Online Appendix

# 1a: Variable Definition

|  |  |  |
| --- | --- | --- |
| Variable | Short Definition | Source |
| Gini Disposable | Estimate of Gini index of inequality in equalized (square root scale) household disposable (post-tax, post-transfer) income. | (Solt, 2020) |
| Gini Market | Estimate of Gini index of inequality in equalized (square root scale) household market (pre-tax, pre-transfer) income, | (Solt, 2020) |
| CO2 Emission | CO2 emissions (metric tons per capita) | WDI, 2021 |
| Oil Rent | Oil rents (% of GDP) | WDI, 2021 |
| Methane Emission | Agricultural methane emissions (% of total) | WDI, 2021 |
| Fossil Fuel Consumption | Fossil fuel energy consumption (% of total) | WDI, 2021 |
| Forest Area | Forest area (% of land area) | WDI, 2021 |
| AGRI Forest & Fish Value Added | Agriculture, forestry, and fishing, value added (% of GDP) | WDI, 2021 |
| Population Growth | Population growth (annual %) | WDI, 2021 |
| Urban Pop Growth | Urban population growth (annual %) | WDI, 2021 |
| GDP Per Capita Growth | GDP Per Capita Income growth (annual %) | WDI, 2021 |
| School Enrollment | Primary & Secondary School enrollment ratio (% total) | WDI, 2021 |
| Arable Land | Arable land (% of land area) | WDI, 2021 |
| Fertilizer Cons Kg Per Hr | Fertilizer consumption (kilograms per hectare of arable land) | WDI, 2021 |

# 1b. Panel Data Unit Root Test

# 1c: Main Indicators for Emission-Inequality Nexus

# 1d. Lagged CO2 Emission

Table 7. IV Regression for Gini with Lagged CO2 Emission

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Panel A: Two-Stage Least Squares | | | | | | | | |
| Dependent Variable | Gini Disposable | | Gini Market | | Gini Disposable | | Gini Market | |
|  |  |  |  |  |  |  |  |
| CO2 Emission Per Capita\_L1|L\_2 | 2.145\*\*  (0.709) | 3.585\*  (1.638) | 3.016\*\*\*  (0.808) | 5.320\*  (2.095) | 2.186\*\*  (0.735) | 3.659\*  (1.686) | 3.074\*\*\*  (0.842) | 5.429\*  (2.164) |
| Panel B: First Stage for CO2 Emission Against Lag CO2 Emission | | | | | | | | |
|  | CO2 Emission Per Capita\_L1 | | | | CO2 Emission Per Capita\_L2 | | | |
| Population Growth    Urban Pop Growth    GDP Per Capita Growth  School Enrollment  Observation  R-sq  IV First Stage F- Statistics | -0.382\*\*\*  (0.053)  Y  Y    1586  0.11  65.32 | -0.324\*\*\*  (0.070)  Y  Y  Y  942  0.213  63.32 | -0.382\*\*\*  (0.053)  Y  Y    1586  0.11  65.32 | -0.324\*\*\*  (0.070)  Y  Y  Y  942  0.213  63.32 | -0.375\*\*\*  (0.053)  Y  Y    1585  0.101  59.21 | -0.342\*\*\*  (0.071)  Y  Y  Y  940  0.201  58.96 | -0.375\*\*\*  (0.053)  Y  Y    1585  0.101  59.21 | -0.342\*\*\*  (0.071)  Y  Y  Y  940  0.201  58.96 |
| Panel C: OLS Estimate | | | | | | | | |
| CO2 Emission Per Capita | 0.113  (0.084) | 0.393\*\*\*  (0.095) | 0.201  (0.104) | 0.551\*\*\*  (0.120) | 0.113  (0.084) | 0.393\*\*\*  (0.095) | 0.201  (0.104) | 0.551\*\*\*  (0.120) |

*Note: Table 7 reports 2sls estimator in panel A and the corresponding first stage estimate in panel B. Our endogenous variable lagged one year in column (I-IV) and lagged two years in column (V-VIII). Compared with the OLS estimator our IV shows a pronounced effect of fossil fuel consumption with virtually the same sign. The validity of our instruments is reported by the first stage F-statistics in panel B showing a valid instrument.*

*\* shows the level of significance at 0.05, \*\* at 0.01, and \*\*\* at 0.001 respectively*