



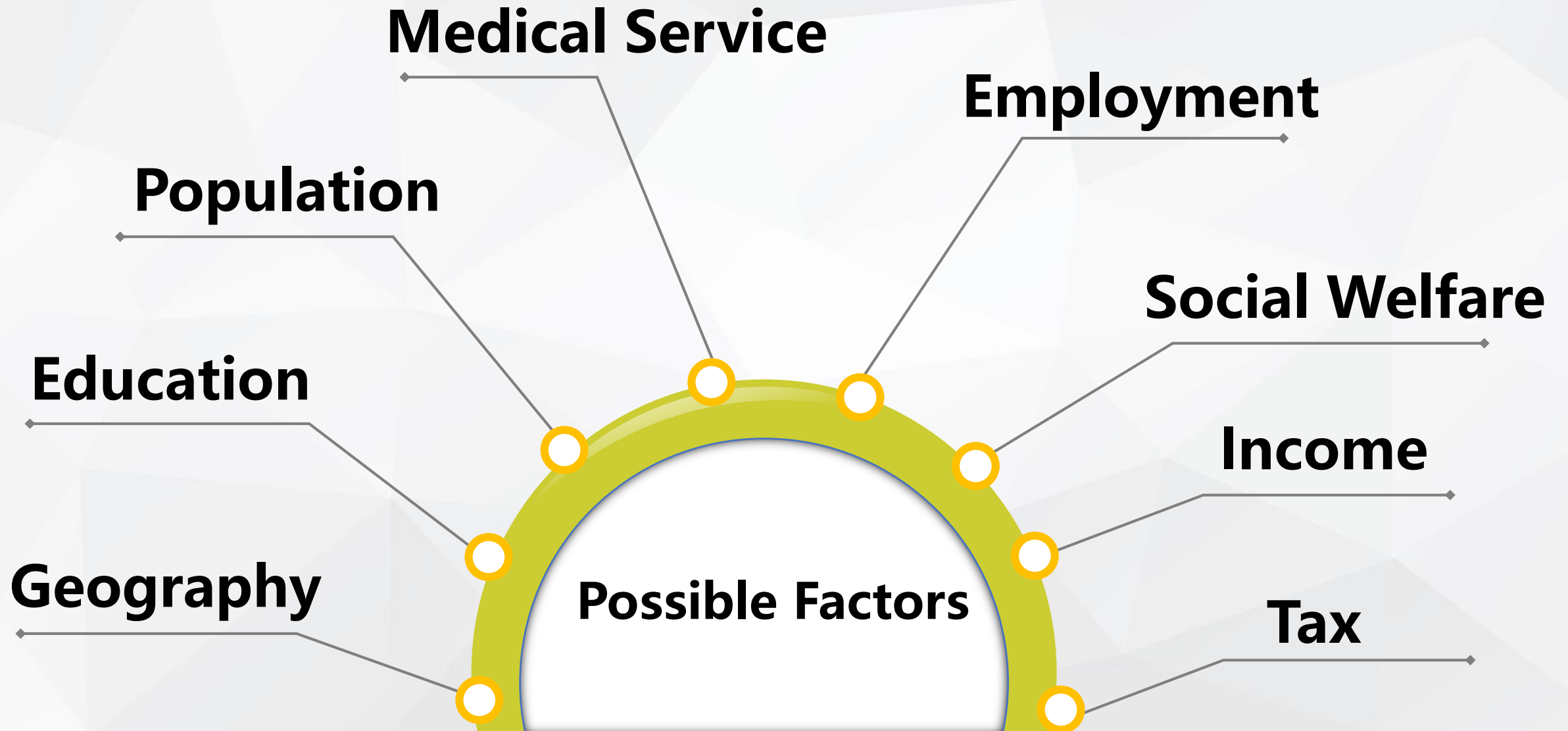
Immigration VS Unemployment Is Trump Right?

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You better be smart.
They're taking your jobs.
You better be careful !

► 01 | Introduction





Regression across states in U.S.

Data

- Sectional Data of 2016
- Federal Immigration Bureau
- Federal Government
- ...

► 02 | Regression across states in U.S.

- The employment rate is **not** significant.
- Dividends, Population have a **positive** effect.
- Tax, Death have a **negative** effect.

| | Total Immigration | | |
|---|-----------------------------------|--------------------------------|-----------------------------------|
| | Dependent variable: | | |
| | Total immigration | | |
| | (1) | (2) | (3) |
| Employment rate | -1,661,664.000 (2,263,253.000) | 326,959.400 (505,236.000) | -116,739.800 (361,760.000) |
| Dividends, interest, and rent | | 24.742*** (2.758) | 23.437*** (1.932) |
| Population | | -0.050 (0.032) | 0.072* (0.037) |
| State Tax | | | -3.969** (1.932) |
| Deaths caused by cancer | | | -398.715*** (57.434) |
| Average score of math of 8th | | | -4,545.906 (5,220.610) |
| Farming employment / non-farming employment | | | -1,725,912.000 (2,816,686.000) |
| Constant | 1,890,965.000 (1,429,077.000) | -586,266.200* (336,647.700) | 1,230,642.000 (1,489,550.000) |
| Observations | 51 | 51 | 51 |
| R ² | 0.011 | 0.956 | 0.981 |
| Adjusted R ² | -0.009 | 0.954 | 0.978 |
| Residual Std. Error | 1,769,261.000 (df = 49) | 379,154.300 (df = 47) | 259,299.600 (df = 43) |
| F Statistic | 0.539 (df = 1; 49) | 343.899*** (df = 3; 47) | 323.338*** (df = 7; 43) |
| Note: *p<0.1; **p<0.05; ***p<0.01 | | | |

► 02 | Regression across states in U.S.

- Employment rate is still **not** significant.
- For foreign immigrants they care less about tax and population.

| | Foreign Immigration | | |
|---|-------------------------------|-------------------------------|--------------------------------|
| | <i>Dependent variable:</i> | | |
| | Foreign immigration | | |
| | (1) | (2) | (3) |
| Employment rate | -318,699.200 (579,466.100) | 56,969.790 (186,927.700) | -38,922.400 (154,882.300) |
| Dividends, interest, and rent | | 8.575*** (1.020) | 8.394*** (0.827) |
| Population | | -0.042*** (0.012) | -0.016 (0.016) |
| State Tax | | | -0.505 (0.827) |
| Deaths caused by cancer | | | -119.030*** (24.589) |
| Average score of math of 8th | | | -3,547.580 (2,235.128) |
| Farming employment / non-farming employment | | | 514,740.800 (1,205,923.000) |
| Constant | 354,129.800 (365,889.900) | -152,573.900 (124,553.200) | 946,025.000 (637,729.300) |
| Observations | 51 | 51 | 51 |
| R ² | 0.006 | 0.909 | 0.948 |
| Adjusted R ² | -0.014 | 0.903 | 0.939 |
| Residual Std. Error | 452,988.100 (df = 49) | 140,279.900 (df = 47) | 111,015.400 (df = 43) |
| F Statistic | 0.302 (df = 1; 49) | 155.702*** (df = 3; 47) | 111.125*** (df = 7; 43) |
| <i>Note:</i> | | | |
| *p<0.1; **p<0.05; ***p<0.01 | | | |



Regression across countries

Data

- World development indicators(WDI)
- 217 countries
- From 1960 to 2017
- 12 indicators
- 404 rows of data
- ...

03 | Net migration and unemployment

| variable | Effect |
|-------------------------|---------------|
| GDP | Positive |
| Labor force | Negative |
| Agricultural land | Positive |
| Maternal mortality rate | Negative |
| Unemployment | Insignificant |

Instrument :exchange rate

Exchange rate is negatively related with unemployment.

Unemployment is **not** statistically significant.

| netmigration and unemployment | | | | |
|-------------------------------|-------------------------------|------------------------------|--------------------------|---------------------------------|
| | Dependent variable: | | | |
| | netmigration | | unemploy | netmigration |
| | OLS | panel | OLS | OLS |
| | linear | linear | tsls1 | tsls2 |
| | (1) | (2) | (3) | (4) |
| unemploy | 493.730 (4,898.712) | -524.237 (5,098.602) | | |
| pre | | | | 32,489.450 (28,017.150) |
| gdp1 | 0.391*** (0.021) | 0.388*** (0.022) | | 0.357*** (0.023) |
| agrivalue | 826.074 (3,239.249) | -1,411.170 (3,948.804) | | -306.597 (3,974.541) |
| edu | 25,210.920 (15,734.280) | 24,552.480 (15,982.350) | | 31,023.860* (16,865.530) |
| urban | 38.853 (1,906.907) | -180.921 (1,925.267) | | 1,681.919 (2,013.787) |
| popudense | | 103.743 (109.607) | | 114.147 (117.696) |
| gdpdeflator | | -319.767 (508.572) | | -309.225 (549.315) |
| laborforcetotal | -0.006*** (0.001) | -0.006*** (0.001) | | |
| laborpr | 2,846.095 (2,756.858) | 2,673.912 (2,771.406) | | 4,995.334* (2,965.421) |
| agricultrualland | 0.167*** (0.049) | 0.167*** (0.049) | | 0.009 (0.050) |
| water | -0.122 (0.374) | -0.116 (0.377) | | -0.290 (0.410) |
| maternalmr | -1,190.346*** (203.810) | -1,185.897*** (205.293) | | -1,704.526*** (210.696) |
| agingrate | 132,866.500 (744,284.600) | 359,869.600 (772,798.900) | | 269,709.200 (845,518.300) |
| exrate | | | -0.001*** (0.0002) | |
| Constant | -319,859.900 (265,934.600) | | 8.498*** (0.308) | -836,785.100** (361,010.400) |
| Observations | 396 | 396 | 396 | 396 |
| R ² | 0.644 | 0.646 | 0.029 | 0.573 |
| Adjusted R ² | 0.633 | 0.631 | 0.026 | 0.560 |
| Residual Std. Error | 490,955.900 (df = 384) | | 5.896 (df = 394) | 537,999.100 (df = 383) |
| F Statistic | 63.033*** (df = 11; 384) | | 53.090*** (df = 13; 379) | 11.565*** (df = 1; 394) |
| | | | 42.849*** (df = 12; 383) | |
| Note: | *p<0.1; **p<0.05; ***p<0.01 | | | |

03 | Unemployment and Net migration

| variable | Effect |
|--------------------------|---------------|
| Net migration | Insignificant |
| GDP per capital | Negative |
| Labor participation rate | Negative |
| Vulnerable employment | Negative |
| Aging proportion(65+) | Positive |
| Labor Force | Negative |

Control Variable for
Industrial structure, Urbanization, Social
Welfare and Medical Service, Business
development
Net migration is **not** statistically significant.

| Unemployment and Net Migration | | |
|--------------------------------|---|----------------------|
| | Dependent variable: | |
| | Unemployment | |
| | OLS | panel linear |
| | Linear | Panel |
| | (1) | (2) |
| Net.Migration | 0.292 (0.303) | 0.287 (0.304) |
| GDPpc | -1.018*** (0.229) | -1.012*** (0.236) |
| LaborFPR | -1.268*** (0.251) | -1.268*** (0.252) |
| Agriland | 2.335** (1.036) | 2.339** (1.039) |
| Vulnerempl | -8.336*** (1.795) | -8.369*** (1.817) |
| FamilyContri.Fe | 0.606 (1.760) | 0.639 (1.765) |
| Oldratio | 3.361*** (0.884) | 3.347*** (0.887) |
| LaborForce | -6.347*** (1.355) | -6.359*** (1.363) |
| UrbanPopu | -0.011 (0.015) | -0.011 (0.015) |
| Mdeath | 0.562** (0.261) | 0.564** (0.262) |
| Trade | -0.104** (0.050) | -0.104** (0.051) |
| Constant | 29.262*** (2.591) | |
| Observations | 670 | 670 |
| R ² | 0.220 | 0.216 |
| Adjusted R ² | 0.207 | 0.198 |
| Residual Std. Error | 5.281 (df = 658) | |
| F Statistic | 16.834*** (df = 11; 658) 16.345*** (df = 11; 654) | |
| Note: | * p<0.1; ** p<0.05; *** p<0.01 | |

03 Unemployment and Net migration

| variable | Effect |
|--------------------------|---------------|
| Net migration | Insignificant |
| GDP per capital | Negative |
| Labor participation rate | Negative |
| Vulnerable employment | Negative |
| Aging proportion(65+) | Positive |
| Labor Force | Negative |

Instrument :Gas emissions

The IV's F-statistic is 86.

Net migration is still not statistically significant.
So Net migration won't effect unemployment significantly.

| | Unemployment and Net Migration | | | |
|-------------------------|--------------------------------|--------------------------|-------------------------|--------------------------|
| | Dependent variable: | | | |
| | Net.Migration | Unemploy | Net.Migration | Unemploy |
| | OLS | OLS | panel linear | panel linear |
| | TSL1 | TSL2 | TSL1 | TSL2 |
| | (1) | (2) | (3) | (4) |
| Gas | 34.425*** (3.712) | | 34.484*** (3.725) | |
| pred2[, 1] | | 0.154 (0.939) | | |
| pred3 | | | | 0.116 (0.939) |
| GDPpc | | -0.993*** (0.226) | | -0.972*** (0.232) |
| LaborFPR | | -1.269*** (0.252) | | -1.285*** (0.253) |
| Agriland | | 2.515** (1.036) | | 2.255** (1.041) |
| Vulnerempl | | -8.244*** (1.800) | | -8.133*** (1.841) |
| FamilyContri.Fe | | 0.434 (1.758) | | 0.482 (1.757) |
| UrbanPopu | | -0.011 (0.016) | | -0.010 (0.016) |
| Oldratio | | 3.725*** (0.874) | | 3.409*** (0.889) |
| Edu | | | | 0.705 (0.567) |
| LaborForce | | -5.473*** (1.424) | | -6.331*** (1.490) |
| Mdeath | | 0.669*** (0.258) | | 0.580** (0.262) |
| Trade | | | | -0.104** (0.051) |
| Constant | -0.056** (0.028) | 26.899*** (2.473) | | |
| R ² | 0.114 | 0.213 | 0.114 | 0.216 |
| Adjusted R ² | 0.113 | 0.201 | 0.108 | 0.197 |
| Residual Std. Error | 0.698 (df = 668) | 5.299 (df = 659) | | |
| F Statistic | 86.012*** (df = 1; 668) | 17.861*** (df = 10; 659) | 85.687*** (df = 1; 664) | 15.029*** (df = 12; 653) |

Note:

* p<0.1; ** p<0.05; *** p<0.01

03 | (Models continued)

```
Call:
lm(formula = reg22$residuals ~ Gas, data = Employment)
```

Residuals:

| Min | 1Q | Median | 3Q | Max |
|----------|---------|---------|--------|---------|
| -11.5331 | -3.1384 | -0.9035 | 1.8672 | 25.3174 |

Coefficients:

| | Estimate | Std. Error | t value | Pr(> t) |
|-------------|-----------|------------|---------|----------|
| (Intercept) | 8.900e-16 | 2.097e-01 | 0 | 1 |
| Gas | 1.890e-13 | 2.799e+01 | 0 | 1 |

Residual standard error: 5.263 on 668 degrees of freedom
Multiple R-squared: 1.282e-31, Adjusted R-squared: -0.001497
F-statistic: 8.562e-29 on 1 and 668 DF, p-value: 1

```
Call:
lm(formula = reg32$residuals ~ Gas, data = Employment)
```

Residuals:

| Min | 1Q | Median | 3Q | Max |
|----------|---------|---------|--------|---------|
| -11.1882 | -3.1389 | -0.8897 | 1.7300 | 24.9355 |

Coefficients:

| | Estimate | Std. Error | t value | Pr(> t) |
|-------------|----------|------------|---------|----------|
| (Intercept) | 0.0640 | 0.2082 | 0.307 | 0.759 |
| Gas | -35.0286 | 27.7968 | -1.260 | 0.208 |

Residual standard error: 5.226 on 668 degrees of freedom
Multiple R-squared: 0.002372, Adjusted R-squared: 0.0008782
F-statistic: 1.588 on 1 and 668 DF, p-value: 0.208

Test whether the instruments are endogenous

Behave well



03 | Net migration and labor participation rate

| variable | Effect |
|-------------------------|----------|
| GDP | Positive |
| Maternal mortality rate | Negative |
| Laborpr | negative |

Labor participation rate in the previous year
→ expectation

Instrument :contributing worker

Contributing worker is positively related with labor participation rate.

Laborpr is statistically significant.

Net migration can be influenced by people's expectation for labor market.

| | netmigration and laborpr | | |
|-------------------------|-------------------------------|-------------------------|------------------------------------|
| | Dependent variable: | | |
| | netmigration linear (1) | laborpr tsls1 (2) | netmigration tsls2 (3) |
| pre | | | -53,235.270** (24,479.670) |
| unemploy | 493.730 (4,898.712) | | 895.995 (5,316.430) |
| gdp1 | 0.391*** (0.021) | | 0.359*** (0.023) |
| agrivalue | 826.074 (3,239.249) | | 2,099.865 (4,298.477) |
| edu | 25,210.920 (15,734.280) | | 25,302.300 (17,439.460) |
| urban | 38.853 (1,906.907) | | 55.603 (2,166.786) |
| laborforcetotal | -0.006*** (0.001) | | |
| laborpr | 2,846.095 (2,756.858) | | |
| popudense | | | 83.605 (120.147) |
| gdpdeflator | | | -427.743 (551.655) |
| agricultrualland | 0.167*** (0.049) | | 0.012 (0.050) |
| water | -0.122 (0.374) | | -0.265 (0.410) |
| maternalmr | -1,190.346*** (203.810) | | -1,803.622*** (215.101) |
| agingrate | 132,866.500 (744,284.600) | | 532,961.500 (820,182.500) |
| contriworker | | 0.112*** (0.037) | |
| Constant | -319,859.900 (265,934.600) | 67.172*** (0.656) | 3,485,460.000** (1,746,398.000) |
| Observations | 396 | 396 | 396 |
| R ² | 0.644 | 0.023 | 0.575 |
| Adjusted R ² | 0.633 | 0.021 | 0.561 |
| Residual Std. Error | 490,955.900 (df = 384) | 9.687 (df = 394) | 537,059.800 (df = 383) |
| F Statistic | 63.033*** (df = 11; 384) | 9.397*** (df = 1; 394) | 43.111*** (df = 12; 383) |
| Note: | | | *p<0.1; **p<0.05; ***p<0.01 |



03 | (Models continued)

```
```{r}
cor(datap$unemploy, datap$exrate)
retest1 <- lm(re1$residuals ~ datap$exrate)
summary(retest1)
```

```
[1] -0.1688637
```

```
Call:
lm(formula = re1$residuals ~ datap$exrate)
```

```
Residuals:
 Min 1Q Median 3Q Max
-3138787 -106641 9285 120786 4322978
```

```
Coefficients:
 Estimate Std. Error t value Pr(>|t|)
(Intercept) 2591.63 25349.49 0.102 0.919
datap$exrate -4.56 12.39 -0.368 0.713
```

```
Residual standard error: 484600 on 394 degrees of freedom
Multiple R-squared: 0.0003438, Adjusted R-squared: -0.002193
F-statistic: 0.1355 on 1 and 394 DF, p-value: 0.713
```

```
```{r}
cor(datap$laborpr, datap$contriworker)
retest2 <- lm(re1$residuals ~ datap$contriworker)
summary(retest2)
```

```
[1] 0.1526265
```

```
Call:
lm(formula = re1$residuals ~ datap$contriworker)
```

```
Residuals:
    Min       1Q   Median       3Q      Max
-3147751 -105938    6622   119322  4292182
```

```
Coefficients:
              Estimate Std. Error t value Pr(>|t|)
(Intercept)    33791    32715   1.033   0.302
datap$contriworker  -2810     1823  -1.541   0.124
```

```
Residual standard error: 483200 on 394 degrees of freedom
Multiple R-squared:  0.005994, Adjusted R-squared:  0.003471
F-statistic: 2.376 on 1 and 394 DF,  p-value: 0.124
```

Test whether the instruments are endogenous

Behave well

03 Internal and external validity

Omitted variable bias

Income ---GDP deflator
Insurance (social welfare)
Unemployment compensation(social welfare)
Technology Development Level
Education Level
Policies' effects

Errors in variables bias

Data is from World Bank Open database.
It is a authoritative organization.

Simultaneous causality bias

We use data from the previous year to solve this problem.

Functional form misspecification

Taken log of variables on number of people, and added regional binary but unemployment is still insignificant

Missing data and sample selection bias

Most nations of immigrations are in the sample and excluded outliers

External validity

Cannot find enough data to test

► 04 | Conclusions

No significantly mutual causal effect between net migration and unemployment

1

GDP, labor force, agricultural land and medical level has significant effect on net migration.

2

People and government's expectation on labor market has significantly effect on net migration.

3

conclusions



Thank You

