td>
<td>0.44</td>
</tr>
<tr>
<td>Peruvian Institute of Economics (2003)(^5)</td>
<td>0.64</td>
</tr>
<tr>
<td>Avg.</td>
<td>0.50</td>
</tr>
</tbody>
</table>

1: Bils, M., and Klenow, P (1998), "Does Schooling Cause Growth or the Other Way Around?"
5: Instituto Peruano de Economía (2003), "La Brecha en Infraestructura, Servicios Públicos, Productividad y Crecimiento en Perú."
Neutral real interest rate

The neutral interest rate is a structural variable used by the Central Bank for the assessment of the current state of the economy, and the calibration of monetary policy.

Maintaining an updated estimate of this neutral rate measurement is relevant to the implementation of monetary policy.

How do we calculate it?

In recent years there have been several developments in the macroeconomic scenario that could have affected the level of the neutral rate.

In this context, a semi-structural model is used to estimate the neutral rate.

(Following the guidelines proposed by Laubach and Williams, 2001*)

Impacts on the neutral real rate

* Laubach, T; Williams (2001), "Measuring the natural rate of interest."
Source: BBVA Research
Annex 7. Natural rate estimation methodology (ii)

As mentioned, the guidelines set out by Laubach and Williams are followed (2001), and a semi-structural Neo-Keynesian model is used in a reduced fashion. The model contains the essential ingredients of a microbased model:

- **IS Curve:**
  \[
  \bar{y}_t = a y_{1} \bar{y}_{t-1} + a y_{2} \bar{y}_{t-2} + \frac{\alpha r}{2} \sum_{j=1}^{2} (r_{t-j} - r^{*}_{t-j}) + \epsilon_t
  \]
  where,
  \[
  \bar{y}_t = y_t - y^*_t \quad \text{[Product gap]}
  \]
  with, \( y_t = \log(PIB) \)
  \( r_t = i_t - E_{t+1} \pi_{t+1} \) \quad \text{Real interest rate}
  The inflation expectation (required to construct the real interest rate) is derived from the series of surveys of expectations of the BCRP (inflation expectation at 1 year ahead)
  \( r^{*}_t \) is the real equilibrium interest rate which is variable in this model.

- **Phillips curve:**
  \[
  \pi_t = \sum_{i=1}^{8} b_{\pi t} \pi_{t-i} + b_y \bar{y}_{t-1} + b_l (\pi_l^t - \pi_t) + b_o (\pi_o^{t-1} - \pi_{t-1}) + \epsilon_{2t}
  \]
  where, \( \bar{y}_t = y_t - y^*_t \quad \text{[Output gap]}
  \]
  with,
  \( \pi_t \) consumer price index inflation
  \( \pi_l^t \) inflation of imported prices
  \( \pi_o^t \) crude oil price inflation (WTI oil price growth)

---

1: Laubach, T; Williams (2001), "Measuring the natural rate of interest."
Annex 7. Natural rate estimation methodology (iii)

- **Model specification**
  - The real equilibrium interest rate $r_t^*$ varies over time in response to changes in potential GDP growth $g$ and changes in temporary household preferences $z$:
    \[ r_t^* = c g_{t-1} + z_{t-1} \]
    where $g_t$ is the growth rate of potential GDP
    $z_t$ follows a random path: $z_t = z_{t-1} + \varepsilon_{3t}$
  - Potential GDP $y_t^*$ evolves according to the following law of movement:
    \[ y_t^* = y_{t-1}^* + g_{t-1} + \varepsilon_{4t} \]
    where $g_{t-1}$ is used to refer to the quarterly trend growth rate of the previous quarter, which also follows a random path, $g_t = g_{t-1} + \varepsilon_{5t}$. It is assumed that the innovations $\varepsilon_{4t}$ and $\varepsilon_{5t}$ are serially and mutually independent.

- A Kalman filter is applied to the state-space representation of the model described. This filter is a recursive algorithm that allows for the estimation of non-observable variables from a linear model that relates non-observable variables to a set of observed variables.

- In this way, we can define the state vector as:
  \[ S_t = (y_t^*, y_{t-1}^*, y_{t-2}^*, y_{t-3}^*, g_t, g_{t-1}, r_t^*, r_{t-1}^*, r_{t-2}^*, z_t, z_{t-1})' \]
  whose law of motion is specified thus, $S_t = rS_{t-1} + n U_t$

- We now define the vector of observable variables:
  \[ X_t = (y_{t-1}, y_{t-2}, \pi_{t-1}, \pi_{t-2}, \pi_{t-3}, \pi_{t-4}, \pi_{t-5}, \pi_{t-6}, \pi_{t-7}, \pi_{t-8}, r_{t-1}, r_{t-2}, \pi_t^l, \pi_t^o)' \]
  and the measurement equation can be expressed as,
  \[ Y_t = A'X_t + H'S_t + \varepsilon_t \]
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