Tables and Figures

Table 1: Variables , sources and definitions

|  |  |  |
| --- | --- | --- |
| Variable | Source | Definition |
| Panel A : Dependent Variable  GII | United Nations Development Programme | Gender Inequality Index |
| Panel B : Financial inclusion Indicators |  |  |
| Account | Global Findex | Having an account at a formal financial institution (%age 15+) |
| Saving | Global Findex | Saving at a formal financial institution (% age 15+) |
| Borrowing | Global Findex | Borrowing from a formal financial institution (% age15+) |
| Panel C: Fintech Indicators  Fintech | Global Findex | Mobile phone used to pay bills (Females % age 15+) |
| Panel E: Control Variables |  |  |
| Education | World development indicators (World Bank) | School enrolment, secondary (% gross |
| Redistributive Policies | World development indicators (World Bank) | General government final consumption expenditure(% of GDP |
| Trade | World development indicators (World Bank) | Trade (% of GDP) |
| Population Growth | World development indicators (World Bank) | Population growth (annual %) |
| Growth | World development indicators (World Bank) | GDP (constant 2015 US$) |
| GDP | World development indicators (World Bank) |  |
| Institutional Quality | World Governance indicators(WGI) (World Bank) | Author’s calculation: adding the WGI components |

Table 2: Variables’ Summary Statistics

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Variable | Observations | Mean | Median | Min | Max |
| GII | 318 | 0.38 | 0.37 | 0.02 | 0.82 |
| Fintech | 318 | 0.04 | 0.00 | 0.00 | 0.35 |
| Account | 318 | 0.45 | 0.39 | 0.00 | 1.00 |
| Saving | 318 | 0.13 | 0.10 | 0.00 | 0.65 |
| Borrowing | 318 | 0.13 | 0.11 | 0.00 | 0.48 |
| Institutional Quality | 318 | -1.83 | -2.44 | -11.13 | 11.12 |
| GDP Growth | 318 | 3.20 | 3.54 | -7.38 | 11.65 |
| Trade | 318 | 76.38 | 69.40 | -0.04 | 166.57 |
| Population Growth | 318 | 1.36 | 1.42 | -2.22 | 4.68 |
| Education | 318 | 76.60 | 84.76 | 12.69 | 135.90 |
| Redistributive Policies | 318 | 14.54 | 14.15 | 4.21 | 28.48 |
| GDP (in Billions$) | 318 | 116.50 | 41.01 | 0.83 | 781.70 |

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Table 3: Correlation matrix

|  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | (1) | (2) | (3) | (4) | (5) | (6) | (7) | (8) | (9) | (10) | (11) | (12) |
| (1)Fintech | 1 |  |  |  |  |  |  |  |  |  |  |  |
| (2)Borrowing | 0.644\*\*\* | 1 |  |  |  |  |  |  |  |  |  |  |
| (3)Saving | 0.578\*\*\* | 0.757\*\*\* | 1 |  |  |  |  |  |  |  |  |  |
| (4)Account | 0.503\*\*\* | 0.678\*\*\* | 0.821\*\*\* | 1 |  |  |  |  |  |  |  |  |
| (5)Institutional˙Quality | 0.406\*\*\* | 0.609\*\*\* | 0.796\*\*\* | 0.749\*\*\* | 1 |  |  |  |  |  |  |  |
| (6)GDP˙growth | -0.316\*\*\* | -0.261\*\*\* | -0.207\*\*\* | -0.350\*\*\* | -0.195\*\*\* | 1 |  |  |  |  |  |  |
| (7)Trade | 0.032 | 0.088 | 0.185\*\*\* | 0.209\*\*\* | 0.262\*\*\* | 0.031 | 1 |  |  |  |  |  |
| (8)Population˙growth | -0.221\*\*\* | -0.280\*\*\* | -0.249\*\*\* | -0.450\*\*\* | -0.316\*\*\* | 0.317\*\*\* | -0.094 | 1 |  |  |  |  |
| (9)Education | 0.374\*\*\* | 0.551\*\*\* | 0.603\*\*\* | 0.749\*\*\* | 0.677\*\*\* | -0.235\*\*\* | 0.145\*\* | -0.503\*\*\* | 1 |  |  |  |
| (10)Redisributive˙ policies | 0.247\*\*\* | 0.262\*\*\* | 0.366\*\*\* | 0.409\*\*\* | 0.468\*\*\* | -0.351\*\*\* | 0.051 | -0.320\*\*\* | 0.402\*\*\* | 1 |  |  |
| (11)GDP | 0.333\*\*\* | 0.294\*\*\* | 0.328\*\*\* | 0.252\*\*\* | 0.199\*\*\* | -0.049 | -0.188\*\*\* | -0.117\* | 0.151\*\* | 0.066 | 1 |  |
| (12)GII | -0.176\*\* | -0.368\*\*\* | -0.446\*\*\* | -0.597\*\*\* | -0.526\*\*\* | 0.247\*\*\* | -0.219\*\*\* | 0.423\*\*\* | -0.554\*\*\* | -0.264\*\*\* | -0.129\* | 1 |

Computed correlation used pearson-method with listwise-deletion

Signif. codes: 0 ‘\*\*\*’ 0.001 ‘\*\*’ 0.01 ‘\*’ 0.05 ‘.’ 0.1 ‘ ’ 1

Table 4: t-test on the difference in Fintech adoption and Financial inclusion between males and females

|  |  |  |  |
| --- | --- | --- | --- |
| Variable | Female | Male | p value |
| Fintech | 0.122 | 0.137 | 0.308 |
| Account | 0.564 | 0.619 | 0.005 \*\*\* |
| Saving | 0.218 | 0.253 | 0.005 \*\*\* |
| Borrowing | 0.195 | 0.228 | 0.004 \*\*\* |
| Signif. codes: 0 ‘\*\*\*’ 0.001 ‘\*\*’ 0.01 ‘\*’ 0.05 ‘.’ 0.1 ‘ ’ 1 |  |  |  |

Table 5: t-test on the gender inequality gap

|  |  |  |  |
| --- | --- | --- | --- |
| Gap | Mean 95%Confidence | t-statistics | p-value |
| GII (Gender Inequality Index) | 0.377 0.319 - 0.355 | 37.71 | 0.000\*\*\* |
| Signif. codes: 0 ‘\*\*\*’ 0.001 ‘\*\*’ 0.01 ‘\*’ 0.05 ‘.’ 0.1 ‘ ’ 1 |  |  |  |

Table 6: Impact of Fintech on Financial Inclusion

|  |  |  |  |
| --- | --- | --- | --- |
| Variable | (1) Account | (2) Savings | (3) Borrowing |
| Fintech | 0.134 \*\*\* | 0.270 \*\*\* | 0.428 \*\*\* |
|  | ( 0.028 ) | ( 0.034 ) | ( 0.056 ) |
| Government˙Institutional˙Quality | 0.379 \*\*\* | 0.614 \*\*\* | 0.344 \*\*\* |
|  | ( 0.052 ) | ( 0.052 ) | ( 0.064 ) |
| GDP˙growth | -0.134 \*\*\* | 0.000 | -0.046 |
|  | ( 0.028 ) | ( 0.027 ) | ( 0.032 ) |
| Trade | 0.066 \* | 0.029 | -0.026 |
|  | ( 0.032 ) | ( 0.031 ) | ( 0.049 ) |
| Population˙growth | -0.067 . | 0.068 \* | 0.003 |
|  | ( 0.035 ) | ( 0.034 ) | ( 0.036 ) |
| Education | 0.367 \*\*\* | 0.107 \*\* | 0.182 \*\*\* |
|  | ( 0.039 ) | ( 0.039 ) | ( 0.045 ) |
| Redisributive˙ policies | -0.026 | -0.018 | -0.095 \*\* |
|  | ( 0.045 ) | ( 0.029 ) | ( 0.034 ) |
| GDP | 0.076 \*\* | 0.114 \*\*\* | 0.055 |
|  | ( 0.025 ) | ( 0.029 ) | ( 0.041 ) |
| Adjusted R-squared | 0.719 | 0.721 | 0.575 |
| p-value | 0.000 | 0.000 | 0.000 |
| Robust Standard errors in parentheses |  |  |  |
| Signif. codes: 0 ‘\*\*\*’ 0.001 ‘\*\*’ 0.01 ‘\*’ 0.05 ‘.’ 0.1 ‘ ’ 1 |  |  |  |

Table 7: Impact of Fintech and Financial Inclusion on gender inequality (GII)

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Variable | (1)GII | (2)GII | (3)GII | (4)GII | (5)GII |
| Fintech | -0.035 \*\*\* | 0.029 \* | 0.038 \*\*\* | 0.035 \*\* | 0.034 \*\* |
|  | ( 0.011 ) | ( 0.011 ) | ( 0.011 | ( 0.011 ) | ( 0.012 ) |
| Account |  |  | -0.067 \*\*\* |  |  |
|  |  |  | ( 0.016 |  |  |
| Saving |  |  |  | -0.021 |  |
|  |  |  |  | ( 0.017 ) |  |
| Borrowing |  |  |  |  | -0.012 |
|  |  |  |  |  | ( 0.012 ) |
| Government˙Institutional˙Quality |  | -0.060 \*\*\* | -0.035 \* | -0.047 \* | -0.056 \*\*\* |
|  |  | ( 0.014 ) | ( 0.015 | ( 0.019 ) | ( 0.015 ) |
| GDP˙growth |  | 0.027 \* | 0.018 . | 0.027 \* | 0.027 \* |
|  |  | ( 0.011 ) | ( 0.011 | ( 0.011 ) | ( 0.011 ) |
| Trade |  | -0.022 \* | -0.017 . | -0.021 \* | -0.022 \* |
|  |  | ( 0.010 ) | ( 0.009 | ( 0.010 ) | ( 0.010 ) |
| Population˙growth |  | 0.036 \*\* | 0.031 \*\* | 0.037 \*\*\* | 0.036 \*\* |
|  |  | ( 0.011 ) | ( 0.011 | ( 0.011 ) | ( 0.011 ) |
| Education |  | -0.058 \*\*\* | -0.033 \* | -0.055 \*\*\* | -0.055 \*\*\* |
|  |  | ( 0.013 ) | ( 0.014 | ( 0.014 ) | ( 0.014 ) |
| Redisributive˙ policies |  | 0.014 | 0.012 | 0.014 | 0.013 |
|  |  | ( 0.014 ) | ( 0.012 | ( 0.014 ) | ( 0.014 ) |
| GDP |  | -0.014 \* | -0.009 | -0.012 . | -0.014 \* |
|  |  | ( 0.007 ) | ( 0.007 | ( 0.007 ) | ( 0.007 ) |
| Adjusted R-squared: | 0.028 | 0.398 | 0.428 | 0.400 | 0.398 |
| p-value | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| Robust standard errors in parentheses |  |  |  |  |  |
| Signif. codes: 0 ‘\*\*\*’ 0.001 ‘\*\*’ 0.01 ‘\*’ 0.05 ‘.’ 0.1 ‘ ’ 1 |  |  |  |  |  |

Table 8: Impact of Fintech and Financial Inclusion on gender inequality(GII) : a quartile Analysis

4

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | (1)GII | (2)GII | (3)GII | (4)GII | (5)GII | (6)GII | (7)GII | (8)GII | (9)GII | (10)GII | (11)GII | (12)GII | (13)GII | (14)GII | (15)GII |
| Variable | 10% | 25% | 50% | 75% | 90% | 10% | 25% | 50% | 75% | 90% | 10% | 25% | 50% | 75% | 90% |
| Fintech | -0.003 | 0.001 | 0.012 | 0.080 \*\*\* | 0.090 \*\*\* | -0.002 | 0.004 | 0.019 | 0.083 \*\*\* | 0.113 \*\*\* | -0.002 | 0.001 | 0.019 | 0.077 \*\*\* | 0.111 \*\*\* |
|  | ( 0.009 ) | ( 0.010 ) | ( 0.014 ) | ( 0.022 ) | ( 0.023 ) | ( 0.010 ) | ( 0.013 ) | ( 0.016 ) | ( 0.023 ) | ( 0.023 | ( 0.010 ) | ( 0.013 ) | ( 0.017 | ( 0.024 ) | ( 0.025 ) |
| Account | -0.079 \*\*\*  ( 0.025 ) | -0.111 \*\*\*  ( 0.019 ) | -0.085 \*\*\*  ( 0.023 ) | -0.038 \*  ( 0.020 ) | -0.041 \*  ( 0.018 ) |  |  |  |  |  |  |  |  |  |  |
| Saving |  |  |  |  |  | -0.036 | -0.021 | -0.011 | -0.025 | -0.045 . |  |  |  |  |  |
|  |  |  |  |  |  | ( 0.021 ) | ( 0.028 ) | ( 0.022 ) | ( 0.020 ) | ( 0.019) |  |  |  |  |  |
| Borrowing |  |  |  |  |  |  |  |  |  |  | -0.006 | -0.001 | 0.002 | -0.009 | -0.030 . |
|  |  |  |  |  |  |  |  |  |  |  | ( 0.012 ) | ( 0.016 ) | ( 0.018 | ( 0.018 ) | ( 0.018 ) |
| Government˙Institutional˙Quality | -0.011 | -0.002 | -0.031 | -0.076 \*\*\* | -0.068 \*\*\* | -0.021 | -0.029 | -0.070 \* | -0.075 \*\* | -0.071 \*\* | -0.037 \* | -0.051 \* | -0.073 \*\* | -0.088 \*\*\* | -0.057 \*\* |
|  | ( 0.018 ) | ( 0.017 ) | ( 0.021 ) | ( 0.020 ) | ( 0.020 ) | ( 0.022 ) | ( 0.030 ) | ( 0.028 ) | ( 0.024 ) | ( 0.022 | ( 0.017 ) | ( 0.021 ) | ( 0.023 | ( 0.020 ) | ( 0.022 ) |
| GDP˙growth | 0.020 \* | 0.012 | 0.010 | 0.024 | 0.011 | 0.028 \*\* | 0.025 . | 0.030 | 0.034 . | 0.019 | 0.029 \*\* | 0.023 | 0.026 | 0.028 | 0.028 |
|  | ( 0.010 ) | ( 0.013 ) | ( 0.018 ) | ( 0.018 ) | ( 0.016 ) | ( 0.010 ) | ( 0.015 ) | ( 0.022 ) | ( 0.018 ) | ( 0.017 | ( 0.010 ) | ( 0.014 ) | ( 0.022 | ( 0.018 ) | ( 0.017 ) |
| Trade | 0.000 | -0.010 | -0.015 | -0.024 \* | -0.034 \*\*\* | -0.018 | -0.018 | -0.023 \* | -0.026 \*\* | -0.033 \*\*\* | -0.017 | -0.018 | -0.025 \* | -0.026 \* | -0.039 \*\*\* |
|  | ( 0.010 ) | ( 0.010 ) | ( 0.011 ) | ( 0.010 ) | ( 0.010 ) | ( 0.011 ) | ( 0.012 ) | ( 0.011 ) | ( 0.010 ) | ( 0.009 | ( 0.011 ) | ( 0.013 ) | ( 0.011 | ( 0.010 ) | ( 0.009 ) |
| Population˙growth | 0.010 | 0.020 | 0.051 \*\*\* | 0.048 \*\*\* | 0.046 \*\* | 0.021 | 0.037 \* | 0.049 \*\* | 0.048 \*\* | 0.046 \*\* | 0.017 | 0.031 . | 0.045 \*\* | 0.046 \*\* | 0.047 \*\*\* |
|  | ( 0.017 ) | ( 0.013 ) | ( 0.019 ) | ( 0.017 ) | ( 0.014 ) | ( 0.018 ) | ( 0.017 ) | ( 0.017 ) | ( 0.016 ) | ( 0.014 | ( 0.018 ) | ( 0.016 ) | ( 0.017 | ( 0.016 ) | ( 0.013 ) |
| Education | 0.012 | -0.028 | -0.033 . | -0.036 . | -0.023 | 0.007 | -0.038 . | -0.058 \*\* | -0.048 \*\* | -0.044 \*\* | -0.002 | -0.038 | -0.064 \*\*\* | -0.049 \*\* | -0.048 \*\* |
|  | ( 0.019 ) | ( 0.018 ) | ( 0.018 ) | ( 0.019 ) | ( 0.019 ) | ( 0.021 ) | ( 0.023 ) | ( 0.018 ) | ( 0.018 | ( 0.017 | ( 0.021 ) | ( 0.023 ) | ( 0.019 | ( 0.017 ) | ( 0.016 ) |
| Redisributive˙ policies | 0.008 | 0.014 | 0.002 | 0.019 | 0.019 . | 0.005 | -0.001 | -0.004 | 0.022 ) | 0.018 . | -0.002 | -0.004 | -0.008 | 0.024 . | 0.011 |
|  | ( 0.022 ) | ( 0.021 ) | ( 0.020 ) | ( 0.013 ) | ( 0.010 ) | ( 0.023 ) | ( 0.029 ) | ( 0.024 ) | ( 0.015 | ( 0.010 | ( 0.024 ) | ( 0.029 ) | ( 0.025 | ( 0.014 ) | ( 0.012 ) |
| GDP | 0.019 \*\*\* | 0.012 | 0.002 | -0.032 \* | -0.014 | 0.013 | -0.002 | -0.009 | -0.033 \*\* | -0.008 | 0.007 | -0.006 | -0.012 | -0.032 \* | -0.019 |
|  | ( 0.007 ) | ( 0.008 ) | ( 0.009 ) | ( 0.013 ) | ( 0.019 ) | ( 0.008 ) | ( 0.011 ) | ( 0.011 ) | ( 0.013 ) | ( 0.021 | ( 0.008 ) | ( 0.012 ) | ( 0.011 | ( 0.013 ) | ( 0.019 ) |
| Pseudo R-squared | 17.70% | 28.30% | 34.20% | 28.00% | 20.60% | 14.60% | 23.8% | 32.00% | 28.00% | 20.9% | 13.40% | 23.20% | 31.70% | 27.8% | 20.40% |
| p-value | 0.000 | 0.007 | 0.007 | 0.007 | 0.007 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| Robust standard errors in parentheses  Signif. codes: 0 ‘\*\*\*’ 0.001 ‘\*\*’ 0.01 ‘\*’ 0.05 ‘.’ 0.1 ‘ ’ 1 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |

Table 9: Wu-Hausman test of FinTech and Financial Inclusion endogeneity

|  |  |  |  |
| --- | --- | --- | --- |
| Endogenous Variable | (1) Account | (2) Savings | (3) Borrowing |
| FinTech | 0.999 | 1.000 | 0.999 |
| Financial Inclusion | 0.994 | 1.000 | 0.992 |

Table 10: Impact of Fintech , Financial Inclusion on Gender Inequality: Machine learning models’ selection based on goodness of fit *R*2

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Model | (1) Accounts | (2) Savings | (3) Borrowing | (4) All FI Components |
| Extra Trees Regressor (ET) | **27.90%** | **28.00%** | **26.30%** | **28.24%** |
| Random Forest Regressor (RF) | 25.07% | 21.35% | 21.21% | 23.87% |
| Bayesian Ridge(BR) | 25.79% | 24.20% | 22.55% | 24.75% |
| K Neighbors Regressor (KNN) | 24.55% | 28.00% | 23.54% | 26.18% |
| Huber Regressor(HR) | 21.17% | 18.37% | 16.16% | 17.19% |
| Gradient Boosting Regressor(GBR) | 8.13% | 2.08% | 2.00% | 11.08% |
| Ridge Regression(Ridge) | 24.54% | 22.29% | 20.45% | 22.16% |
| AdaBoost Regressor(ADA) | 19.82% | 14.50% | 17.69% | 18.03% |
| Least Angle Regression(LAR) | 24.44% | 22.16% | 20.29% | 21.95% |
| Extreme Gradient Boosting(Xgboost) | 3.96% | 0.20% | 2.00% | 7.09% |

Figure 1: Gender Inequality according to country-level income group

A graph of a growing graph

AI-generated content may be incorrect.

A screenshot of a computer

AI-generated content may be incorrect.Figure 2: Gender Inequality according to regional income group

# 11

A graph of a graph of a graph

AI-generated content may be incorrect.A graph with a line going up

AI-generated content may be incorrect.Figure 3: Variables’ Importance and Features’ selection : Impact of Fintech and Finan

