

# Fairness and the Willingness to Pay for Public Goods

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# Fairness

- Fairness may affect a wide range of economic outcomes such as redistribution and taxes (Esarey et al. 2012; Höchtl et al. 2012) and international climate negotiations (Kesternich et al. 2014; Lange and Vogt 2003; Vogt 2016)
- Fairness perceptions are also of major relevance for price setting (Kahneman et al. 1986)
- Consumers gain transaction utility from the perceived value of a deal (Thaler 1985)
- The only study that causally analyzes the effect of fairness on the WTP for public goods is Ajzen et al. (2000)

## In Brief

- We conduct a stated-choice experiment among 11,000 individuals to explore how fairness affects the WTP for green electricity in Germany
- Our results suggest a preference for equal contributions as removing existing exemption rules raises the stated WTP for green electricity
- Huge effects: Equalizing the contributions across the customer groups has a larger effect than quartering the amount of the own contribution
- Far-reaching implications for policy-makers in other fields

# Promotion of Renewable Energy Sources

- Promotion via a system of technology-specific feed-in tariffs (FIT) that was introduced in 2000
- Until 2016 the capacity of RES rose from 12 to 104 Gigawatt, while the share of generation was about 33%
- The promotion is financed via the so-called EEG-levy (in 2017 6,88 ct/ kWh)
- Altogether, customers had to bear EUR 24 billion in 2016

# Industry Exemptions

- Energy-intensive companies are eligible for rebates to assure international competitiveness if
  - 1 their consumption level exceeds 1 million kWh
  - 2 their electricity cost intensity exceeds a sector-specific percentage
  - 3 they implemented an energy management system
- 2,105 companies were exempted in 2016, i.e. 4% of industrial companies
- These companies consume about 40% of industrial electricity

# Our Approach

- We conducted a between-subject stated-choice experiment among 11,375 household heads using the representative household panel of *forsa*
- Participants were randomly split into three experimental groups
- Single binary question on the willingness-to-pay for increasing the share of renewable energy sources
- We vary the information on the exemptions and the payment rule

# Experimental Setting

## Framework

In Germany, the promotion of renewable energies is financed via the so-called EEG-levy. This levy has to be paid by every household for each unit of electricity consumed (kWh) and in 2015 amounts to 6.17 ct/kWh.

Since the average electricity price in 2015 is 28.8 ct/kWh, this corresponds to a share of some 21%.

# Treatment Groups

## Keep Condition

"Given that the exemptions are kept, are you willing to pay an increase in the EEG-levy by  $x$  ct/kWh to achieve the goal of increasing the share of renewable energies to 35% by 2020?"  $x \in \{1, 2, 4\}$

## Abolish Condition

"Given that the exemptions are abolished, are you willing to pay an increase in the EEG-levy by  $x$  ct/kWh to achieve the goal of increasing the share of renewable energies to 35% by 2020?"

## Uninformed Condition

"Are you willing to pay an increase in the EEG levy by  $x$  ct/kWh to achieve the goal of increasing the share of renewable energies to 35% by 2020?"



## Percentage of Respondents Willing to Pay

Levy	Keep Condition		Abolish Condition		Uninformed Condition	
	Obs.	Share	Obs.	Share	Obs.	Share
1 Cent / kWh	1,098	38.16%	1,121	73.60% (18.00**)	1,131	58.62% (9.87**)
2 Cent / kWh	1,104	29.17%	1,048	67.56% (19.29**)	1,090	49.36% (9.90**)
4 Cent / kWh	1,061	22.53%	1,069	60.90% (19.48**)	1,186	40.81% (9.44**)

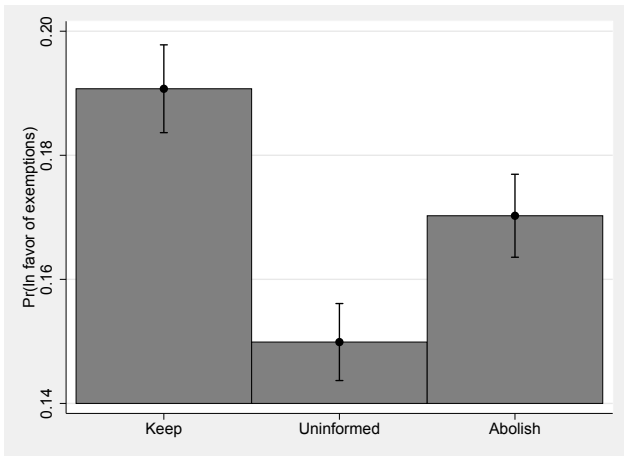
Values in parentheses give the *t*-test statistic for equality in means between the treatment conditions and the control condition. \*\* denotes statistical significance at the 1% level.

# Regression Results

	$WTP = YES$	
	Coeff.	Std. Err.
Abolish	0.373**	(0.012)
Uninformed	0.188**	(0.012)
2 ct/kWh	-0.085**	(0.012)
4 ct/kWh	-0.160**	(0.012)
Age	0.002**	(0.000)
Female	0.072**	(0.011)
East Germany	-0.077**	(0.013)
College degree	0.046**	(0.011)
ln(Income)	0.038**	(0.010)
Green party	0.182**	(0.017)
Industry share	-0.001	(0.000)
ln(Distance)	-0.012*	(0.006)
Constant	0.067	(0.092)
Observations	8,879	

Note: Standard errors are in parentheses. \*\*, \* denote statistical significance at the 1 % and 5 % level, respectively.

## Justification of the Exemptions



# Conclusion





- WTP for green electricity critically hinges on the payment rule
- Removing the existing exemption rule for the industry raises the stated WTP
- Equalizing the contributions has a larger effect than quartering the amount of the own contribution
- Learning about the existence of an unequal payment system rule decreases the WTP substantially
- Results have far-reaching implications for policy-makers in other fields

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