



The impact of the circular economy on the pro-ecological behavior of consumers in Russia



Inna Lazanyuk,
Svetlana Ratner,
Konstantin Gomonov,
Svetlana Revinova and
Swati Modi (India)

The aim of our study was to assess the readiness of the Russian population to a change in the direction of greater environmental practices daily consumption of energy, water, waste management, the choice of mode of transportation around the city and choice of products when shopping.



Circular Economy Principles

- Reuse
- Re-production
- Processing
- Recycling



Factors influencing pro-ecological behavior

- Education
- Income
- Age
- Economic activity
- Place of residence
- Engagement in environmental activities



Research methodology

Questionnaire (N=623, 16+). :

- Part 1 - Informational
- Part 2 - General level of environmental awareness
- Part 3 - Assessing the frequency of practice

Group of PEBs	Description of PEBs
Energy saving	P1 Avoiding overloading the refrigerator
	P2 Reducing opening and closing the door of the refrigerator
	P3 Using a lower setting in the refrigerator compartment
	P4 Putting hot food into the refrigerator after cooling
	P5 Using stairs instead of elevators
	P6 Cleaning filter of the air conditioner or cleaner
	P7 Adjusting the temperature of the air conditioner
	P8 Turning off lights in empty rooms
	P9 Unplugging appliances not in use
	P10 Turning off the TV when people are not watching
	P11 Using energy-saving mode or turning off when not in use
	P12 Doing ironing collectively
	P13 Setting a lower shower temperature
	P14 Adjusting the temperature of the radiator
	P29 Avoiding over-volume cooking
	P30 Water heating of the required volume in an electric kettle
	P31 Covering the pan with a lid when cooking or boiling water
P40 Buying energy efficient appliances	
P54 Using LED lamp instead of a fluorescent lamp	
P56 Flame adjustment for cooking	
P57 Use of residual heat when cooking on an electric stove	

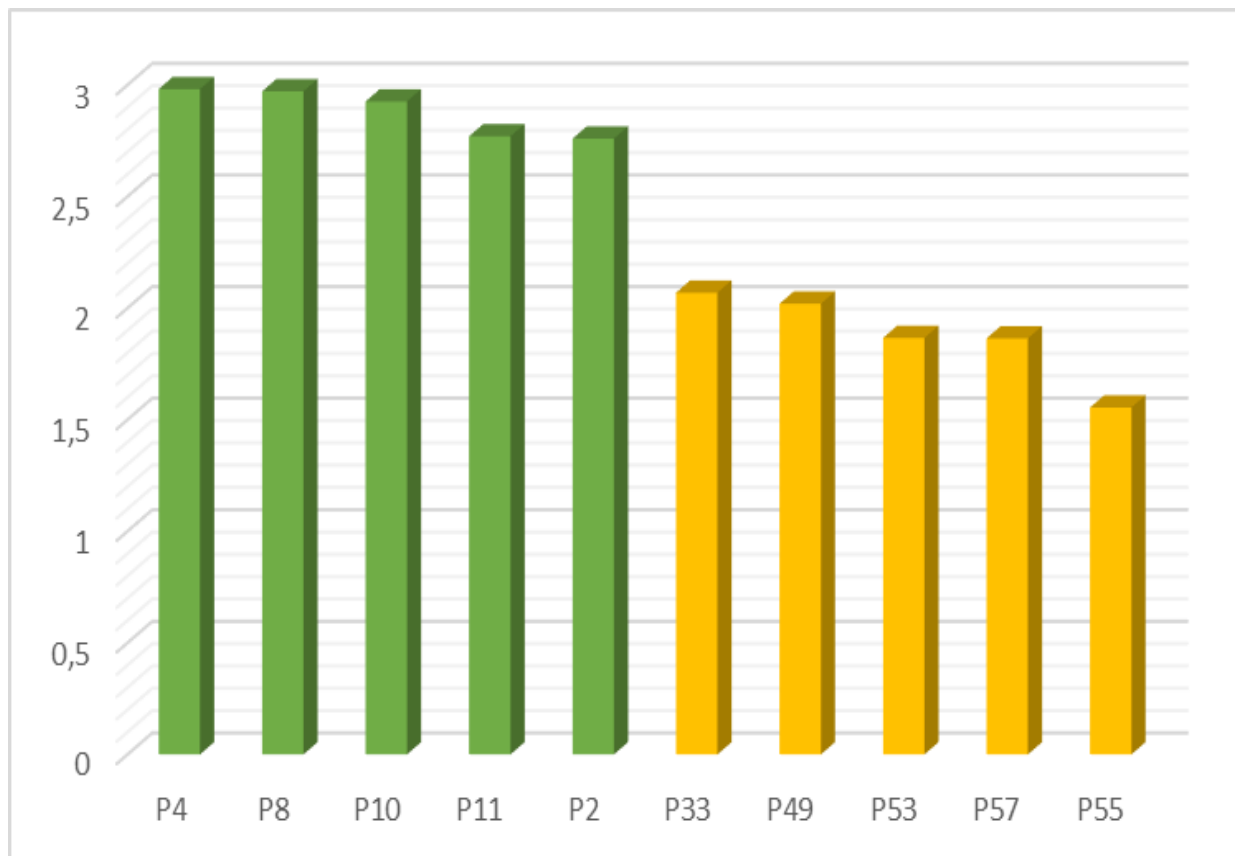
Research methodology

Water saving	P15 Using toothbrush cup P16 Turning off the water when washing face or brushing teeth P17 Taking short showers P18 Washing dishes using jugged water P19 Reducing detergent P20 Cutting down on the frequency P55 Using dishwasher	Shopping	P38 Buying organic products P39 Buying recycled goods P41 Buying ecomark-appliances P42 Choosing goods with their CO2 emission in mind (carbon footprint) P43 Not buying unnecessary products P44 Trying to repair things before buying replacements P45 Using refill goods
Waste management	P21 Avoiding throwing away waste P22 Following garbage rules P23 Garbage separation P24 Giving used clothes to other people P25 Collection and delivery of glass P26 Waste paper collection and delivery to appropriate collection points P27 Collection and delivery of used batteries, light bulbs to appropriate collection points P32 Composting kitchen garbage P33 Throwing away kitchen garbage P46 Using both sides of the paper	Mobility	P47 Using bicycle or walking P48 Using public transportation P49 Joining the one day without car program P50 Doing car checks regularly P51 Avoiding overloading the car P52 Reducing idling of the car P53 Maintaining air pressure of the tire
No plastic	P28 Using own cup P34 Using receptacle instead of plastic P35 Using own bag when going shopping P36 Reducing use of disposable products P37 Not buying over-packaged products		

Research questions and how to test them

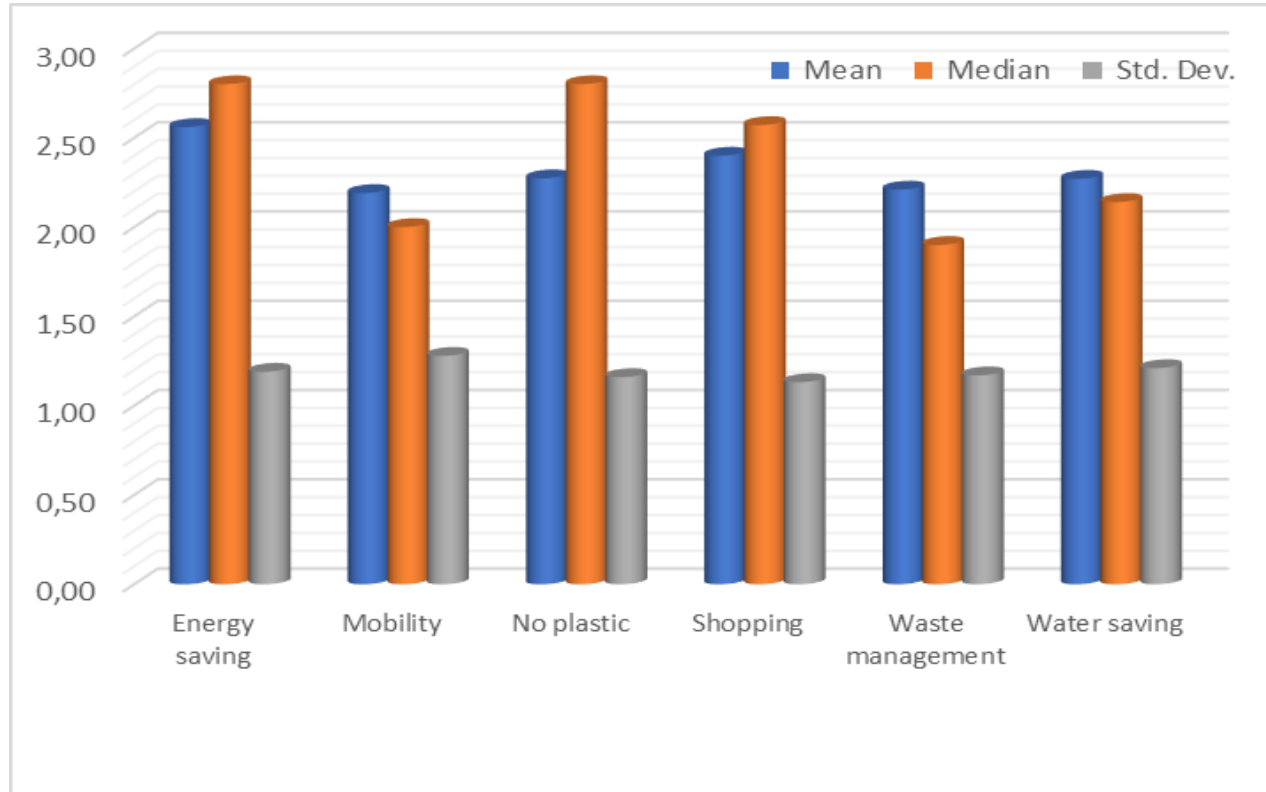
Research questions	Method of study
Q1: What are the most popular/unpopular PEBs (in general and in a group)	Descriptive statistics
Q2: Which groups of PEBs are the most popular/unpopular	Descriptive statistics
Q3: The most coherent and discordant PEBs (single, groups)	Descriptive statistics
Q4: How the popularity of PEBs depends on income	Kruskal-Wallis Test
Q5: How the popularity of PEBs depends on the level of education	Mann-Whitney Test
Q6: How the popularity of PEBs depends on the degree of involvement in the educational process	Mann-Whitney Test
Q7: How the popularity of PEBs depends on the level of environmental responsibility (theoretical, real)	Mann-Whitney Test
Q8: What are the most common reasons for not practicing PEBs?	Descriptive statistics
Q9: What is the degree of population involvement in eco-practices (waste separation, waste paper collection, etc., adherence to waste management standards, etc.)	Descriptive statistics
Q10: How does the popularity of practices depend on age (what is the influence of old patterns of behavior)	Correlation of Spearman (R) and Tau-Kendall (K)
Q11: How practices differ by region of residence	Kruskal-Wallis Test
Q12: How the popularity of practices depends on the level of economic activity of the respondent	Mann-Whitney Test

Average ratings of 5 most and 5 least popular practices of pro-ecological behavior in Russia



The least popular practices, with a median score of 1.5 to 2.1, are: P33 “Throwing away kitchen garbage after it has dried”, P49 “Joining the one day without car program”, P53 “Maintaining the air pressure in the tire”, P55 “Using the dishwasher” и P57 “Using residual heat when cooking on an electric stove»

Most popular groups of practices

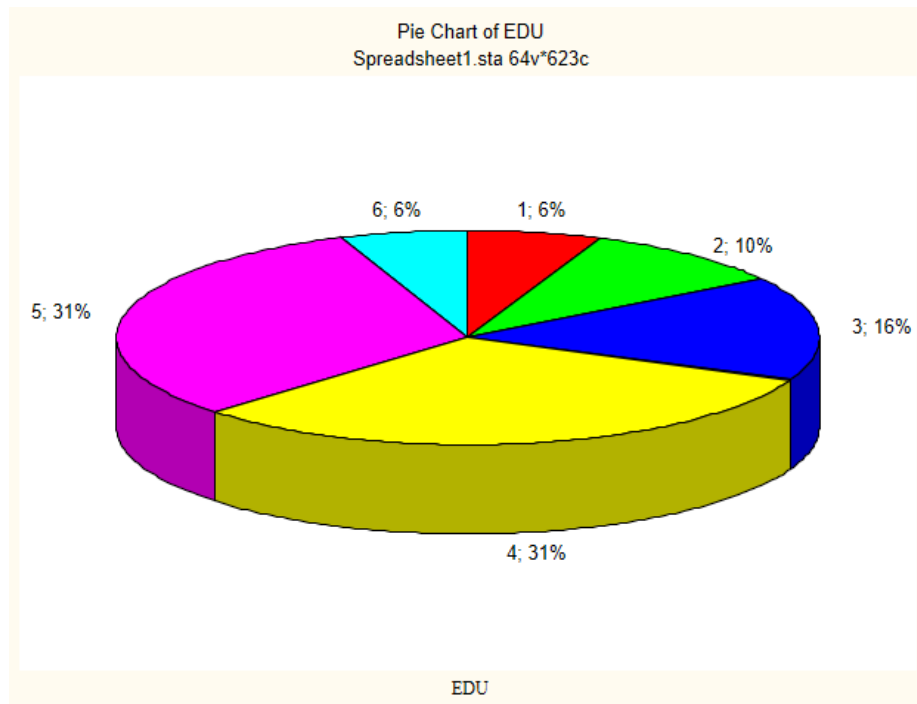


Among the groups of practices, the most popular were Energy saving practices (median 2.8, average 2.6), the least popular practices for waste management (median 1.9, average 2.21)

Statistical relationship between the grouping variable - economic activity and the frequency of application of pro-ecological behavior practices

Designation of practice	Description of PEBs	The average in the group of economically active	Average in the group of economically inactive
P5	Using stairs instead of elevators	2,61	2,18
P6	Cleaning filter of the air conditioner or cleaner	2,40	1,95
P8	Turning off lights in empty rooms	2,95	3,32
P11	Using energy-saving mode or turning off when not in use	2,80	2,28
P19	Reducing detergent	2,47	2,85
P25	Collection and delivery of glass containers to appropriate collection points	2,12	1,51
P26	Waste paper collection and delivery to appropriate collection points	2,15	1,61
P27	Collection and delivery of used batteries, light bulbs to appropriate collection points	2,11	1,76
P31	Covering the pan with a lid when cooking or boiling water	2,71	3,15
P33	Throwing away kitchen garbage after it has dried	2,10	1,63
P34	Using receptacle instead of a plastic bag	2,14	1,68
P43	Not buying unnecessary products	2,58	3,12
P54	Using LED lamp instead of a fluorescent lamp	2,48	3,00
P56	Flame adjustment for cooking	2,03	3,37

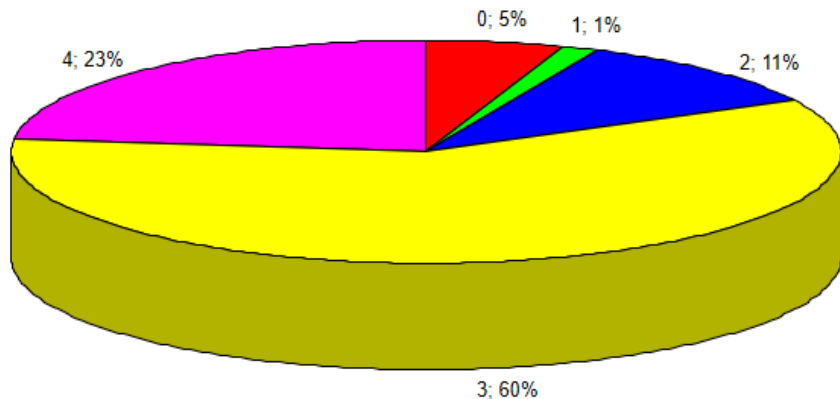
Influence of educational level on the frequency of practice use



Designation of practice	Description of PEBs	R	K
P4	Putting hot food into the refrigerator after cooling	-0,092740	-0,078767
P6	Cleaning filter of the air conditioner or cleaner	0,1010145	0,082851
P25	Collection and delivery of glass containers to appropriate collection points	0,081862	0,068227
P27	Collection and delivery of used batteries, light bulbs to appropriate collection points	0,104634	0,087570
P28	Using own cup	0,086698	0,072704
P33	Throwing away kitchen garbage after it has dried	0,108604	0,091953
P34	Using receptacle instead of plastic bag	0,116350	0,097265
P39	Buying recycled goods	0,084708	0,070035
P42	Choosing goods with their CO2 emission in mind (carbon footprint)	0,091716	0,075898
P3	Using a lower setting in the refrigerator compartment	is not significant	-0,057050
P23	Garbage separation	is not significant	0,052729
P44	Trying to repair things before buying replacements	is not significant	-0,056678

Influence of income level on the frequency of practice use

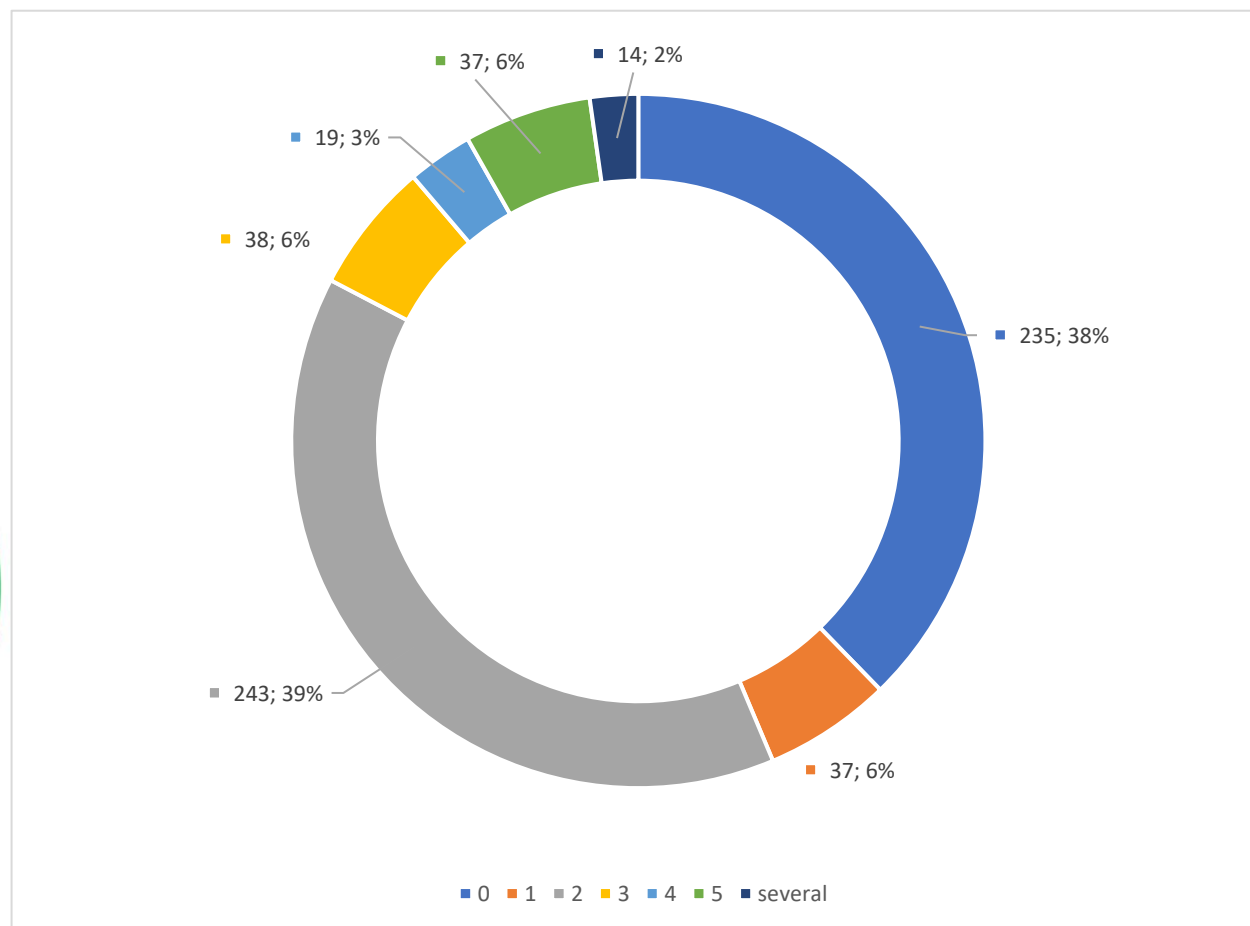
Pie Chart of Income
Spreadsheet1.sta 64v*623c



Income

Designation of practice	Description of PEBs	R	K
P6	Cleaning filter of the air conditioner or cleaner	is not significant	0,054452
P35	Using own bag when going shopping	-0,084402	-0,072595
P47	Using bicycle or walking	-0,100478	-0,087474
P48	Using public transportation	-0,087542	-0,075391

Influence of the level of involvement in environmental activities on the frequency of use of practices



0 - did not participate;
1 - filed complaints about unauthorized dumps, deforestation, etc.);
2 - participated in tree planting, garbage collection, collection of waste paper, glass containers, etc. ;
3 - participated in collecting signatures for environmental appeals, petitions to the authorities;
4 - participated in protest actions;
5 - made donations for environmental protection activities; several - participated in several of the above activities.

Conclusions:

- **The most popular among Russian students are energy saving practices (not related to the level of income and not the result to save)**
- **A higher level of involvement in education reduces electricity consumption and encourages the adoption of a number of non-trivial practices**
- **Economically active respondents demonstrate greater environmental awareness (they treat household appliances more competently in terms of reducing their energy consumption)**
- **The main reasons for not applying a number of patterns of consumer behavior are either a lack of understanding of their significance, or a complete lack of information about the possibility of such consumer behavior.**
- **Waste management practices are the least popular (underdeveloped green infrastructure)**
- **Revealed interregional differences in a number of practices**



Thank you for your attention !

NO Q & A?

RUDN University

*117198, 6, Mikluho-Maklaya street,
Moscow*

www.rudn.ru

