Cash and conflict:
Large-scale experimental evidence from Niger

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Premand, Patrick, and Dominic Rohner. 2024. “Cash and Conflict: Large-Scale Experimental Evidence from Niger.” *American Economic Review: Insights*, 6 (1): 137–53.

DOI: 10.1257/aeri.20230069

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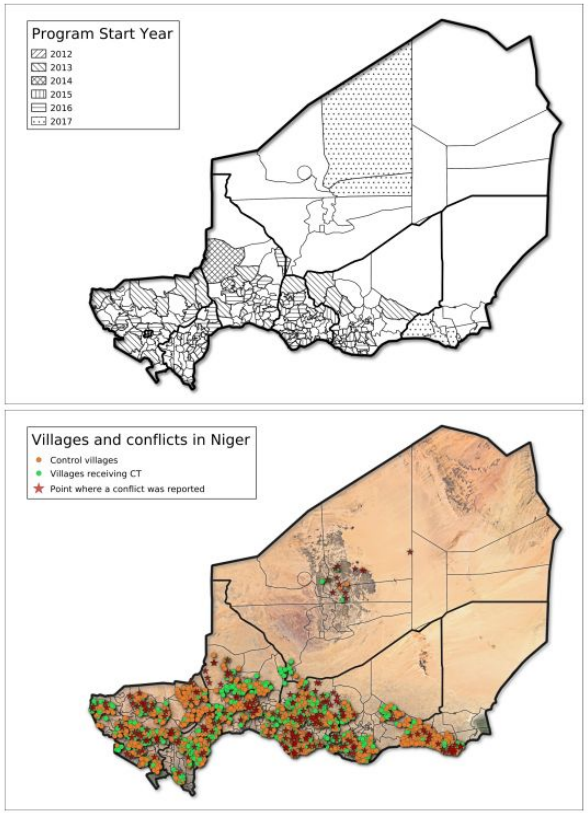
1．論文の概要

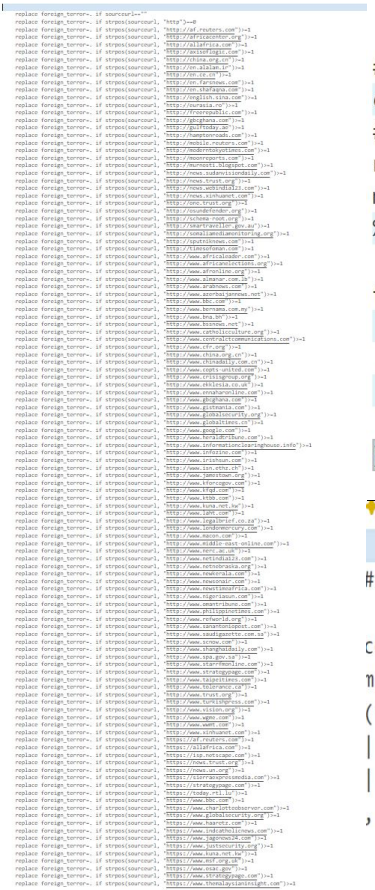
- **リサーチクエスチョン**
  - 現金給付をもらうと襲撃される確率は上がるのか
- **データ**
  - 現金給付：The Niger Government-Led Unconditional Cash Transfer Program (Niger National Institute of Statistics, Niger Safety Nets Unit)
  - 紛争データ：GDELT dataset
- **識別戦略**
  - 固定効果
    - $Y_{it} = bT_{it} + S_i + w_t + u_{it}$
  - RCT
    - $Y_{it} = bT_{it} + S_i \times w_t + u_{it}$
      - 固定効果の式にコミューンと年の交互作用を追加

Figure A1: Location of the Niger Cash Transfer Program and Conflict Events



Source: GDELT data set, Niger cash transfer program administrative data, and national locality registry.

2－1．クリーニングの工夫



```
# 条件を含むテキストファイルの読み込み
conditions <- readLines("C:/Users/Owner/Desktop/Premand2024_1/url.txt")    "Premand": Unknown word.
# 条件をRコードに変換
r_code <- " conflict_merge_village_id<- conflict_merge_village_id %>%\n
mutate(foreign_terror = ifelse(sourceurl == \"\", NA, foreign_terror))
%>%\n  mutate(foreign_terror = ifelse(grepl(\"http\", sourceurl) == FALSE, NA, foreign_terror))"    "grepl": Unknown word.

for (condition in conditions) {
  if (grepl("strpos", condition)) {    "grepl": Unknown word.
    url <- sub(".*strpos\\(sourceurl, \"(.*)\"\\).*", "\\1", condition)
    r_code <- paste0(r_code, " %>%\n  mutate(foreign_terror = ifelse(grepl(\"", url, "\", sourceurl), NA, foreign_terror))")
  }
}
```

```
#stata Analysis_Datasets.do ファイルの105行目~106行目までをRコードに置換する

conflict_merge_terror <- conflict_merge_village_id %>%
mutate(foreign_terror = ifelse(grepl
("boko| haram | terror | qaeda | jihad | qaida | islamic-state | isgs | gsim | isis | mujao
| extremist | suicide-bomb | militant | kidnap | islamist | abduct | sharia | suicide-attack | daesh | raid | training-camp
| hijack | radical | execut | insurg | jnim | jamaat | iswa | mourabitoun | ansar-dine | explos | massacr"
, sourceurl, ignore.case = TRUE),1,foreign_terror))
```

２－１．クリーニングの工夫

- コードを文字列に置換するところで**正規表現**を用いる
- **pacman**の利用
  - インストールされていないパッケージがある場合、インストールしてくれる
- **dplyr::select()**
  - select関数が複数のパッケージに重複して存在するため、パッケージを指定することが重要
- **dplyr::inner_join()**
  - stataのmerge形式を理解して、Rに落とし込む
- **繰り返し表現**を避ける → **ベクトル操作**を心がける
- inner_joinした後の**列名を確認**する
  - 同じ列名が存在する行列を結合すると、year.xやyear.yとして表示されるため、その後のコードでどちらを利用するかを確認する（もしくはrename）

2－2．コーディングの工夫

- **stataコードを解釈**（左：Rのコード；右：stataのコード）
  - →Rコードで1から行列を作成

```r
# 行列作成
Event_l_2 <- c(1,2,3,4)
Event_b_2 <- c(coef(ten_km_radius))
Event_se_2 <- c(sqrt(diag(vcov(ten_km_radius))))
```

```
capture matrix drop Event_l
capture matrix drop Event_b
capture matrix drop Event_se

forvalues i=1/4{
    mat Event_l = [ nullmat(Event_l) \ `i' ]
    mat Event_b = [ nullmat(Event_b) \ _b[CT_`i'y] ]
    mat Event_se = [ nullmat(Event_se) \ _se[CT_`i'y] ]
}
```

- **lm_robust→fixestのfeols関数**
  - 交互作用をコントロールするため

```r
# estimatr::lm_robust → fixest::feolsを使用
R_nbfeatures18_250_rct <- fixest::feols(nbfeatures18_250 ~  villagehadCT2y | communeid * year, data = village_250)
summary(R_nbfeatures18_250_rct)
```

- stargazerはfixestパッケージに対応しておらず、表を出力できない→**Tex出力**

```r
#Tex出力
tex_code <- gsub(
  "Dependent Variables: & \\\\multicolumn\\{2\\}\\{c\\}\\{Severe conflict involving terrorism and foreign actors\\}&
   \\\\multicolumn\\{2\\}\\{c\\}\\{Severe conflict involving terrorism and domestic actors\\}\\\\",
  "Dependent Variables: & \\\\multicolumn\\{2\\}\\{c\\}\\{\\\\makecell\\{Severe conflict involving terrorism \\\\\\\\ and foreign actors
   \\}\\} & \\\\multicolumn\\{2\\}\\{c\\}\\{\\\\makecell\\{Severe conflict involving terrorism \\\\\\\\ and domestic actors
   \\}\\}\\\\\\\\\\n & TWFE & RCT & TWFE & RCT\\\\",
  tex_code
)
```

3－1．分析結果（Table1）

現金給付を受けると、襲撃される（襲撃地のNearest neighborになる）確率が**0.63ポイント**上昇。（平均が0.458%）

「襲撃される」ことを「襲撃地の10km radius以内」と定義しても結果は頑健。

TABLE 1—EFFECT OF CASH TRANSFERS ON SEVERE CONFLICT EVENTS

	TWFE nearest neighbor (1)	RCT nearest neighbor (2)	TWFE 10 km radius (3)	RCT 10 km radius (4)
Treated (last two years)	0.00511	0.00631	0.0385	0.0168
	(0.00214)	(0.00255)	(0.0143)	(0.00883)
Commune and year fixed effects	Yes	No	Yes	No
Commune × year fixed effects	No	Yes	No	Yes
Observations	61,198	61,198	61,198	61,198
R^2	0.019	0.045	0.108	0.278

Notes: Standard errors are in parentheses, clustered at the commune level. The outcome variable is a dummy that equals 1 if there has been a severe conflict event nearest to the village or within a 10 km radius of the village. Results in columns 1 and 3 are based on the specification in equation (1), while columns 2 and 4 are based on equation (2).

Table 1: EFFECT OF CASH TRANSFERS ON SEVERE CONFLICT EVENTS

Dependent Variables:	nearest neighbor		10km radius	
Model:	TWFE (1)	RCT (2)	TWFE (3)	RCT (4)
Variables				
Treated (Last 2 years)	0.00511**	0.00631**	0.03848***	0.01675*
	(0.00214)	(0.00255)	(0.01427)	(0.00883)
Fixed-effects				
year FE	Yes	Yes	Yes	Yes
commune FE	Yes	Yes	Yes	Yes
commune × year FE	No	Yes	No	Yes
Fit statistics				
Observations	61,198	61,198	61,198	61,198
R^2	0.01855	0.04481	0.10814	0.27812

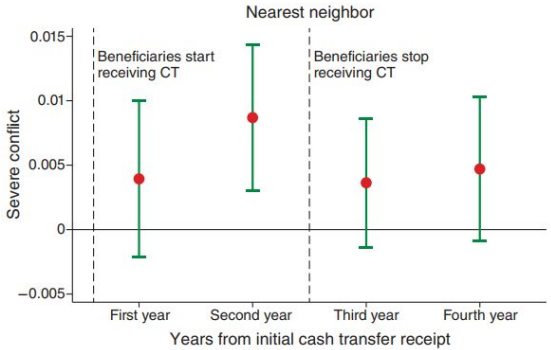
*Signif. Codes: ***: 0.01, **: 0.05, *: 0.1*

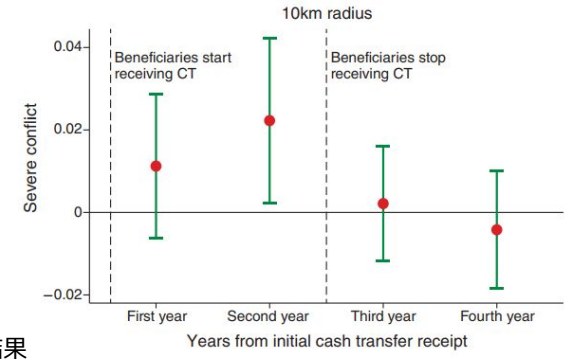
左：元論文。右：再現結果

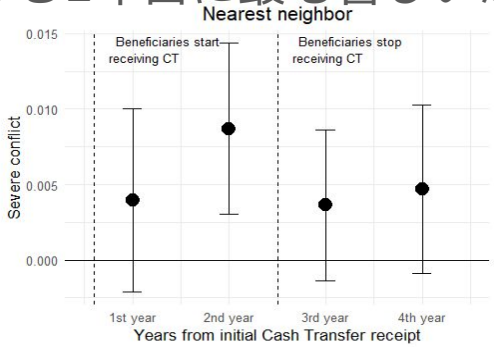
3－2．分析結果（Figure1）

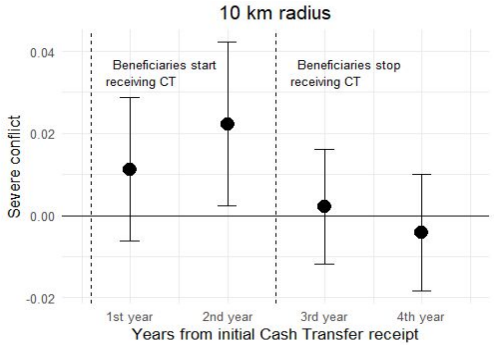
現金給付のプログラム（トリートメント）は2年間。

現金給付による襲撃増加の影響は、給付を受ける2年目に最も著しいが、3年目以降は**有意性が消える。**









左：元論文。右：再現結果

3－3．分析結果（Table2）

TABLE 2—EFFECT OF CASH TRANSFERS ON DIFFERENT TYPES OF SEVERE CONFLICT EVENTS

	TWFE severe conflict involving terrorism (1)	RCT severe conflict involving terrorism (2)	TWFE severe conflict not involving terrorism (3)	RCT severe conflict not involving terrorism (4)
Treated (last two years)	0.00347	0.00414	0.00165	0.00218
	(0.00163)	(0.00175)	(0.00183)	(0.00185)
Commune and year fixed effects	Yes	No	Yes	No
Commune × year fixed effects	No	Yes	No	Yes
Observations	61,198	61,198	61,198	61,198
R^2	0.015	0.049	0.011	0.041
	TWFE severe conflict involving terrorism and foreign actors (5)	RCT severe conflict involving terrorism and foreign actors (6)	TWFE severe conflict involving terrorism and domestic actors (7)	RCT severe conflict involving terrorism and domestic actors (8)
Treated (last two years)	0.00283	0.00344	0.000637	0.000701
	(0.00144)	(0.00160)	(0.000603)	(0.000622)
Commune and year fixed effects	Yes	No	Yes	No
Commune × year fixed effects	No	Yes	No	Yes
Observations	61,198	61,198	61,198	61,198
R^2	0.015	0.052	0.004	0.026

Notes: Standard errors are in parentheses, clustered at the commune level. The outcome variable is a dummy that equals 1 if there has been a severe conflict event nearest to the village. Results in uneven columns follow the specification in equation (1), while even columns follow equation (2). The dependent variable in columns 5 and 6 gets a value of 1 when a village has experienced both a terrorist attack and a conflict involving a foreign actor, while in columns 7 and 8 it gets a value of 1 when a village has experienced both a terrorist attack and a conflict involving a domestic actor.

表 1　EFFECT OF CASH TRANSFERS ON SEVERE CONFLICT EVENTS

Dependent Variables:	Severe conflict involving terrorism		Severe conflict not involving terrorism	
	TWFE	RCT	TWFE	RCT
Model:	(1)	(2)	(3)	(4)
Variables				
Treated (Last 2 years)	0.00347**	0.00414**	0.00165	0.00218
	(0.00163)	(0.00175)	(0.00183)	(0.00185)
Fixed-effects				
year FE	Yes	Yes	Yes	Yes
commune FE	Yes	Yes	Yes	Yes
commune × year FE	No	Yes	No	Yes
Fit statistics				
Observations	61,198	61,198	61,198	61,198
R^2	0.01513	0.04922	0.01081	0.04127

*Signif. Codes: ***: 0.01, **: 0.05, *: 0.1*

表 2　EFFECT OF CASH TRANSFERS ON SEVERE CONFLICT EVENTS

Dependent Variables:	Severe conflict involving terrorism and foreign actors		Severe conflict involving terrorism and domestic actors	
	TWFE	RCT	TWFE	RCT
Model:	(1)	(2)	(3)	(4)
Variables				
Treated (Last 2 years)	0.00283*	0.00344**	0.00064	0.00070
	(0.00144)	(0.00160)	(0.00060)	(0.00062)
Fixed-effects				
year FE	Yes	Yes	Yes	Yes
commune FE	Yes	Yes	Yes	Yes
commune × year FE	No	Yes	No	Yes
Fit statistics				
Observations	61,198	61,198	61,198	61,198
R^2	0.01522	0.05243	0.00382	0.02607

*Signif. Codes: ***: 0.01, **: 0.05, *: 0.1*

左：元論文。右：再現結果

3－3．分析結果（Table3）

TABLE 3—EFFECT OF CASH TRANSFERS ON SEVERE CONFLICT EVENTS BY TIME PERIOD

	2012–2014 TWFE nearest neighbor (1)	2012–2014 RCT nearest neighbor (2)	2015–2018 TWFE nearest neighbor (3)	2015–2018 RCT nearest neighbor (4)
Panel A. Nearest neighbor				
treated (last two years)	0.00104	0.00249	0.0106	0.0105
	(0.00270)	(0.00300)	(0.00387)	(0.00426)
Commune and year fixed effects	Yes	No	Yes	No
Commune × year fixed effects	No	Yes	No	Yes
Observations	27,438	27,438	33,760	33,760
R^2	0.015	0.036	0.023	0.054
	2012–2014 TWFE 10 km radius (5)	2012–2014 RCT 10 km radius (6)	2015–2018 TWFE 10 km radius (7)	2015–2018 RCT 10 km radius (8)
Panel B. 10 km radius				
treated (last two years)	−0.00420	−0.000899	0.0566	0.0359
	(0.0154)	(0.00790)	(0.0187)	(0.0162)
Commune and year fixed effects	Yes	No	Yes	No
Commune × year fixed effects	No	Yes	No	Yes
Observations	27,438	27,438	33,760	33,760
R^2	0.097	0.295	0.123	0.266

Notes: Standard errors are in parentheses, clustered at the commune level. The outcome variable is a dummy that equals 1 if there has been a severe conflict event nearest to the village or within a 10 km radius of the village. Results in uneven columns follow the specification in equation (1), while results in even columns follow equation (2).

表 1　EFFECT OF CASH TRANSFERS ON SEVERE CONFLICT EVENTS (Nearest Neighbor)

Dependent Variable:	Nearest Neighbor			
	2012-2014TWFE	2012-2014RCT	2015-2018TWFE	2015-2018RCT
Model:	(1)	(2)	(3)	(4)
Variables				
Treated (Last 2 years)	0.00104	0.00249	0.01060***	0.01046**
	(0.00270)	(0.00300)	(0.00387)	(0.00426)
Fixed-effects				
year FE	Yes	Yes	Yes	Yes
commune FE	Yes	Yes	Yes	Yes
commune × year FE	No	Yes	No	Yes
Fit statistics				
Observations	27,438	27,438	33,760	33,760
R^2	0.01508	0.03585	0.02284	0.05380

*Signif. Codes: ***: 0.01, **: 0.05, *: 0.1*

表 2　EFFECT OF CASH TRANSFERS ON SEVERE CONFLICT EVENTS (10km Radius)

Dependent Variable:	10km Radius			
	2012-2014TWFE	2012-2014RCT	2015-2018TWFE	2015-2018RCT
Model:	(1)	(2)	(3)	(4)
Variables				
Treated (Last 2 years)	-0.00420	-0.00090	0.05664***	0.03587**
	(0.01542)	(0.00791)	(0.01867)	(0.01618)
Fixed-effects				
year FE	Yes	Yes	Yes	Yes
commune FE	Yes	Yes	Yes	Yes
commune × year FE	No	Yes	No	Yes
Fit statistics				
Observations	27,438	27,438	33,760	33,760
R^2	0.09691	0.29519	0.12303	0.26583

Clustered (commune FE) standard-errors in parentheses
*Signif. Codes: ***: 0.01, **: 0.05, *: 0.1*

左：元論文。右：再現結果

４．まとめ

- **準備段階**
  - レプリケーションパッケージを確認

- **クリーニング段階**
  - ファイルが行方不明の場合はR.history等を確認
  - パッケージ指定は大事（dplyr::）

- **格言**
  - ショートカットキーは偉大
  - 共同作業では互いの知識を集約
  - Rコードは短くて見やすく読みやすい（by stataユーザー）
  - ~~やっぱVSCとPythonっしょ！（by Pythonユーザー）~~