Findings on Household Costs

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Introduction

Household costs are one of eight components of the IBGC Global Cost of Cash Study. Households pay for cash in three ways: they pay transaction fees on certain types of cash access, such as ATMs and money transfer. They also spend time and money getting to the point where cash is obtained. Using the most relevant available data from reputable international sources and our own survey evidence, we derive estimates of the national cost of cash on an aggregate and a per capita basis for as many countries as possible.

As our research shows, cash confronts households with many other costs, such as crime, accident, impulse control, budgeting, and social obligations. Those costs are not estimated here.
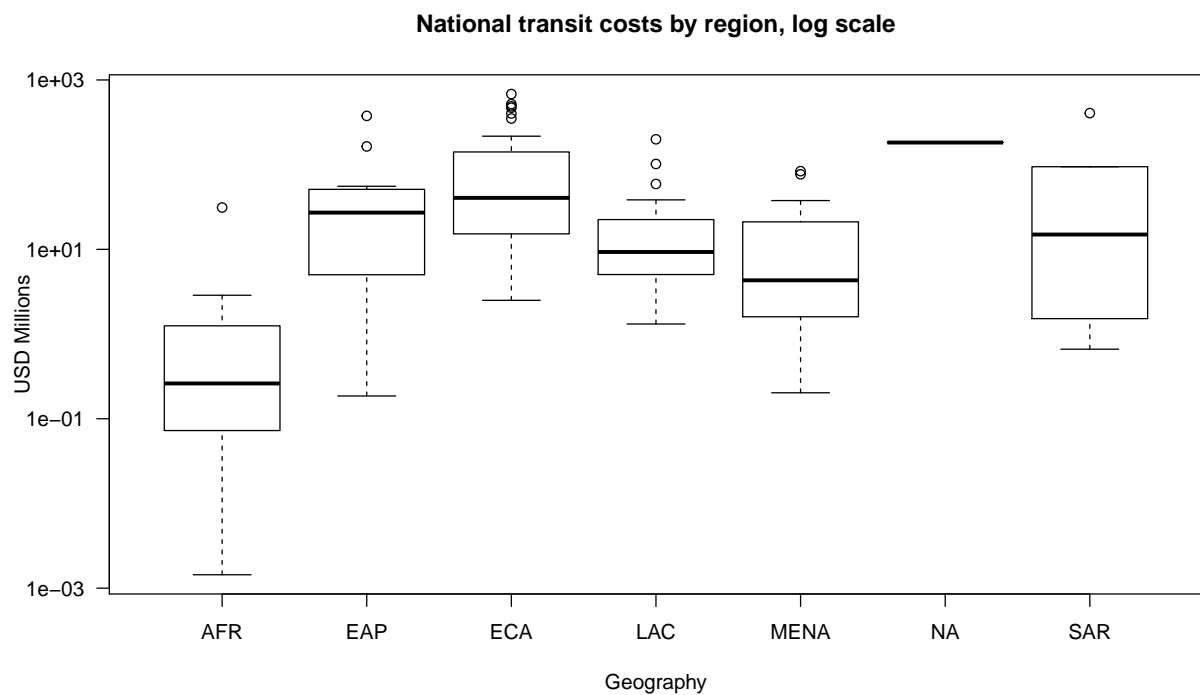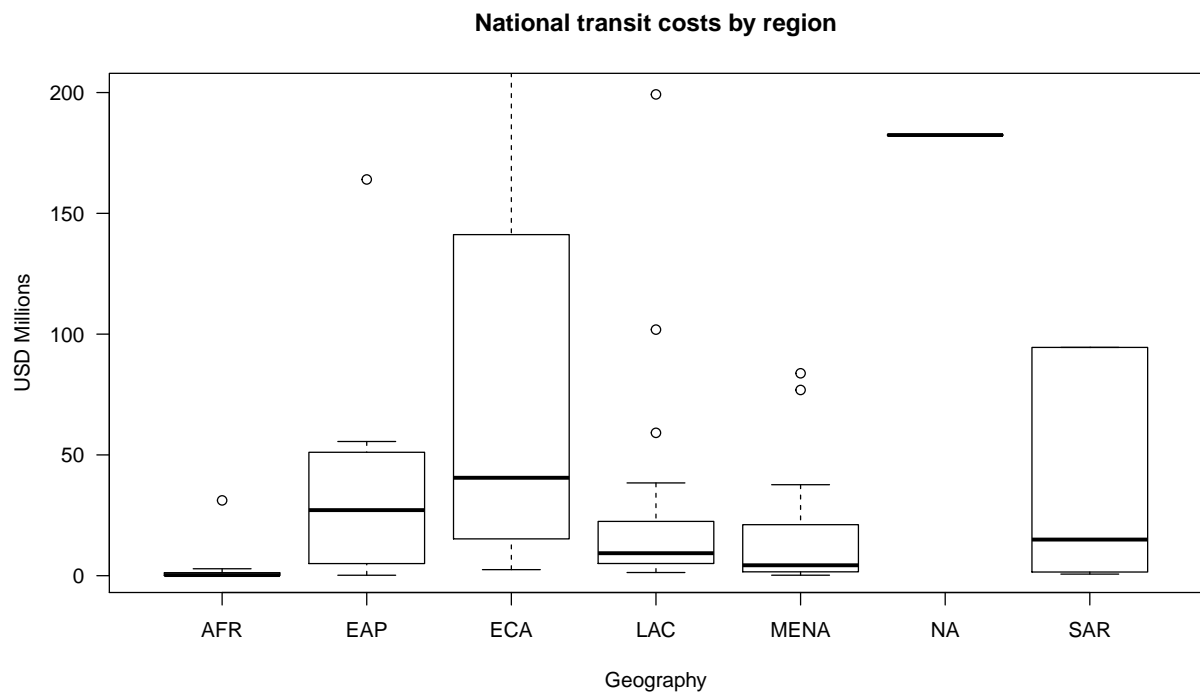
Findings: Transit Costs

National transit costs range from less than a million dollars to more than half a billion. Our data makes it easy to calculate on a national basis, a per capita basis, and to segment by region or by income group.

```
##     Min.  1st Qu.   Median     Mean  3rd Qu.      Max.     NA's
##   0.0014   1.6310  11.4200  59.4700  46.3400  681.9000       91
```

```
## [1] "Estimated national cost of household transit for cash access, in USD (millions)"
```

Transit costs are estimated in US dollars, making it easy to compare internationally.

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National transit costs by region

National transit costs by region, log scale

Transit costs v. population

Transit costs v. population, log scale
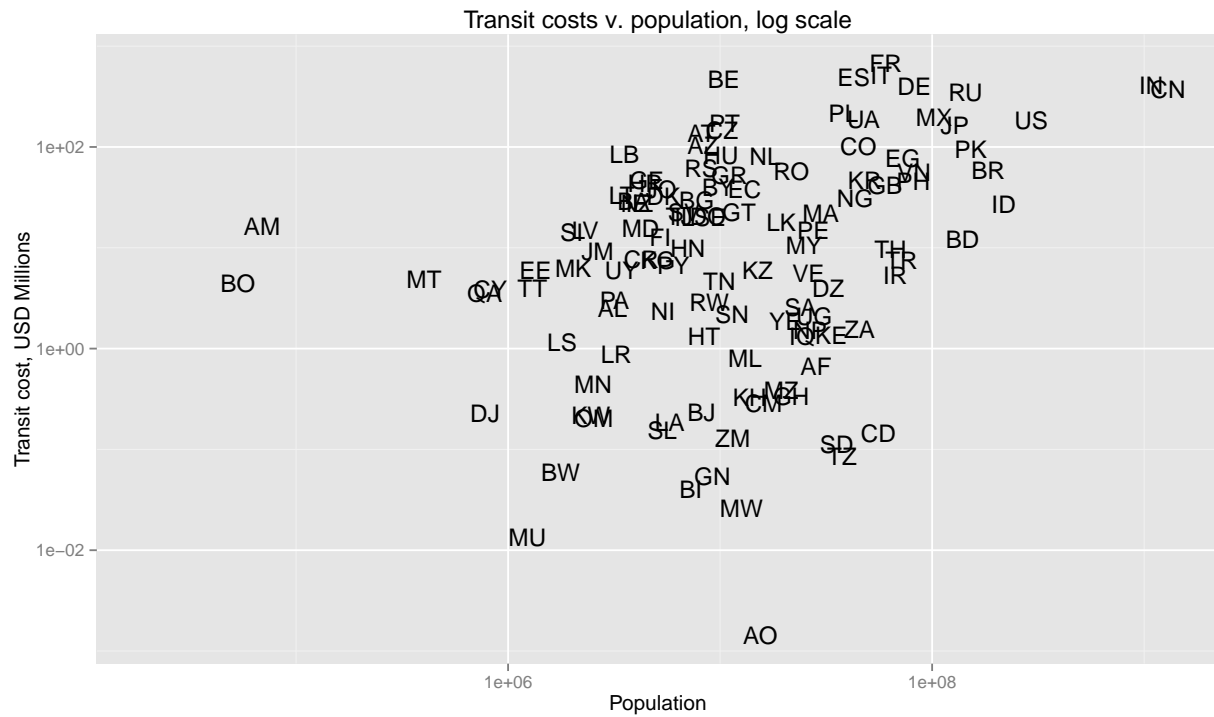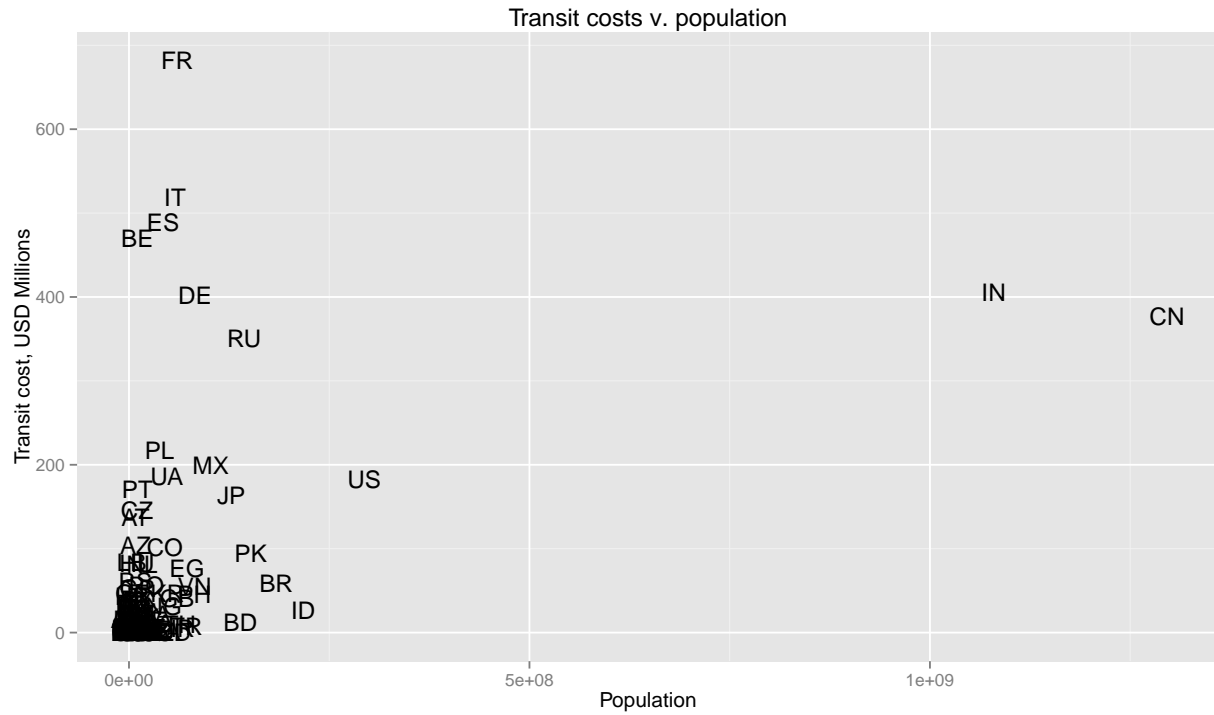
Comparisons within a single region make it easier to think about how individual countries differ from their peers.

Transit costs v. population by region, log scale

Transit costs v. population by region, log scale
(Same data as preceding)
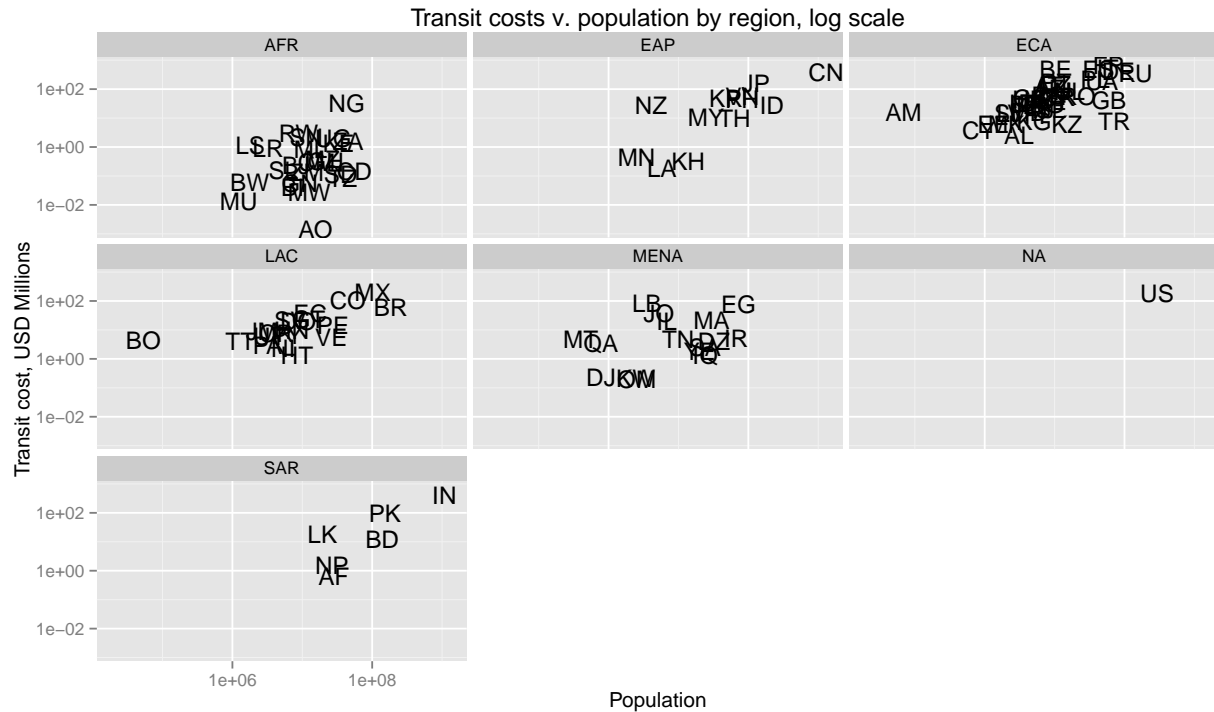
League Tables

See accompanying tables for rank orderings of cost.

- Most and least expensive countries: National Transit Costs, USD Millions—Most Expensive and National Transit

Table 1: National Transit Costs, USD Millions—Most Expensive

	Country	transcost
1	France	682
2	Italy	519
3	Spain	489
4	Belgium	470
5	India	406
6	Germany	402
7	China	377
8	Russian Federation	350
9	Poland	217
10	Mexico	199
11	Ukraine	186
12	United States	182
13	Portugal	171
14	Japan	164
15	Czech Republic	145
16	Austria	137
17	Azerbaijan	104
18	Colombia	102
19	Pakistan	95
20	Lebanon	84

Findings: Fees

We estimate the cost of fees charged for cash transactions. Again, costs are reported in USD to facilitate international comparisons.

```
##    Min. 1st Qu.  Median    Mean 3rd Qu.    Max.   NA's
##       0     112     409    1200    1360   18100    111


## Length   Class    Mode
##      3 formula    call
```

Table 2: National Transit Costs, USD Millions—Least Expensive

	Country	transcost
1	Angola	0.001
2	Mauritius	0.01
3	Malawi	0.03
4	Burundi	0.04
5	Guinea	0.1
6	Botswana	0.1
7	Tanzania	0.1
8	Sudan	0.1
9	Zambia	0.1
10	Congo, Dem. Rep.	0.1
11	Sierra Leone	0.2
12	Lao PDR	0.2
13	Oman	0.2
14	Kuwait	0.2
15	Djibouti	0.2
16	Benin	0.2
17	Cameroon	0.3
18	Cambodia	0.3
19	Ghana	0.3
20	Mozambique	0.4

Table 3: National Transit Costs, USD Million—Africa Region

	Country	transcost
1	Nigeria - 8 states	31.0
2	Rwanda	3.0
3	Senegal	2.0
4	Uganda	2.0
5	South Africa	2.0
6	Kenya	1.0
7	Lesotho	1.0
8	Liberia	0.9
9	Mali	0.8
10	Mozambique	0.4
11	Ghana	0.3
12	Cameroon	0.3
13	Benin	0.2
14	Sierra Leone	0.2
15	Congo, Dem. Rep.	0.1
16	Zambia	0.1
17	Sudan	0.1
18	Tanzania	0.1
19	Botswana	0.1
20	Guinea	0.1
21	Burundi	0.04
22	Malawi	0.03
23	Mauritius	0.01
24	Angola	0.001

Table 4: National Transit Costs, USD Million—East Asia Region

	Country	transcost
1	China	377
2	Japan	164
3	Vietnam	56
4	Korea, Rep.	47
5	Philippines	45
6	New Zealand	27
7	Indonesia	27
8	Malaysia	11
9	Thailand	10
10	Mongolia	0
11	Cambodia	0
12	Lao PDR	0

Cash fees v. population

Cash fees v. population, log scale
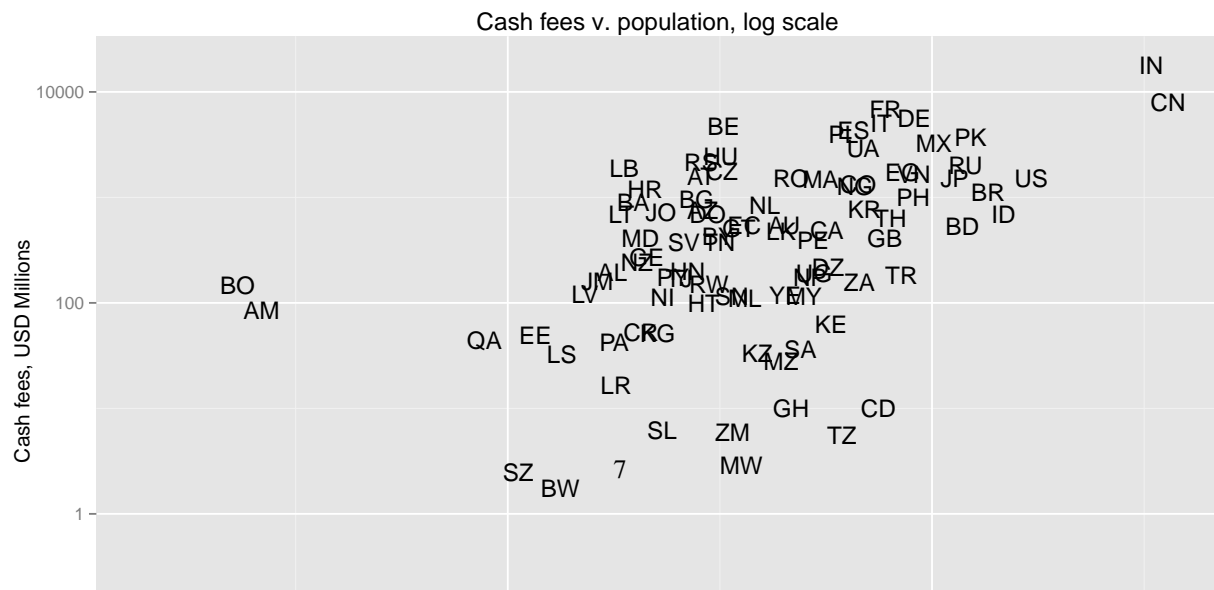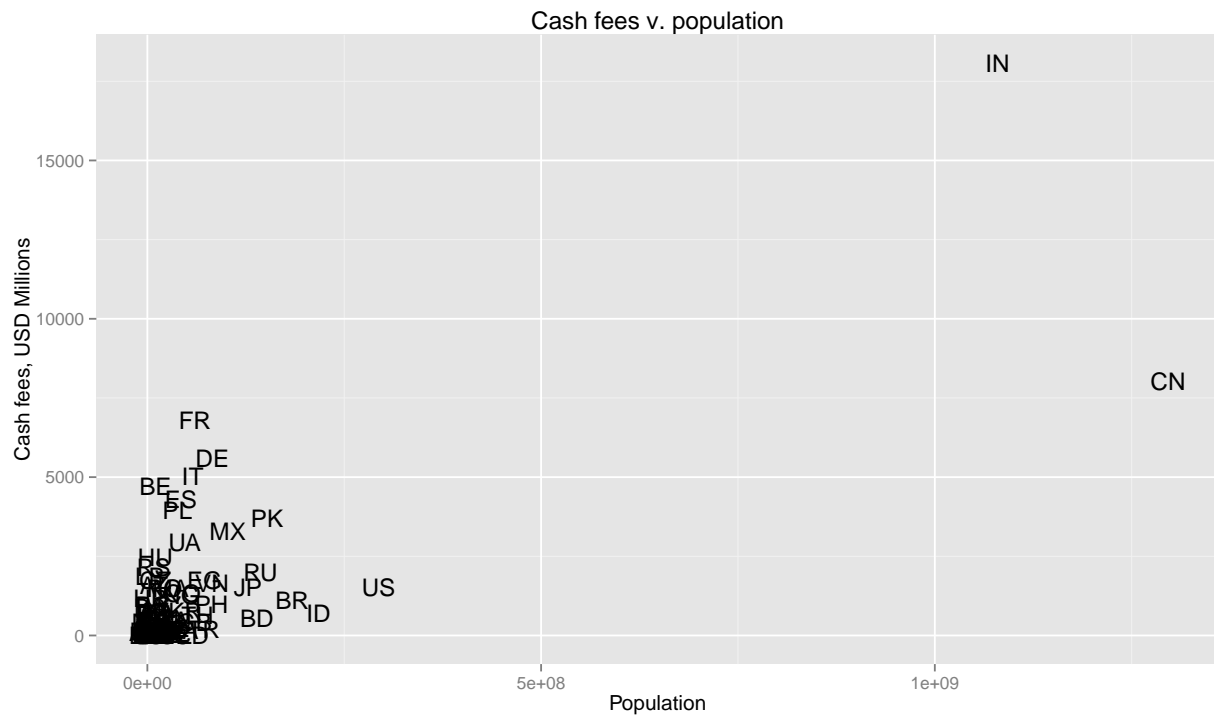
Table 5: National Transit Costs, USD Million—European Region

	Country	transcost
1	France	682
2	Italy	519
3	Spain	489
4	Belgium	470
5	Germany	402
6	Russian Federation	350
7	Poland	217
8	Ukraine	186
9	Portugal	171
10	Czech Republic	145
11	Austria	137
12	Azerbaijan	104
13	Hungary	82
14	Netherlands	81
15	Serbia and Montenegro	61
16	Romania	57
17	Greece	53
18	Georgia	47
19	Croatia	43
20	United Kingdom	41
21	Belarus	40
22	Lithuania	33
23	Denmark	32
24	Bulgaria	29
25	Bosnia and Herzegovina	29
26	Ireland	27
27	Tajikistan	21
28	Sweden	20
29	Armenia	16
30	Moldova	16
31	Latvia	15
32	Slovenia	14
33	Finland	13
34	Kyrgyz Republic	8
35	Turkey	8
36	Macedonia, FYR	6
37	Estonia	6
38	Kazakhstan	6
39	Cyprus	4
40	Albania	3

Table 6: National Transit Costs, USD Million—Latin America Region

	Country	transcost
1	Mexico	199
2	Colombia	102
3	Brazil	59
4	Ecuador	38
5	Guatemala	23
6	El Salvador	22
7	Dominican Republic	20
8	Peru	15
9	Honduras	10
10	Jamaica	9
11	Costa Rica	8
12	Paraguay	7
13	Uruguay	6
14	Venezuela, RB	6
15	Bolivia	4
16	Trinidad and Tobago	4
17	Panama	3
18	Nicaragua	2
19	Haiti	1

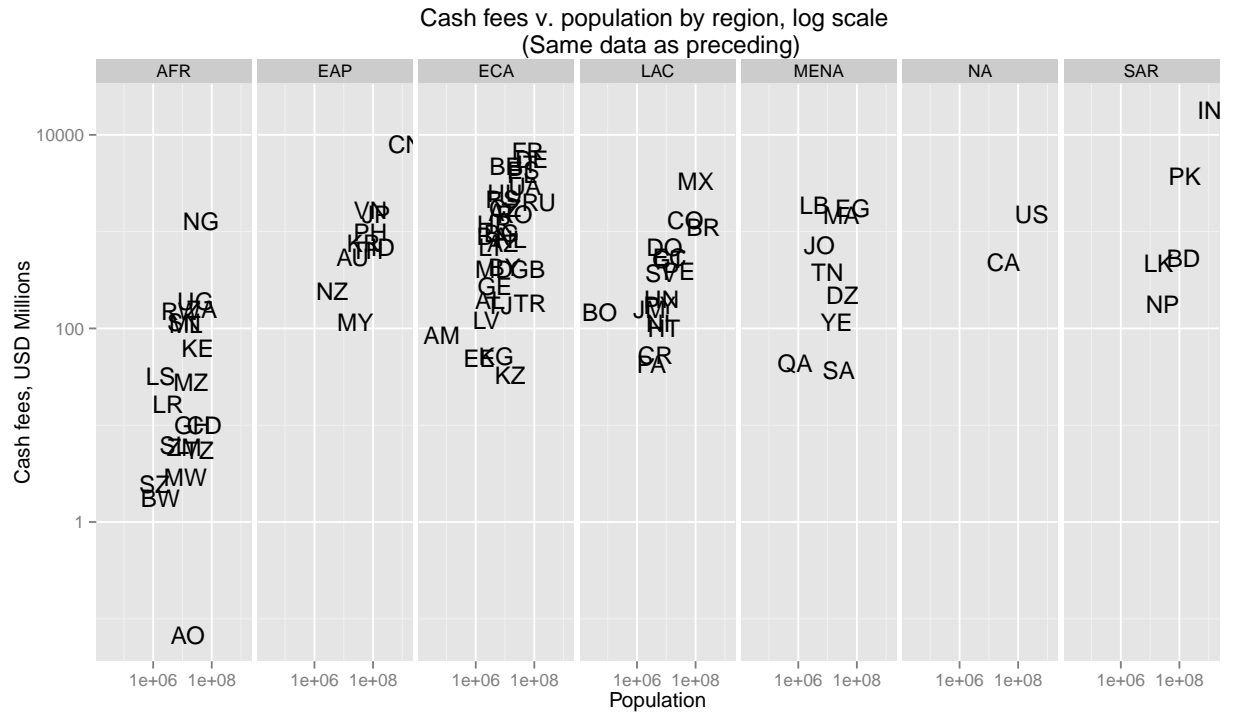Table 7: National Transit Costs, USD Million—Middle East Region

	Country	transcost
1	Lebanon	84
2	Egypt, Arab Rep.	77
3	Jordan	38
4	Morocco	22
5	Israel	20
6	Iran, Islamic Rep.	5
7	Malta	5
8	Tunisia	5
9	Algeria	4
10	Qatar	4
11	Saudi Arabia	3
12	Yemen, Rep.	2
13	Iraq	1
14	Djibouti	0
15	Kuwait	0
16	Oman	0

Table 8: National Transit Costs, USD Million—South Asia Region

	Country	transcost
1	India	406
2	Pakistan	95
3	Sri Lanka	18
4	Bangladesh	12
5	Nepal	2
6	Afghanistan	1

Plots by region facilitate international comparisons among peers.

Cash fees v. population, log scale

Cash fees v. population by region, log scale

Cash fees v. population by region, log scale
(Same data as preceding)
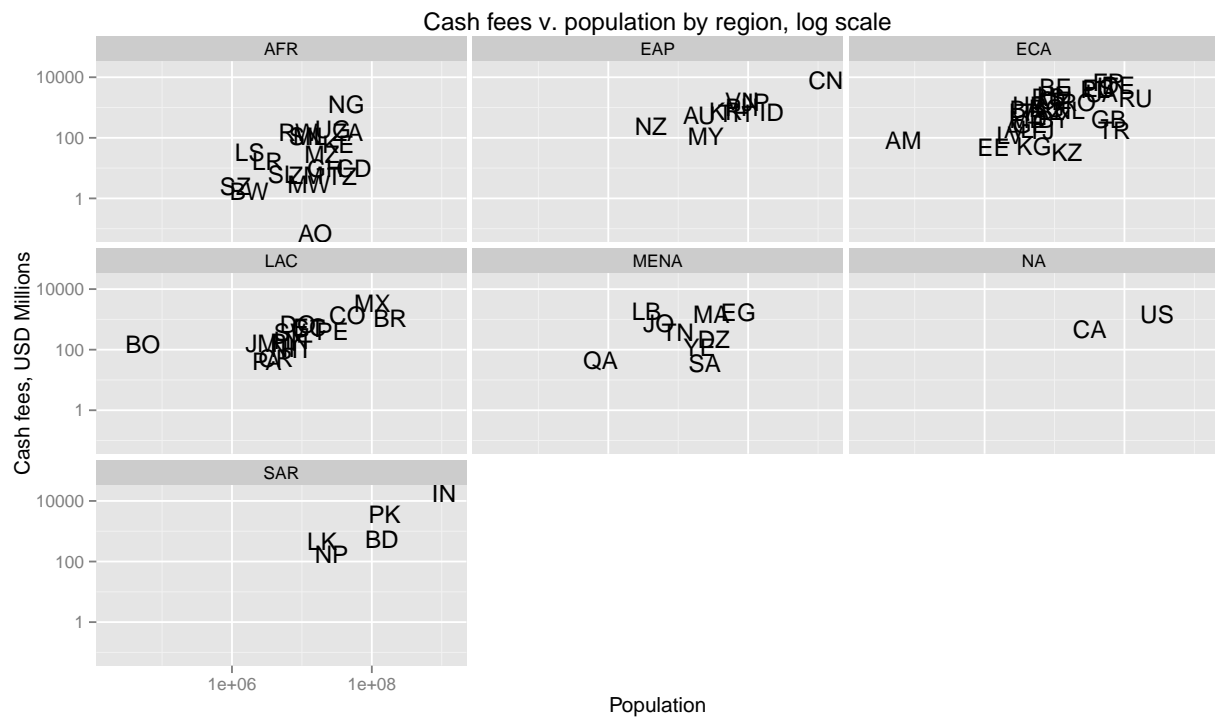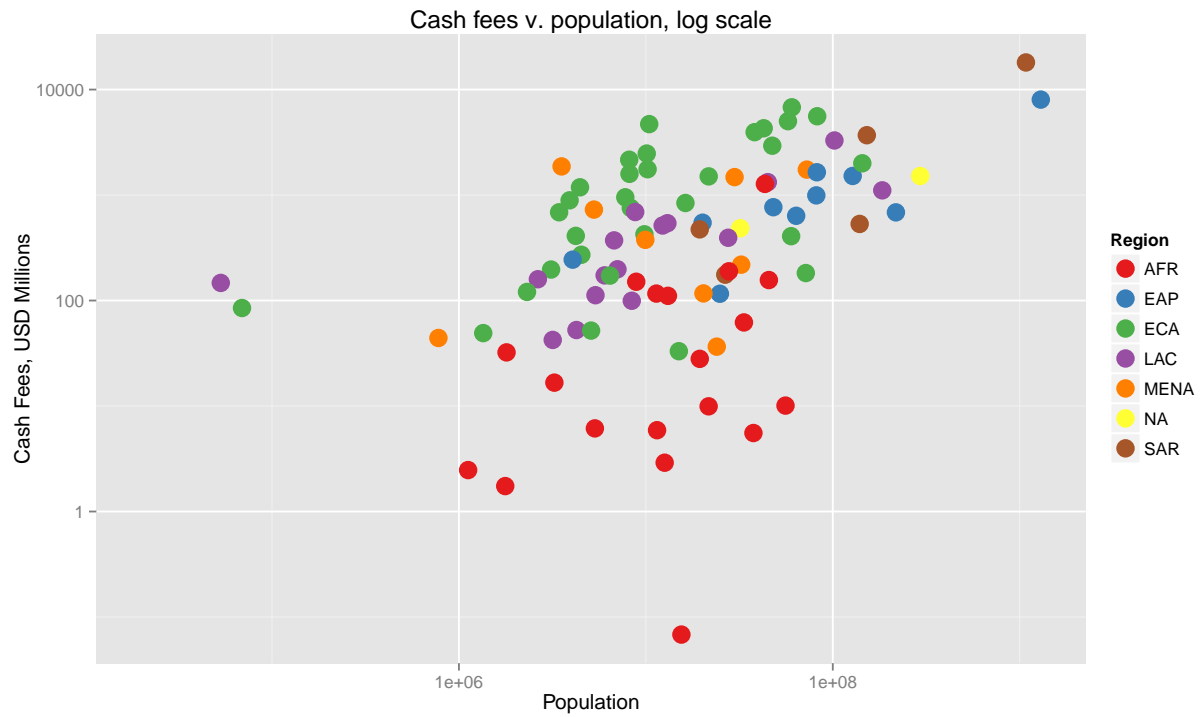
For brevity's sake, here we only include the top and bottom countries; not disaggregated by region. See Cash Fees, USD Millions—Most Expensive and Cash Fees, USD Millions—Least Expensive.

Table 9: Cash Fees, USD Millions—Most Expensive

	country	cashfees
1	India	18,066
2	China	8,030
3	France	6,789
4	Germany	5,584
5	Italy	5,018
6	Belgium	4,703
7	Spain	4,297
8	Poland	3,945
9	Pakistan	3,691
10	Mexico	3,292
11	Ukraine	2,936
12	Hungary	2,474
13	Serbia	2,162
14	Russian Federation	2,000
15	Lebanon	1,868
16	Czech Republic	1,757
17	Egypt, Arab Rep.	1,743
18	Vietnam	1,645
19	Austria	1,588
20	Japan	1,517

Table 10: Cash Fees, USD Millions—Least Expensive

	country	cashfees
1	Angola	0
2	Botswana	2
3	Swaziland	2
4	Malawi	3
5	Tanzania	6
6	Zambia	6
7	Sierra Leone	6
8	Ghana	10
9	Congo, Dem. Rep.	10
10	Liberia	17
11	Mozambique	28
12	Lesotho	32
13	Kazakhstan	33
14	Saudi Arabia	37
15	Panama	42
16	Qatar	44
17	Estonia	49
18	Kyrgyz Republic	52
19	Costa Rica	53
20	Kenya	62

Findings: Time spent

Data sources

World Development Indicators (WDI) is the World Bank's flagship study of human devleopment. It includes national income and output, population, price levels, foreign exchange rates, infrastructure, and many other demographic variables.

Rural Access Index (RAI) describes the proportion of the rural population with access to roads. It is published by the World Bank occasionally.

Global Findex (WBGF) describes financial access with dozens of indicators related to account ownership, saving behavior, payment behavior. The survey is new; but is intended to be released regularly (perhaps every 2-3 years). Stratification by age, sex, urbanicity, and income quintile faciliates comparisons both within and between countries.

Remittance Prices Worldwide (RPW) and the Bilateral Remittance Matrix (BRM) are World Bank research projects that give insight into money transfer markets. RPW estimates the cost of specific transfer amounts in a variety of corridors (origin and destination countries). BRM estimates the total value of annual remittances between pairs of countries in the dataset.

The Centre for Time Use Research (CTUR) at Oxford University publishes a Multnational Time Use Survey (MTUS) that benchmarks individuals' average time spent traveling for a variety of purposes around the world.

Crucially, the Institute for Business in the Global Context's market research study, Consumer Cash Habits (CCH), enables us to calibrate the rates at which populations incur costs for access to cash. We can estimate the share of the population that incur specific costs and the levels of those costs in the aggregate, for countries where we have primary data.

Coverage

Several of the quantities in the dataset are estimated only by proxy. This dataset represents a rigorous and consistent methodology applied to extremely patchy underlying sources. As of December 4, a few large countries lack sufficient data to report consumer cash costs under this methodology: notably Australia, Canada, and Switzerland. The goal is to use widely accepted statistical models to generate plausible estimates for these countries. Virtually none of the quantities estimated in this dataset are directly observed; so constructing comparable data by proxy should neither enhance nor compromise the validity of the findings. Addressing missing data in international comparisons is considered beneficial and appropriate.

Bibliography

- Bilateral Remittance Matrix. (Dataset.) World Bank. 2012.

- Mazzotta, Benjamin D. and Bhaskar Chakravorti. 2014. *The Cost of Cash in Mexico.* Institute for Business in the Global Context, The Fletcher School, Tufts University.

- Multinational Time Use Study, Versions World 5.5.3, 5.80 and 6.0 (released October 2012). Created by Jonathan Gershuny and Kimberly Fisher, with Evrim Altintas, Alyssa Borkosky, Anita Bortnik, Donna Dosman, Cara Fedick, Tyler Frederick, Anne H. Gauthier, Sally Jones, Jiweon Jun, Aaron Lai, Qianhan Lin, Tingting Lu, Fiona Lui, Leslie MacRae, Berenice Monna, José Ignacio Giménez Nadal, Monica Pauls, Cori Pawlak, Andrew Shipley, Cecilia Tinonin, Nuno Torres, Charlemaigne Victorino, and Oiching Yeung. Centre for Time Use Research, University of Oxford, United Kingdom.

- Ratha, Dilip, and William Shaw. 2007. South-South migration and remittances. No. 102. World Bank Publications.

- Remittance Prices Worldwide. (Dataset.) World Bank. 2014.

- Roberts, Peter, Shyam Kc, and Cordula Rastogi. 2006. "Rural access index: a key development indicator." Transport Papers 36006. The World Bank Group.

- Rural Access Index. (Dataset.) World Bank. 2010.

- World Bank. 2009. Global Remittances Working Group. Remittance Price Comparison Databases: Official Requirements.

Software

- Allaire, JJ, Jonathan McPherson, Yihui Xie, Hadley Wickham, Joe Cheng, and Jeff Allen. 2014. rmarkdown: Dynamic Documents for R. R package version 0.3.3.

- Arel-Bundock, Vincent. 2014. countrycode: Convert country names and country codes. R package version 0.17.

- Arel-Bundock, Vincent. 2013. WDI: World Development Indicators. R package version 2.4.

- Dowle Dowle, T Short, S Lianoglou, A Srinivasan with contributions from R Saporta, E Antonyan. 2014. data.table: Extension of data.frame. R package version 1.9.4.

- Hlavac, Marek. 2014. stargazer: LaTeX/HTML code and ASCII text for well-formatted regression and summary statistics tables. R package version 5.1.

- Wickham, Hadley and Winston Chang. 2014. ggplot2: An implementation of the Grammar of Graphics. R package version 1.0.

R Session Info

- R version 3.1.2 (2014-10-31), `x86_64-w64-mingw32`

- Locale: `LC_COLLATE=English_United States.1252`, `LC_CTYPE=English_United States.1252`, `LC_MONETARY=English_United States.1252`, `LC_NUMERIC=C`, `LC_TIME=English_United States.1252`

- Base packages: base, datasets, graphics, grDevices, methods, stats, utils

- Other packages: data.table 1.9.4, ggplot2 1.0.0, stargazer 5.1

- Loaded via a namespace (and not attached): chron 2.3-45, colorspace 1.2-4, digest 0.6.4, evaluate 0.5.5, formatR 1.0, grid 3.1.2, gtable 0.1.2, htmltools 0.2.6, knitr 1.8, labeling 0.3, MASS 7.3-35, munsell 0.4.2, plyr 1.8.1, proto 0.3-10, RColorBrewer 1.0-5, Rcpp 0.11.3, reshape2 1.4, rmarkdown 0.3.11, scales 0.2.4, stringr 0.6.2, tools 3.1.2, yaml 2.1.13