



FOSTERING ENERGY EFFICIENCY IN THE RETAIL SECTOR: A FIELD EXPERIMENT

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INDITEX

[ABOUT US](#)

[HOW](#)

7,475

Stores

96

Markets

49

Online Markets

171,839

Employees

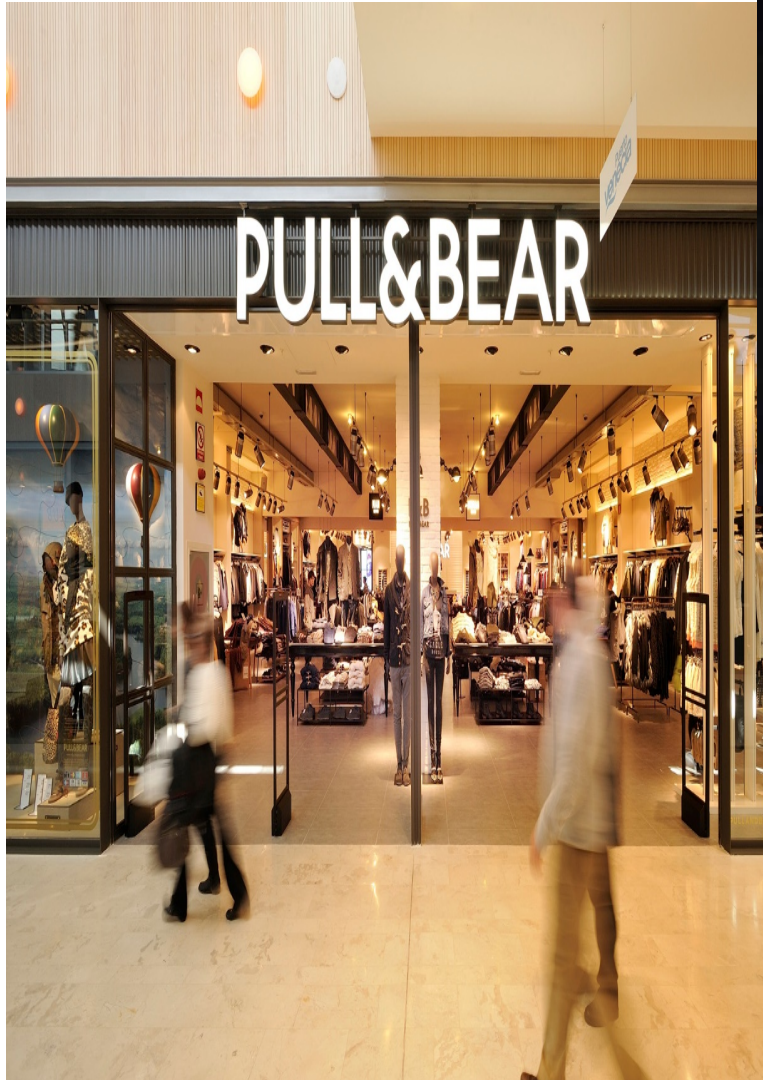
[EN](#) [ES](#)



Share price: EUR 29.44 Change: -0.03 (%-0.10)

WHO WE ARE

ZARA



INDITEX

Experiment in 3 EU countries:
Spain, Italy, Germany

International presence



Sustainability in their global strategy



- Global Strategy to reduce emissions. It belongs to the Sustainable Apparel Coalition (SAC).
- It is expected that for 2020 will reduce emissions by 15% in the production process with respect to 2012, and a 10% in stores.

“The smart store” (tienda viva)

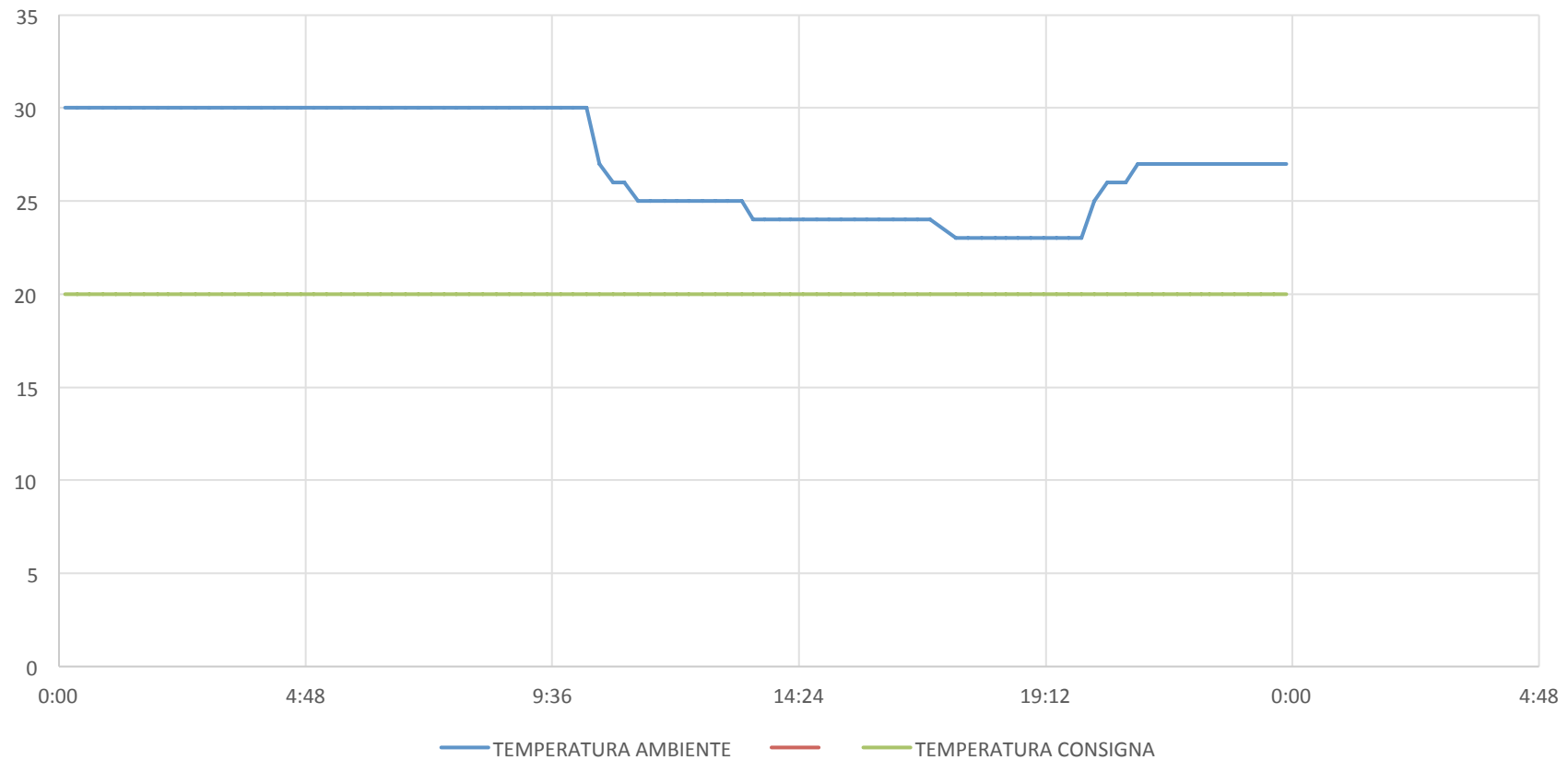
- Intensive updating and remodeling in stores
 - Eco-design
 - Light bulbs
 - Heating and cooling systems
- Sensors of movement, humidity, air temperature and air quality
- Automatized process

Heating and Coling Systems

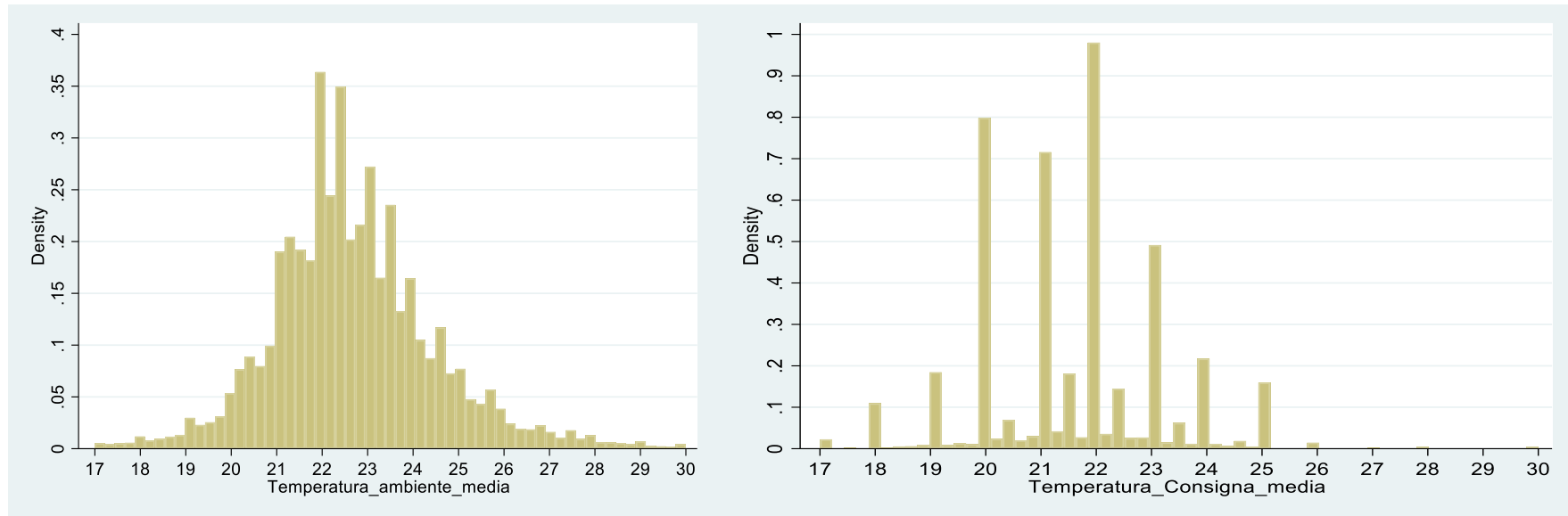
- Temperature is a key control variable
- Allow to set up a threshold temperature:
 - Threshold temperatures are established between 21-24 degree Celsius.
 - Threshold temperatures can be changed automatically by managers
 - Energy efficiency issue: Establishment of indoor temperatures closed to external temperatures.

Some descriptive results: Venice (14/06/2015)

In-store Temperature and “Objective” Temperature



Average temperatures and threshold temperatures



Alta variabilidad de temperaturas de consigna y temperatura media interna

Mean temperature per month

Month	Media	Std. Dev.
1	21.984	12.394
2	22.229	14.834
3	21.778	11.232
4	21.720	10.720
5	21.380	12.431
6	21.304	13.036
7	20.859	14.477
8	21.016	17.114
9	21.412	15.655
10	21.563	13.232
11	21.600	13.060
12	21.835	11.534

Objective

- To assess the impact of information about environmental impacts of energy consumption in the retail sector in an international fast fashion group with a field experiment
 - Experimental subjects: retail managers
- To contribute to the literature in the business sector: A wide variety of field experiments in private households but quite novel in the context of retail sector

Energy efficiency gap in the retail sector: why?

- A significant energy efficiency gap may be present in the retail sector due to:
- Information asymmetries or lack of information (Howarth et al., 2000; Schleich & Gruber, 2008, Schlomann & Schleich, 2015)
 - Old infrastructures and buildings (Eichholtz, Kok and Quigley, 2013)
 - Other reasons (lack of incentives, etc) (Timilsina et al. (2016))
- Policy evaluation of intervention in Canada: Adams et al. (2011)



Data collection: Three brands in
three countries: Zara, Pull & Bear,
Oysho

Three countries: Spain, Germany
and Italy

- Different demand elasticities
- Different socio-cultural elements
and shopping habits

The experiment (RCT)

- Letter sent to store managers on February 3rd
- Information displayed during a week as “important message” in inbox
- Letter signed by the General Sustainability Director of the Inditex Group
- Content of this letter discussed by store managers and employees

The treatment: a letter

Dear manager,

Since some months ago we have been updating our stores with systems of measurement and management of energy in order to optimize energy consumption related to heating and cooling.

You should know that energy saving is crucial within the environmental objectives of our group INDITEX.

*In particular, the cost of **deviating 1 degree Celsius above or below the optimal inside temperatura, increases emissions in 4% caused due to a larger usage of electricity.***

*Please be aware that in order to contribute to **energy savings with the usage of the systems established, you can avoid the selection of an inside temperatura far away from the external temperature.***

Thank you for your consideration!

- *Sincerely,
Antonio Álvarez*
- *Director, Departament of Sustainability*

Message notification

The screenshot displays the TGT (Terminal de Gestión de Tienda) interface. At the top, the header shows 'tgt - Terminal de Gestión de Tienda - 500 - Señora - Encargado/a' and 'Correo Señora: 3635 Caballero: 5258 Nivel: 1'. Below the header, there's a 'Avisos' section with a dropdown menu. The main content area is divided into two tabs: 'Mensajes' and 'Contactos'. The 'Mensajes' tab is active, showing a list of messages. A red arrow points from the 'Mensajes' tab in the top navigation bar to the 'Mensajes' tab in the main content area. Another red arrow points from the 'Mensajes' tab in the main content area to the 'Mensajes' tab in the bottom navigation bar. The bottom navigation bar includes 'Sección', 'HUMANOS', 'DOCUMENTACIÓN', 'DISTRIBUCIÓN', and 'Perfil'.

Top Navigation Bar:

- tgt - Terminal de Gestión de Tienda - 500 - Señora - Encargado/a
- Correo Señora: 3635 Caballero: 5258 Nivel: 1

Left Sidebar:

- Avisos
- 02 mar
- Coordinación: Fotos
- Aviso TGT
- Hoy
- RSC_INFORMAZIONE IMPORTANTE
- RSC_WICHTIGE INFORMATIONEN

Main Content Area:

Mensajes | Contactos

1 - 11 de 4132

Check	Asunto	Enviado	Fecha	Tamaño
<input type="checkbox"/>	RSC_WICHTIGE INFORMATIONEN	Sustainability	mié 3/2 18:45	94
<input type="checkbox"/>	RSC_INFORMAZIONE IMPORTANTE	Sustainability	mié 3/2 18:44	94

Message Details:

Enviado: Sustainability <correo@app.inditex.com>

A: -

CC: -

Fecha: Wed Feb 03 18:45:14 CET 2016

Asunto: RSC_WICHTIGE INFORMATIONEN

Ich schreibe Ihnen, um Sie darüber zu informieren, dass wir seit einigen Monaten an der elektrischen Verteilerschalttafel in Ihrer Filiale ein neuartiges System zur automatischen Kontrolle der Klimaanlage installiert haben. Dieses System hat das Ziel, den Komfort in Ihrem Laden zu steigern und den Energieverbrauch in Bezug auf die Klimatisierung zu optimieren.

Wie Sie ja wissen, ist die Energieeinsparung in Verbindung mit einer guten Steuerung der Klimatisierung fundamentaler Bestandteil der Umweltpolitik von Inditex. Zum Beispiel stellen die durch eine Abweichung um einen Temperaturgrad von der optimalen Temperatur in Ihrem Laden verursachten Kosten ungefähr eine Erhöhung der Stromrechnung und der CO2-Emissionswerte um 4% dar.

Denken Sie daran, dass durch einen vernünftigen Einsatz des installierten Steuerungssystems ein Beitrag zur Energieeinsparung und zur Verbesserung der Umwelt möglich ist, indem Sie bei der Temperaturwahl für die Ladendüne vermeiden, einen von der empfohlenen Ladentemperatur stark abweichenden Temperaturwert zu wählen.

Antonio Álvarez
Head of Environmental Sustainability
INDITEX

Message notification

The screenshot displays the TGT (Terminal de Gestión de Tienda) interface. The top header shows the user's name 'Señora' and employee number '5251'. The left sidebar contains navigation options like 'Avisos', 'Incidentes Operativos', and 'Sección'. The main content area shows a calendar for February 2016 and a list of messages. A red arrow points from a message notification in the sidebar to a 'Consultar Mensaje' (View Message) window, which then points to a detailed message view window.

Message Notification Details:

- Message Title:** RSC_INFORMAZIONE IMPORTANTE
- Message Content:** VEDI ALLEGATO
- Attachment:** Fichero adjunto # 222448963
- Message Body:**

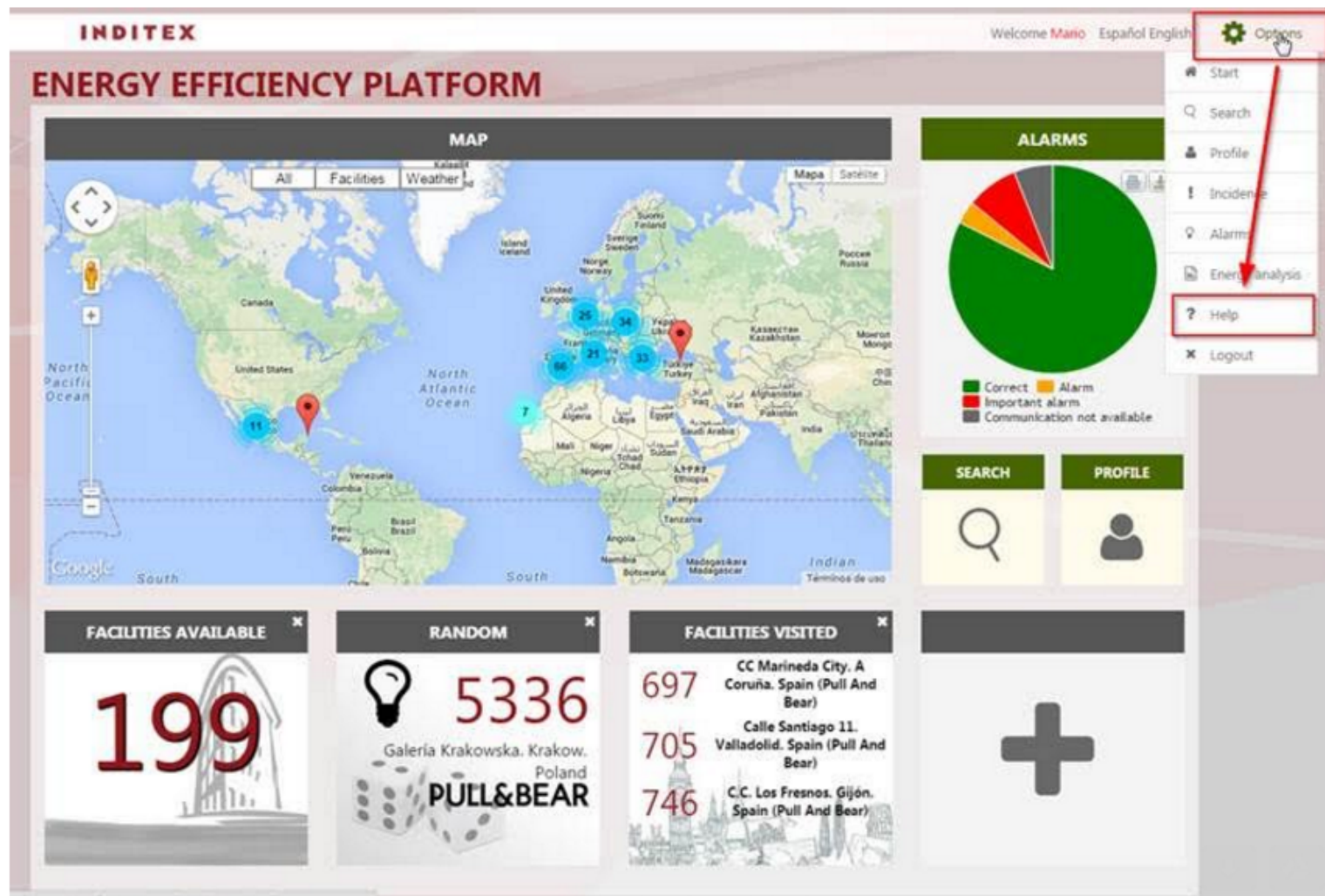
Mi metto in contatto con te per informarti che, da alcuni mesi, abbiamo installato nel quadro elettrico del tuo negozio un nuovo sistema di controllo automatico dell'aria condizionata con lo scopo di aggiungere confort al tuo negozio e ottimizzare il consumo energetico collegato alla climatizzazione. Come già sai, il risparmio energetico associato alla buona gestione della climatizzazione è fondamentale all'interno della politica ambientale di Inditex. Per esempio, il consumo generato da un cambio di un grado nella temperatura ideale del tuo negozio equivale, approssimativamente, ad un aumento del 4% nella bolletta della luce e nelle emissioni del CO2.

Tenete in conto che è possibile contribuire al risparmio energetico ed al miglioramento ambientale con il buon uso del sistema di gestione installato, evitando una selezione della temperatura, in negozio, lontana da quella raccomandata.
- Sender:** Antonio Álvarez, Head of Environmental Sustainability, INDITEX

The experiment

- Selecting treatment and control groups:
- They are all at street level and have a history of 1 year with the Eco-tool platform.
- We selected in Spain 20 Oysho, 20 Pull & Bear y 65 Zara stores, while an identical number are being used as control stores.

15' data frequency



Dataset Variables

- Energy consumption
- About the store:
 - Target temperature
 - Indoor temperature
 - Size of store (m2 and m3)
 - External temperature
 - Flagship store or not
 - Location
- About the manager:
 - Male/Female
 - Number of years of experience with the firm

Hypotheses

•Ho: Average engagement of managements in temperature control is identical between treated and not treated.

•Ho: Average differences between indoor and external temperatures are identical between treated and not treated stores.

Ho: Average engagement of managements is identical

Two-sample t test with equal variances

Group	Obs	Mean	Std. Err.	Std. Dev.	[95% Conf. Interval]	
0	50,060	1.075989	.0129049	2.887355	1.050695	1.101283
1	39,472	1.556496	.022365	4.443372	1.51266	1.600332
combined	89,532	1.28783	.0122441	3.663668	1.263832	1.311828
diff		-.4805069	.0246091		-.5287404	-.4322734

diff = mean(0) - mean(1) t = **-19.5256**
 Ho: diff = 0 degrees of freedom = **89530**

Ha: diff < 0 Ha: diff != 0 Ha: diff > 0
 Pr(T < t) = **0.0000** Pr(|T| > |t|) = **0.0000** Pr(T > t) = **1.0000**

..

Treatment effects (preliminary regression)

```
. regress absdiff3 carta Ms2
```

Source	SS	df	MS	Number of obs	=	14,017
Model	70650.272	2	35325.136	F(2, 14014)	=	1369.02
Residual	361606.569	14,014	25.8032374	Prob > F	=	0.0000
				R-squared	=	0.1634
				Adj R-squared	=	0.1633
Total	432256.841	14,016	30.8402427	Root MSE	=	5.0797

absdiff3	Coef.	Std. Err.	t	P> t	[95% Conf. Interval]	
carta	-1.151936	.0916609	-12.57	0.000	-1.331604	-.9722683
Ms2	.0039992	.0000769	52.03	0.000	.0038485	.0041499
_cons	3.213557	.0887925	36.19	0.000	3.039512	3.387603

Conclusions

- Significant steps towards emission reductions may be achieved with small behavioral changes
- Information may encourage reductions in electricity and emissions
- Small in-store reductions may generate large savings when scaled up
- Field experiments may help in order to reveal the true nature of inefficiency gaps in energy consumption in the retail sector.

ZARA

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THANK YOU!