

# Ethnic Differentiation, Banking and Local Economic Development in Ethiopia

Dereje Regasa§

*Australian Conference for Economists (ACE),  
10-13 July, 2018  
Canberra, Australia*

---

§University of Otago, Dunedin, NZ.

Email: [regde140@student.otago.ac.nz](mailto:regde140@student.otago.ac.nz)

# I. Introduction

- How does ethnic differentiation influence banking development in Ethiopian *woredas*?
- To what extent does banking development influence the *woredas* ' economy?
  - *Woreda (plural woredas) is the third-level administration division; correspond to a district/county; average population of 100,000.*
- Motivated by [Regasa et al. \(2017\)](#) [R&R @ *JAE*] – capital allocation inefficiency and variation in bank density.
- Ethiopia is a good context:
  - One of the most ethnically diverse (over 80 ethnic groups).
  - Ethnic based federalism - territorial demarcation of ethnic groups.
  - Highly disproportional distribution of banks - ethnic based banks.

- Banking (financial) development promotes economic output ([King and Levine, 1993, QJE](#); [Wadud, 2009, EB](#)) – though direction of causality is debatable.
- Evidence at a subnational level ([Fafchamps and Schundeln, 2013, JDE](#); [Guiso et al., 2004, QJE](#)).
- Prior literature focuses on economic, institutional, legal variation.
  - Demographic?
- [Andrianova et al \(2017\)](#)- some evidence on bank specific ethnicity effects.
- Ethnic diversity is associated with negative economic outcomes ([Easterly and Levine, 1997, QJE](#)).
  - increases corruption ([Mauro, 1995, QJE](#));
  - lowers provision of public goods ([Alesina et al., 1999, QJE](#));
  - harms social trust ([Alesina and Ferrara, 2000, QJE](#));
  - increases civil conflict ([Montalvoa and Reynal-Quero, 2005, AER](#))
- Others find positive effect ([Cinyabuguma and Putterman, 2010, JAE](#)).
- At a disaggregate level ethnic diversity fosters growth [Gisselquist et al., 2016, WD](#); [Montalvo and Reynal-Querol, 2017](#); [Bove and Elia, 2017, WD](#)).

## II. Ethnic differentiation in banking: Conceptual framework

- Several ways of relating ethnicity to banking (financial) development:
  1. *Target market* – some banks targeting some ethnic groups.
- In the face of weak contract enforcement and asymmetric information, ethnic banks may prefer to transact with their own group ([Himbara, 1994, \*WD\*](#));
- Trust is concentrated within an ethnic group ([Robinson, 2016, \*WD\*](#); [Greif, 1993, \*AER\*](#)).
  2. *Discrimination utility* – certain ethnic banks may attribute positive utility to the wellbeing of their own group, and possess negative utility to others ([Brown, 2000, \*EJSP\*](#); [Alesina and La Ferrara, 2000, \*QJE\*](#)).

---

3. *Ethnic favouritism* - bank owners (BODs) may tend to favour their ethnic homeland in their bank's location choice ([De Luca et al., 2018, JDE](#)).

## **Our hypotheses:**

**H1:** The likelihood of bank availability increases (decreases) with strong (weak) bank connections to a particular ethnic group in a *woreda*.

**H2:** There is a positive causal relationship between the banking development and *woredas*' economic development.

### III. Estimation Strategy

- The model for testing the first hypothesis (H1) can be expressed as:

$$P(\text{bank}_{ij} = 1) = G[(\beta \cdot \text{Ethdiff}_{ij}^K) + \eta_i + \sigma' Z_j + \varepsilon_{ij}] \quad (1)$$

where,

- $\text{bank}_{ij} = 1$  stands for the availability of bank  $i$  in woreda  $j$
- $\text{Ethdiff}_{ij}^K$  is the measure of ethnic differentiation

$$\begin{aligned} \text{Ethdiff}_{ij}^K &= |S_{ki} - S_{kj}| \\ &= \{\text{Ethdiff}_{ij} - \text{AMA}, \text{Ethdiff}_{ij} - \text{ORO}, \text{Ethdiff}_{ij} - \text{TGR}\} \end{aligned}$$

- We assume  $\text{Ethdiff}_{ij}^K$  as exogenous; however, woredas economic growth could be endogenous to banking development. 6-

- We employ an instrumental variable (IV) estimator.
- *Woredas' long term mean-temperature* is identified as IV.
- Second, we examine the relationship between the number of banks in a *woreda* (*bankdev<sub>j</sub>*), and the *woredas* economic development (*wealth<sub>j</sub>*):

$$wealth_j = \alpha_0 + \vartheta \cdot bankdev_j + \sum_{k=1}^K \varphi_k Z_k + \varepsilon_j \quad (2)$$

- *bankdev* represents the predicted probabilities of banks availability generated via estimating equation (1).

## Data

- We mainly combine data from ECSCA (EPHC-2007) with data from

<i>Items</i>	<i>Data sources</i>	<i>Remarks</i>
<i>Woredas</i> ' ethnic information	EPHC-2007	Hand-collected
Banks' BODs ethnic information	Self Survey-2017	Determined from mother-tongue
Banks branches location	Individual banks	
<i>Woredas</i> ' Population density	Population projection-2014	Hand-collected
<i>Woredas</i> ' economic status	EPHC-2007	PCA-Wealth-index
<i>Woredas</i> ' distance from regional and country's capital	GIS, GPS coordinates	Great-circle approach
<i>Woredas</i> ' political violence information	ACLED	GIS supported
<i>Woredas</i> ' weather information	Worldclim-2	GIS supported

## IV. Results

- Comparing *woredas* that have a bank and *woredas* without a bank; *woredas* with banks have:
  - less ethnic differentiation,
  - are wealthier,
  - have a greater urban population, and
  - are closer to both the regional and country's capital

**Table 1: Two-sample Mean Analysis of Bank Availability**

	<i>bank<sub>ij</sub>=1</i>			<i>bank<sub>ij</sub>=0</i>			<i>mean</i>
	<i>Obs</i>	<i>Mean</i>	<i>Std. Dev</i>	<i>Obs</i>	<i>Mean</i>	<i>Std. Dev</i>	<i>difference</i>
<i>Ethdiff-AMA</i>	1,312	0.242	0.234	9,323	0.340	0.267	<b>-0.099***</b>
<i>Ethdiff-ORO</i>	1,312	0.271	0.286	9,323	0.412	0.362	<b>-0.142***</b>
<i>Ethdiff-TGR</i>	1,312	0.214	0.259	9,323	0.295	0.300	<b>-0.080***</b>
<i>Wealth-status</i>	1,312	0.380	0.227	9,323	0.176	0.114	0.204***
<i>Urban-population</i>	1,312	4.429	0.675	9,323	3.591	1.006	0.838***
<i>Distance-AA</i>	1,312	2.173	0.607	9,323	2.445	0.260	-0.272***
<i>Distance-Region</i>	1,312	1.877	0.724	9,323	2.196	0.374	-0.319**
<i>Political-violence</i>	1,312	0.026	0.090	9,323	0.027	0.096	0.000

\*, \*\*, and \*\*\* denote statistical significance at 10%, 5%, and 1% levels, respectively.

- Ethnic difference between the bank and the *woreda* is negatively associated with the likelihood of banks availability in a *woreda*.
  - This result is consistent with [Robinson \(2016\)](#) and [Versailles \(2009\)](#) who report a negative association between ethnic difference and commodity market integration.
- The degree of ethnic overlap between the bank and *woreda* is higher in highly ethnic diverse *woredas* (lower ethnic difference).
- We find a positive relationship between *woredas*' ethnic fractionalisation (*herfindahl index*) and the likelihood of bank presence.
  - Our finding challenges the seminal work by [Easterly and Levine \(1997\)](#).

**Table 2: Estimation results for bank availability****Panel A: Ordinary Probit Models**

	<i>Rural-woredas</i>		<i>Urban-woredas</i>		<i>Combined</i>	
	<i>m.e</i>	<i>t-ratio</i>	<i>m.e</i>	<i>t-ratio</i>	<i>m.e</i>	<i>t-ratio</i>
<i>Ethdiff-AMA</i>	-0.078	-3.360**	-0.012	-0.130	-0.077	-2.530**
<i>Ethdiff-ORO</i>	-0.127	-8.620***	-0.157	-3.680***	-0.148	-7.860***
<i>Ethdiff-TGR</i>	-0.109	-3.830***	-0.177	-2.850**	-0.092	-3.700***
<i>wealth-status</i>	0.130	7.250***	0.163	4.610***	0.136	10.160***
<i>other controls</i>	Yes		Yes		Yes	
<i>bank dummies</i>	Yes		Yes		Yes	

**Panel B: IVProbit Models**

	<i>Rural-woredas</i>		<i>Urban-woredas</i>		<i>Combined</i>	
	<i>m.e</i>	<i>t-ratio</i>	<i>m.e</i>	<i>t-ratio</i>	<i>m.e</i>	<i>t-ratio</i>
<i>Ethdiff-AMA</i>	-0.081	-5.870***	-0.012	-0.160	-0.083	-6.190***
<i>Ethdiff-ORO</i>	-0.126	-13.240***	-0.125	-3.830***	-0.149	-8.260***
<i>Ethdiff-TGR</i>	-0.111	-6.890***	-0.127	-3.410***	-0.130	-7.400***
<i>wealth-status</i>	0.042	1.910*	0.153	0.550	0.067	1.940*
<i>other controls</i>	Yes		Yes		Yes	
<i>bank dummies</i>	Yes		Yes		Yes	
<i>mean-temp</i>	-0.103	-9.800***	-0.093	-2.400**	-0.131	-3.160***
<i>observations</i>	9,600		1,035		10,635	

**Moran's I test statistic (p-value): -0.001 (0.891)**

The dependent variable ( $bank_{ij} = 1$ ); t-ratios are computed from clustered standard errors. \*, \*\*, and \*\*\* denote significant at 10%, 5%, and 1% levels, respectively.

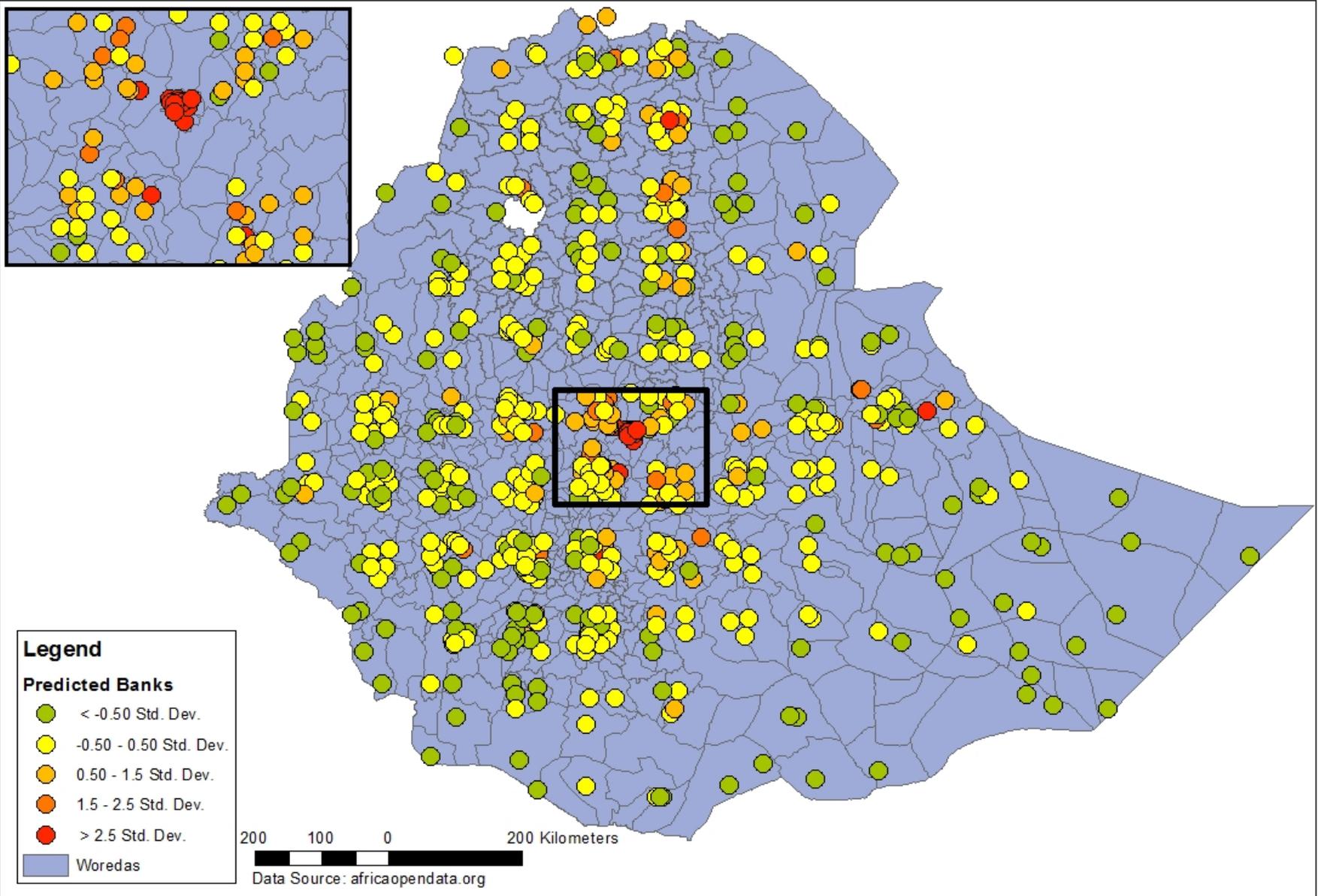
## Banking development and the *woredas*' economy

- We regress *woredas* wealth (wealth-index) on bank density (predicted number of bank branches in *woredas*).
- We find a positive relationship.

**Table 3: Banking development and economic performance (2SLS)**

	<i>Rural-woredas</i>		<i>Urban-woredas</i>		<i>Combined</i>	
	<i>coeff.</i>	<i>t-ratio</i>	<i>coeff.</i>	<i>t-ratio</i>	<i>coeff.</i>	<i>t-ratio</i>
<i>bankdev</i>	0.094	4.220***	0.034	0.550	0.162	4.950***
<i>urban-population</i>	0.009	2.170**			0.025	5.160***
<i>Ethnic-fracj</i>	0.011	0.590	0.052	0.610	0.082	3.840***
<i>distance-AA</i>	-0.024	-1.350	-0.069	-2.180**	-0.059	-3.080***
<i>distance-Region</i>	-0.029	-1.920*	-0.048	-2.730***	-0.051	-3.220***
<i>Other controls</i>	Yes		Yes		Yes	
<i>Sample-size</i>	640		69		709	

Dependent variable is *log(wealth)*. *t*-ratios are computed from bootstrapped standard errors. \*, \*\*, and \*\*\* denote significant at 10%, 5%, and 1% levels, respectively.



---

## Robustness and Extensions

- Alternative to  $Ethdiff_{ij}^K$ , we construct a composite ethnic fractionalisation index:

$$compfrac_{ij} = \ln(1 - \sum_{k=1}^K (S_{ki} * S_{kj}))$$

- We also consider alternative measure of local economic activities.
- *Night-time light intensity* (from NOAA) as an alternative measure of woredas economic status, widely used in economic literature [De Luca et al., 2018](#); [Henderson, Storeygard, & Weil, 2012](#); [Jose G Montalvo & Reynal-Querol, 2017](#).
- Results hold under alternative measurements and specifications.

**Table 4: Results of robustness checks under alternative measurements (Full-sample)**

	1 (Ordinary Probit)		2 (IVProbit)		3 (2SLS)	
	<i>m.e</i>	<i>t-ratio</i>	<i>m.e</i>	<i>t-ratio</i>	<i>coeff.</i>	<i>t-ratio</i>
<i>compfrac<sub>ij</sub></i>	-0.108	-6.660***	-0.080	-15.040***		
<i>wealth-status</i>	0.039	6.910***	0.070	1.980**		
<i>bankdev</i>					0.095	5.920***
<i>Ethnic-fracj</i>					0.162	1.220
<i>Other controls</i>	Yes		Yes		Yes	
<i>mean-temp</i>			-0.130	-3.150***	-0.018	-1.730*
<i>Bank dummies</i>	Yes		Yes		No	
Observations	10,635		10,635		709	

In Models 1 and 2, the dependent variable (***bank<sub>ij</sub>* = 1**). In Model 3, the dependent variable is (***ln(light-intensity)***). In Model 1, *t*-ratios are computed from two-way (*woreda* and *bank*) clustered robust standard errors, in Model 2, *t*-ratios are computed from *woreda* level clustered robust standard errors, and in Model 3, *t*-ratios are computed from bootstrapped standard errors. \*, \*\*, and \*\*\* denote statistical significance at less than 10%, 5%, and 1% levels, respectively.

## Simulated results

- We simulate predicted bank density under four scenarios;
  - *Scenario-I*: all board members are from the Amhara ethnic group.
  - *Scenario-II*: all board members are set to be from the Oromo.
  - *Scenario-III*: say boards are entirely from the Tigrian.
  - *Equal-scenario*: a uniform number of banks board members.

**Table 5: Simulated effects of ethnic difference**

	$P[\mathit{bank} \downarrow \mathit{ij} = 1]$	<i>Standard Errors</i>	<i>Predicted #banks</i>	<i>Standard Errors</i>
<i>Scenario-I</i>	32.302%	0.252	4.845	0.832
<i>Scenario-II</i>	32.354%	0.264	4.853	0.840
<i>Scenario-III</i>	7.772%	0.261	1.157	0.613
<i>Equal-scenario</i>	16.882%	0.256	2.532	0.719
<i>Current-scenario</i>	12.286%	0.186	1.854	2.157

*The standard errors around the predictions are computed using a models replication.*

- A highest predicted probability (bank density) under scenarios I and II may reflect the higher population size of *Oromos* and *Amharas*.

---

## V. Concluding remarks

- In countries like Ethiopia, where ethnicity is a formal political element, ethnic identity outweighs national identity;
  - Some form of divisions between groups,
  - Banks tend to operate along ethnic lines.
  - Areas with homogenous groups likely to have less banks, unless there are sufficient ethnic banks.
- It suggests ethnic fractionalisation (diversity) is not an obstacle of local development in Ethiopia.
- It is ethnic division (differentiation), not diversity *per se*, that is related to negative socio-economic outcomes.

---

Questions/Suggestions?  
Thanks