Online Appendix

# 1a: Variable Definition

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| 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

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| 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 GrowthSchool EnrollmentObservation R-sqIV First Stage F- Statistics | -0.382\*\*\*(0.053)YY 15860.1165.32 | -0.324\*\*\*(0.070)YYY9420.21363.32 | -0.382\*\*\*(0.053)YY 15860.1165.32 | -0.324\*\*\*(0.070)YYY9420.21363.32 | -0.375\*\*\*(0.053)YY 15850.10159.21 | -0.342\*\*\*(0.071)YY Y9400.20158.96 | -0.375\*\*\*(0.053)YY 15850.10159.21 | -0.342\*\*\*(0.071)YYY9400.20158.96 |
| 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*