The impact of foreign aid on access to water and sanitation: a demand perspective

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1. Introduction

• In 1990, 24% of world population did not have access to safe water and 46% did not have access to sanitation.

• The Millenium Declaration (2000) set the target of halving the proportion of world population without access to water and sanitation by 2015.

• The target for water (12%) has been met (9%). The target for sanitation (23%) has not been met (32%).

• There are large differences among world regions and between urban and rural areas.
1. Introduction

• Now, the sixth sustainable development goal (2015) is to ensure “water and sanitation for all” by 2030.

• Achieving this goal helps to achieve other important goals: promoting good health (3), equal opportunities for women (5), basic education for all (4), etc.
2. Aims

We try to answer the following questions:

• Does aid increase access to safe water supply and sanitation?

• What is the role of aid for water supply and sanitation infrastructure?

• What is the role of aid for health education?
3. Theoretical framework

We rely on consumer theory:

\[ \Delta U_i(B_{i,1}, B_{i,0}, C_{i,1}, C_{i,0}) = U_{i,1}(B_{i,1}, C_{i,1}) - U_{i,0}(B_{i,0}, C_{i,0}) \]

\( U_{i,1} = \) utility of consuming the service

\( U_{i,0} = \) utility of NOT consuming the service
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Aid for infrastructure may reduce the costs of access (time and monetary costs)

Wolf (2009)
Bain et al. (2013). Wayland (2013)
Gopalan and Rajan (2016)
Ndikumana and Pickbourn (2017)
3. Theoretical framework

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Aid for health **education** may increase the expected **benefits** of access to safe water and sanitation.

Aid for **infrastructure** may reduce the **costs** of access (time and monetary costs).

4. Empirical strategy

We estimate a fixed effects model that takes into account the possible existence of unobservable heterogeneity among countries:

\[
\text{Acces rate}_{jt} = \delta_j + \boldsymbol{\beta} \mathbf{X}_{jt} + u_{jt}
\]

\[
\text{Acces rate}_{jt} = \delta_j + \beta_1 \log \text{INF}_{jt} + \beta_2 \log \text{EDU}_{jt} + \beta_3 (\log \text{INF} \times \log \text{EDU})_{jt}
\]

\[
+ \beta_4 \log (\text{Local government expenditure on health})_{jt} + \beta_5 (\text{Share of urban population})_{jt}
\]

\[
+ \beta_6 (\text{Literacy rate})_{jt} + \beta_7 (\text{Control of corruption})_{jt} + u_{jt}
\]
5. Data

We have **macro panel data** (115 countries, 14 years, period 2002-2015) for the following variables:

**D. Access rate:** WDI (World Bank)

**I.1. Aid for water supply and sanitation:** CRS (OECD)

**I.2. Aid for education for health:** CRS (OECD)

**I.3. Local government expenditure on health:** WHO

**I.4. Share of urban population:** WDI (World Bank)

**I.5. Literacy rate:** WDI (World Bank)

**I.6. Control of corruption:** WGI (World Bank)
### 6. Results

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| Observations | 1101 | 1108 | 1108 | 1101 | 1108 |
| Countries     | 115  | 1115 | 115  | 115  | 115  |
| R² (within)   | 0.44 | 0.52 | 0.07 | 0.20 | 0.30 | 0.31 |

Note: Robust standard errors clustered for countries in parenthesis.

*** p < 0.01, ** p < 0.05, * p < 0.1.
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7. Conclusions

• **Aid for infrastructure** seems to have a **positive impact** on access to water supply and sanitation services.

• **Aid for health education** also seems to have a **positive impact**, especially in **rural** areas.

• **BUT** it is **difficult** to evaluate the **effectiveness** of aid in **urban** and **rural** areas.

• **We need better quality data.**
Thank you