

Impact and Awareness of Geographical Factors in Purchasing of Solar Products in Bundelkhand Region

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ABSTRACT

Regardless of nonstop endeavors to improve the inclusion, the entrance to electricity stays inadequate in many developing nations, especially in geographically tested areas, due for the most part to the staggering expense of matrix expansion. To thoroughly research the viability of solar energy products as an option in remote locations, we directed a randomized controlled preliminary in Bundelkhand region where no electricity is accessible. We found that solar lights essentially expanded home examination hours among educated youngsters, particularly in the night and before tests. Our exact estimation exhibits a solid connection among reception and the quantity of adjacent recently introduced frameworks just as fabricated condition and strategy factors. The appropriation procedure of solar products pursued the exemplary writing in showing a wave-like radiating example situated in the urban areas, we would hope to see starting focuses inside the urban areas in the Bundelkhand region, with receptions increasing inside these zones and diffusing to the semi urban areas after some time.

Key words: Natural Factors, Solar Products, Urban area, Region

Introduction

The sun is an immense wellspring of vitality which has as of late been taken advantage of. It gives huge assets which can create clean, non-dirtying and economical power; in this manner bringing about not a worldwide temperature alteration discharges. As of late, it was found that the intensity of the sun can be gathered and put away, to be utilized on a worldwide scale with the end goal of in the end supplanting the traditional wellsprings of vitality. As the world is turning its concentration to cleaner control, solar energy has seen a critical ascent in significance.

Solar energy frameworks offer noteworthy ecological advantages in contrast with the regular vitality sources, in this way they significantly add to the manageable advancement of human exercises. Now and again in any case, the wide scale organization of such frameworks needs to confront potential negative ecological ramifications. These potential issues might be a solid obstruction for further progression of these frameworks in certain customers.

The potential natural effects related with sun oriented power can be ordered by various classes, some of which are land use impacts, biological effects, effects to water, air and soil, and

different effects, for example, financial ones, and can change extraordinarily relying upon the innovation, which incorporates two general classifications:

Photovoltaic (PV) sun oriented cells or
Concentrating sun oriented warm plants (CSP).

Geographical Impacts of Solar Products

Land Use and Ecological Impacts

In the purpose of creating power at a utility-scale, sun based vitality offices require huge zones for gathering of vitality. Because of this, the offices may meddle with existing area utilizes and can affect the utilization of regions, for example, wild or recreational administration territories. As vitality frameworks may affect land through materials investigation, extraction, assembling and transfer, vitality impressions can turn out to be gradually high. In this manner, a portion of the grounds might be used for vitality so that coming back to a pre-bothered state requires huge vitality info or time, or both, though different utilizations are dramatic to the point that acquired changes are irreversible.

Effects to Soil, Water and Air Resources

The development of sun oriented offices on immense territories of land forces clearing and reviewing, bringing about soil compaction, modification of seepage channels and expanded disintegration. Focal pinnacle frameworks require devouring water for cooling, which is a worry in bone-dry settings, as an expansion in water request may strain accessible water assets just as synthetic spills from the offices which may result in the pollution of groundwater or the ground surface.

Similarly as with the improvement of any huge scale mechanical office, the development of sun based vitality control plants can present dangers to air quality. Such dangers incorporate the arrival of soil-conveyed pathogens and results in an expansion in air particulate issue which has the impact of defiling water stores.

A Brief Review of the Work Already Done in the Field

As per an investigation (**Outar GN, 1994**) about Causes of Pro Environmental Customer Purchase Behavior here has been an ascent in the attainable quality of "biologically benevolent" customer items, at current; little is thought about the farmland and equivalent of master ecological purpose of procurement purchaser conduct.

An investigation on impact of biological worry on buyer conduct (**Mainieri, 1997**) experiential that those factors that conjecture green purchasing are mindfulness around ecological effects of items, precise natural legislative issues of buyers, a few by and large ecological frame of mind scales, statistic factors, and various genius condition practices extra than purchasing conduct

then they discovered one invigorating influencer is Woman customer impact on improved ingesting of green items.

(**Ganapathi, 2009**) in his paper on " Customer Awareness and Satisfaction towards Solar Heater System, expressed that , Energy preservation and ecological security have today risen as squeezing issue and are being concurred best most need organizations everywhere throughout the world . Solar warming has turned into the request of the day and is an exceptionally ease and effective option.

Panapakidis et al., (2013) portray division dependent on burden designs - abnormal state and low dimension. The abnormal state fragment incorporates geological attributes, voltage level, and kind of action. The low dimension section depends on statistic attributes, administrative status, and values the executives, and widespread administration, fuel marking supply and metering goals.

Connecting Environmental Concern to Customers' Purchase Intention- A lot of writing that inspected the connection between ecological concern and green conduct has been distributed (**Abdul Wahid et al., 2011; Ramayah et al., 2010; Chan and Lau, 2000; Paco and Raposo, 2009; Lee, 2008**). Result from study directed by **Abdul Wahid et al. (2011)** who researched the conduct of green buy among natural volunteers in Penang for instance demonstrated a positive, huge connection between ecological concern and the volunteers. Comparable discoveries were found by different analysts like Lee (2008) on green acquiring conduct among Hong Kong youthful customers and **Chan and Lau (2000)** who found solid, positive relationship between Chinese shoppers' natural concern and their green buy aim. In a case, **Ramayah et al's. (2010)** think about on Malaysian shoppers' buy goal of material diapers revealed that ecological outcomes (natural concern) did not anticipate green buy expectation. This was bolstered by **Paco and Raposo's (2009)** discoveries on Portugese shopper advertise which showed that despite the fact that Portugese customers are worried about ecological issues, the worry don't changed into their obtaining exercises. Due to the opposing discoveries from writing, this examination will break down whether ecological concern is critical indicators of buyers buy aim.

Methodology and Data Analysis

By goodness of the meaning of our objective example, and the online methodology of information gathering, the pertinent population was wide-spread; nonetheless, we limited our review to Individuals of Bundelkhand region which has 13 districts, seven in Uttar Pradesh and six in Madhya Pradesh. Structured questionnaire was used to collecting data.

The study comprises primary and secondary data both. For the primary data researcher has used close ended structured questionnaire. Most of the questionnaire distributed among different respondents of the research area. Total 1324 questionnaires had been distributed. In which 1266 questionnaires had returned by the respondents. After editing and scrutiny of the questionnaires 1155 questionnaires were used to analysis.

Objectives of the Study

1. To study the impact of geographical area on purchasing decision of the customer for solar product.
2. To study the awareness of natural factors affecting purchasing decision of the customer for solar product.
3. To study the relationship between geographical area of the customer and Purchasing Eco-friendly products with respect to solar energy products.

Natural Factors

Ocean Currents, The earth tilt, Volcanoes, Continental Drift

Null Hypothesis:

H0₁: Environmental area of the customer does not influence the purchasing decision of the customer for solar product.

Alternative Hypothesis

H1₁: Environmental area of the customer influences the purchasing decision of the customer for solar product.

Table:1 Living Place * Purchasing Solar Energy Products
Cross tabulation

		Purchasing Solar Energy Products		Total
		Yes	No	
Living Place	Rural	345	345	690
	Urban	30	135	165
	Semi	195	105	300
Total		570	585	1155

Table2: Chi-Square Tests

	Value	df	Asymptotic Significance (2-sided)
Pearson Chi-Square	93.639 ^a	2	.000
Likelihood Ratio	99.498	2	.000
Linear-by-Linear Association	8.399	1	.004
N of Valid Cases	1155		

a. 0 cells (0.0%) have expected count less than 5. The minimum expected count is 81.43.

Since the first null hypothesis was H01: geographical area of the customer does not influence the purchasing decision of the customer for solar product. From the chi-square test table sig value (p-value = 0.000) is less than 0.05 (commonly accepted level of significance), hence it was safe to reject null hypothesis H01, Therefore at 95% confidence interval, the researcher can conclude that Environmental area of the customer influences the purchasing decision of the customer for solar product.

Null Hypothesis:

H0₂: There is no relationship between environmental area of the customer and Awareness about Natural Factor as Ocean Currents with respect to solar energy products.

Alternative Hypothesis

H1₂: There is a relationship between Environmental area of the customer and Awareness about Natural Factor as Ocean Currents with respect to solar energy products.

Living Place * Awareness about Natural Factor as Ocean Currents

Table3: Crosstab

Count		Q28.1 NF Awareness about Natural Factor as Ocean Currents		Total
		Yes	No	
Q1 Living Place	Rural	45	645	690
	Urban	60	105	165
	Semi	180	120	300
Total		285	870	1155

Table4: Chi-Square Tests

	Value	df	Asymptotic Significance (2-sided)
Pearson Chi-Square	335.878 ^a	2	.000
Likelihood Ratio	337.872	2	.000
Linear-by-Linear Association	334.874	1	.000
N of Valid Cases	1155		

a. 0 cells (0.0%) have expected count less than 5. The minimum expected count is 40.71.

Since the null hypothesis was there is no relationship between environmental area of the customer and awareness about natural factor as ocean currents with respect to solar energy products. From the chi-square test table sig value (p-value = 0.000) is less than 0.05 (commonly accepted level of significance), hence it was safe to reject null hypothesis H_{01c} , therefore at 95% confidence interval, the researcher can conclude that there is a relationship between environmental area of the customer and awareness about natural factor as ocean currents with respect to solar energy products.

Null Hypothesis:

H_{03} : There is no relationship between environmental area of the customer and Awareness about Natural Factor as The earth’s tilt with respect to solar energy products.

Alternative Hypothesis

H_{13} : There is a relationship between Environmental area of the customer and Awareness about Natural Factor as The earth’s tilt with respect to solar energy products.

Living Place * Awareness about Natural Factor as The earth’s tilt

Table5: Crosstab

Count		Q28.2 NF Awareness about Natural Factor as The earth’s tilt		Total
		Yes	No	
Q1 Living Place	Rural	30	660	690
	Urban	45	120	165
	Semi	135	165	300
Total		210	945	1155

Table6: Chi-Square Tests

	Value	Df	Asymptotic Significance (2-sided)
Pearson Chi-Square	242.976 ^a	2	.000
Likelihood Ratio	242.208	2	.000
Linear-by-Linear Association	242.141	1	.000
N of Valid Cases	1155		

a. 0 cells (0.0%) have expected count less than 5. The minimum expected count is 30.00.

Since the null hypothesis was there is no relationship between environmental area of the customer and Awareness about Natural Factor as The earth’s tilt with respect to solar energy products. From the chi-square test table sig value (p-value = 0.000) is less than 0.05 (commonly accepted level of significance), hence it was safe to reject null hypothesis H0_{1d}, therefore at 95% confidence interval, the researcher can conclude that there is a relationship between environmental area of the customer and Awareness about Natural Factor as The earth’s tilt with respect to solar energy products.

Null Hypothesis:

H0₄: There is no relationship between environmental area of the customer and Awareness about Natural Factor as Volcanoes with respect to solar energy products.

Alternative Hypothesis

H1₄: There is a relationship between Environmental area of the customer and Awareness about Natural Factor as Volcanoes with respect to solar energy products.

Living Place * Awareness about Natural Factor as Volcanoes

Table7: Crosstab Count

		Q28.3 NF Awareness about Natural Factor as Volcanoes		Total
		Yes	No	
Q1 Living Place	Rural	195	495	690
	Urban	90	75	165
	Semi	225	75	300
Total		510	645	1155

Table8: Chi-Square Tests

	Value	Df	Asymptotic Significance (2-sided)
Pearson Chi-Square	193.665 ^a	2	.000
Likelihood Ratio	198.928	2	.000
Linear-by-Linear Association	193.023	1	.000
N of Valid Cases	1155		

a. 0 cells (0.0%) have expected count less than 5. The minimum expected count is 72.86.

Since the null hypothesis was there is no relationship between environmental area of the customer and Awareness about Natural Factor as Volcanoes with respect to solar energy products. From the chi-square test table sig value (p-value = 0.000) is less than 0.05 (commonly accepted level of significance), hence it was safe to reject null hypothesis H0_{1e}, therefore at 95% confidence interval, the researcher can conclude that there is a relationship between environmental area of the customer and Awareness about Natural Factor as Volcanoes with respect to solar energy products.

Null Hypothesis:

H0₅: There is no relationship between environmental area of the customer and Awareness about Natural Factor as Continental Drift with respect to solar energy products.

Alternative Hypothesis

H1₅: There is a relationship between Environmental area of the customer and Awareness about Natural Factor as Continental Drift with respect to solar energy products.

Living Place * Awareness about Natural Factor as Continental Drift

Table9: Crosstab

Count		Q28.4 NF Awareness about Natural Factor as Continental Drift		Total
		Yes	No	
Q1 Living Place	Rural	30	660	690
	Urban	15	150	165
	Semi	135	165	300
Total		180	975	1155

Table10: Chi-Square Tests

	Value	df	Asymptotic Significance (2-sided)
Pearson Chi-Square	268.827 ^a	2	.000
Likelihood Ratio	239.350	2	.000
Linear-by-Linear Association	243.179	1	.000
N of Valid Cases	1155		

a. 0 cells (0.0%) have expected count less than 5. The minimum expected count is 25.71.

Since the null hypothesis was there is no relationship between environmental area of the customer and Awareness about Natural Factor as Continental Drift with respect to solar energy products. From the chi-square test table sig value (p-value = 0.000) is less than 0.05 (commonly accepted level of significance), hence it was safe to reject null hypothesis H_{01f}, therefore at 95% confidence interval, the researcher can conclude that there is a relationship between environmental area of the customer and Awareness about Natural Factor as Continental Drift with respect to solar energy products.

Null Hypothesis:

H₀₆: There is no relationship between environmental area of the customer and Purchasing Eco-friendly products with respect to solar energy products.

Alternative Hypothesis

H₁₆: There is a relationship between Environmental area of the customer and Purchasing Eco-friendly products with respect to solar energy products.

Living Place * Purchasing Eco-friendly products

Tab11: Crosstab Count

		Q29 At the time of purchasing, do you think that you should purchase Eco-friendly products?			Total
		Yes	No	May be	
Q1 Living Place	Rural	180	255	255	690
	Urban	135	0	30	165
	Semi	210	15	75	300
Total		525	270	360	1155

Table12: Chi-Square Tests

	Value	df	Asymptotic Significance (2-sided)
Pearson Chi-Square	301.054 ^a	4	.000
Likelihood Ratio	348.909	4	.000
Linear-by-Linear Association	110.197	1	.000
N of Valid Cases	1155		

a. 0 cells (0.0%) have expected count less than 5. The minimum expected count is 38.57.

Since the null hypothesis was there is no relationship between environmental area of the customer and Purchasing Eco-friendly products with respect to solar energy products. From the chi-square test table sig value (p-value = 0.000) is less than 0.05 (commonly accepted level of significance), hence it was safe to reject null hypothesis H_0 , therefore at 95% confidence interval, the researcher can conclude that there is a relationship between environmental area of the customer and Purchasing Eco-friendly products with respect to solar energy products.

Findings and Conclusions

From the data analysis and interpretation It is clear that 59.74% respondents living in rural area , 14.29% living in urban place and 25.97% living in semi-rural or semi urban place, therefore it can be concluded that most of the respondents living in rural place of Bundelkhand region. From the above analysis it is found that most of the customers in rural, urban, or semi urban are not aware about the natural factors such as Ocean Currents, The earth tilt, Continental Drift. Study also state that the geographical area like rural, urban, or semi urban affect the purchasing decision of customers for the solar products. Researcher can also conclude that customers are aware about to purchase eco-friendly products like solar products.

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