

# Perceptions of Environmental Consciousness in U.S. Small Businesses

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## Abstract

This study investigates the relationship between environmental concern, environmental effort and their impact on company performance in U.S. small businesses. Results based on survey data from one hundred companies indicate that there is a positive correlation between environmental concern, effort and, impact on firm performance. We also observed that top management concern is a key to environmental initiatives. However, there is no significant difference between manufacturing and service companies relative to environmental concern, efforts and impact on firm performance. They equally regard that environmental issue to be of positive value.

**Keywords:** environmental consciousness, sustainable development, environmental management

## 1. Introduction

The research on environmental consciousness and its impact on company performance are not conclusive. The traditional notion reflects a belief that environmental concern negatively affects company performance, as the firm must invest more than usual amounts of resources in products and processes to achieve eco-friendliness [15,19]. Conversely, there are indications that being environmentally proactive may lead to long-term economic gain [5,30]. Fernberg [16], Shi and Kane [39], and Ahmed, Montagno and Firenze [1] illustrate the success some companies using environmental consciousness strategies.

An important question is what determines a firm's environmental posture, activity, and commitment? The obvious answer includes the employees of the firm and various other stakeholders that are, for one reason or another, able to influence management to follow a certain path. Prominent among these stakeholders are governmental regulatory bodies, stockholders, customers, competitors, and society at large. Management has a dual responsibility regarding these groups. On the one hand, it has a responsibility to the owners of the firm to provide an adequate return on their investment. On the other hand, non-investing stakeholders often hold firms accountable to meet standards that may negatively affect the firm's financial performance. Balancing these sometimes-conflicting responsibilities requires skill, forethought, and the development and implementation of a well-designed strategy.

While management may be accountable to the desires and preferences of its stakeholders, there remains considerable opportunity for a firm to be managed in a manner that reflects personal preferences on certain issues, such as the environment. Important questions result from this reality. For example, to what degree do managers consider themselves to be "environmentally friendly"? Are managers able to live up to their convictions regarding environmental protection? Does being "environmentally friendly" present a drain on the firm's resources? Does it harm sales or profits? Are there any positive effects to being actively pro-environment?

A person's concern for the natural environment reflects his/her values and to a certain degree, a willingness to act on this value system or belief [6]. One question of the past decade is how individual environmental concern shapes corporate environmental actions [4,38]. The power of concerned individuals in creating environmental initiatives has been suggested in research on corporate environmental management [26,37,42]. Bansal and Roth [6] mentioned that personal concern and values could affect a firm's environmental efforts in important ways. First, values and concern can help decision makers discriminate, identify, and prioritize [12]. Second, environmental concerns will induce some individuals to champion eco-initiatives [2,25]. Third, a firm's top management will be more proactive in their environmental effort if their value systems reflect environmental concerns [2,13]. Environmental decision-making is also dependent on concerns of external stakeholders such as customers and suppliers [20]. Therefore, the concerns of the following stakeholders were determined to be relevant and investigated in this study: the individual respondent, top management, co-workers, operational workers, customers, and suppliers.

Concern merely indicates the degree to which a person cares about something, in this case, the environment. People must also act in an eco-friendly manner if change is to occur. The question is what leads people to convert concern into action. Ramus and Steger [31] concluded that employees responded positively with creative ideas in the environmental areas if they perceive strong organizational commitment to the environment. Anderson and Bateman [2] suggested the use of "environmental championing" to incorporate environmental practices. They mentioned top management allocation of time and money to the environmental issues as an indicator of championing success. Ashford [3] suggested that lack of support from top management posed a substantial barrier to environmental efforts and initiatives.

Cordano and Frieze [9] suggested that managers could use easy-to-implement source-reduction practices to create favorable experiences that will lead to the introduction of additional practices in the future. Kotter [24] also proposes a similar strategy, which he calls a short-time win. He concludes that simple strategies will make it easier to bring organizational transformation and change attitudes as benefits of environmental efforts become apparent.

Positive economic impacts of environmental strategies are discussed by Porter and Van der Linde [29] and Cordano [8]. Porter and Van der Linde [29] suggested that by reengineering production process, firms could reduce environmental impacts and simultaneously reduce the cost of inputs and waste disposal. Cordano [8] proposed that revenues could be increased through green marketing, sale of waste products and outsourcing a firm's environmental expertise. Additionally, there are suggestions in the literature that eco-initiatives will improve corporate image [17,32]. However, research findings on the impact of environmental efforts such as pollution prevention, waste recycling, reducing energy consumption etc. on company performance are inconclusive. At one extreme, some researchers [33,40,41] have asserted that most environmental initiatives are costly, they tend to have negative impact on company performance, and these initiatives tend to destroy shareholder value rather than to enhance it. Others however, have pointed out that environmental efforts can reduce cost and improve profitability [14,17,27]. Clelland, Dean and Douglas [10], for example, found "clear evidence that pollution prevention and waste reduction practices enhanced operational efficiencies".

Traditionally, the dominant focus of environmental concern was directed toward manufacturing enterprises. However, the greater part of the U.S. gross domestic product can be attributed to the service sector of the economy. According to a recent estimate by the Bureau of Census (1996) seventy-six percent of GDP is created by the service sector. In addition, the service sector will account for four out of five jobs (Bureau of Census, 1996). Examples of different types of service businesses are transportation/communication, wholesale/retail trade, financial services, professional services, education, health care, recreation and so on. Given this shift, it is imperative that the service segment of the economy develops and maintains a high level of environmental awareness.

There seems to be very little research done on environment for smaller or mid-sized enterprises (SMEs) especially, the service companies. A review of the last five years of the Journal of Small Business Management reveals no articles dealing with the issue of small firms and environmental issues. A similar check of the last several proceedings of the annual conference of the United States Association for Small Business and Entrepreneurship (USASBE) also revealed no papers on the subject. Several possible explanations exist. Researchers may have made an implicit assumption that small firms are not doing enough in the environmental arena to warrant studying. Large firms are more highly visible pollutant producers and small, privately held or family businesses are often reluctant to share what may be construed to be confidential business, making data collection more difficult.

Nonetheless, important questions exist. Do small firm owners/managers feel powerless in dealing with environmental issues due to the perceived cost of environmentally oriented programs? Do they feel environmentalism is less relevant due to their relative small size compared to larger firms? Do they feel at a loss because of a lack of knowledge and an inability to devote significant resources to pollution reduction?

Regardless of the reason(s), the lack of research on small firms and environmental issues is disconcerting. The sheer impact of the small business community on the economy makes it an important issue. There are over 20 million small and medium sized businesses in the United States, employing approximately half of the labor force and producing a similar share of the nation's GNP. The "trickle down" effect, as large firms require suppliers to be certified, will make it an important issue for many small firms. Small firm owners are already concerned about the cost of regulation [18] and from a regulatory concern. Bowman [7] predicts "in the not so distant future, all organizations that provide a service, product, or engage in activities that have environmental aspects and impacts will develop and implement environmental management systems." Finally, as consumer attitudes continue to reflect an environmental consciousness, the possibility that being environmentally friendly can be a competitive advantage makes it important for small firms. As Montagno and Ahmed [1] found, having an environmentally conscious posture has a positive effect on company image.

The purpose of this paper is, therefore, to address the issue of small firm environmental attitudes and activities by investigating the following research questions:

- To what extent do managers in the economy's smaller firms consider themselves environmentally friendly?
- Is there a relationship between one's level of environmental concern and the amount of effort one exerts to manage in an environmentally friendly manner?
- To what extent does a firm's positive environmental posture result in desired outcomes.
- Is the manufacturing sector [22,38] ahead of the service sector regarding environmental consciousness?
- What is the impact of top management concern in environmental management?

## 2. Hypotheses

Conceptually, concern, effort and impact appear to be linked to one another. Increased concern should lead to greater effort, which, in turn should lead to a positive impact on firm performance. Ashford [3] concluded that key to success in pollution prevention effort is to influence managerial knowledge and attitude toward environmental concern.

Dielman & de Hoo [11], Kemp [21], and Schmidheiny [22] concluded that managers' attitudes and concerns significantly influence the adoption of environmental efforts.

Considering the issues discussed above, hypotheses can be developed in several areas. H1 addresses the relationship between concern, effort, and impact on firm performance. H2 addresses the issue of top management concern for environmentalism and its relationship to effort and impact. H3 posits that there is a difference between manufacturing and service sector firms.

*Hypothesis 1. Environmental concern will be positively correlated on effort, which will be positively correlated with impact.*

*Hypothesis 2: Firms with higher top management concern for the environment, will expend more effort and create a more positive impact on performance than those firms with low top management concern.*

*Hypothesis 3. Manufacturing companies will have a higher level of concern, and expend more effort and experience positive impact on performance, company image etc. than those of service companies.*

### 3. Methods

#### 3.1 Participants

The sample consisted of small, independently owned firms in the central Indiana region. One hundred sixty surveys were distributed to members of area Chambers of Commerce. Student research assistants received owner permission to administer the surveys and 100 usable instruments were completed. Data on the sample demographics are presented in Table 1.

**Table 1. Firm Demographics**

Average Number of Employees at this location	38
Average age of the company	28 years
Respondent--President/CEO/Owner	48%
Respondent--VP/Director/Manager	27%
Average sale at this location	1.9 million dollars
Companies --Manufacturing	20%
Companies --Service	80%

#### 3.2 Survey

An earlier survey by the authors investigated the attitudes upper level executives in 60 large firms. The existing survey instrument was adapted with little modifications and was administered to owners/managers of small firms. The questionnaire used specifically dealt with environmental issues, which were found to be of significance in the literature. The survey questions were structured in several categories: 1) environmental concerns, 2) current environmental efforts, 3) impact of environmental strategies on performance ( 4) environmental planning including information flows, auditing, human resource practices and training. The instrument also contained a section on firm demographics.

Questions assessing concern included personal concern, concerns of co-workers, top management, customers, and suppliers. Firm effort was described through six items: reducing energy consumption, reducing pollution, waste recycling, working with customers, working with suppliers on environmental strategies, and obtaining ISO 14001 certification. Impact of environmental strategies on firm performance was measured by items such as: profit, revenue, customers, suppliers, operations efficiency, and company image. In each case, the score ranged from 1 to 5, where 1 was the lowest score and 5 was the highest.

Surveys were administered with a cover letter explaining the purpose of the study and offered the respondent a copy of the results in exchange for their cooperation. Complete confidentiality of the respondents was guaranteed.

### 4. Results

The mean and standard deviations of items related to concern, effort and impact are shown in Table 2. It can be seen from the table that as individuals, the managers think of themselves as a people of high environmental concern (mean =3.67). However, they perceive the concerns of coworkers, operational workers, customers, and suppliers to be lower, the means being 3.12, 2.99, 2.96, and 3.01 respectively.

The average scores for items related to company effort vary from 3.46 for reducing energy consumption to 1.81 for ISO 14001 certification. From Table 2 it is also apparent that the effort towards working outside the organization, with customers and suppliers is low, the means being 2.70 and 2.69 respectively.

The respondents' perception of impact of environmental efforts indicates that the strongest effect is on the company image.

**Table 2. Descriptive statistics for Concern, Effort and Impact**

<b>Concern about Environment</b>	<b>Mean N = 100</b>	<b>Standard Deviation N = 100</b>
Personal	3.62	.96
Co-Workers	3.12	1.00
Top Management	3.61	.95
Operational Workers	2.99	.91
Customers	2.96	1.01
Suppliers	3.01	.95
<b>Environmental Effort</b>		
Reducing Energy Consumption	3.46	1.17
Reducing Pollution	3.37	1.15
Waste Recycling	3.45	1.20
Working with Customers	2.70	1.26
Working with Suppliers	2.69	1.18
Obtaining ISO 14001 Certification	1.81	1.25
<b>Impact of Environmental Strategy</b>		
Profit	3.45	.78
Revenue	3.42	.79
Customers	3.52	.72
Suppliers	3.46	.66
Operations Efficiency	3.53	.77
Company Image	3.94	.69

\* 1= not at all to 5=very high

\*\* 1= none to 5= substantial

\*\*\* 1= very negative to 5 very positive

#### 4.1 Hypothesis 1: Relationships among Concern, Effort and Impact

Hypothesis 1 states that concern will be positively correlated with effort and effort will be positively correlated with impact. Table 3 shows the correlations among overall concern, effort, and impact. For the purpose of this analysis a summary index was constructed for concern, effort, and impact. The index is the average of the six items included in each category. It can be seen from Table 3 that concern is highly correlated with effort ( $p < .01$ ) and also concern is highly correlated with impact ( $p < .01$ ).

**Table 3. Pearson correlation between Overall scores of Concern, Effort and Impact**

	<b>Environmental Concern</b>	<b>Current Environmental Effort</b>	<b>Impact of Environmental Strategy On company performance</b>
Environmental Concern		R=0.465**	R=0.366**
Current Environmental Effort			R=0.420**

\*  $p < .05$

\*\*  $p < .01$

\*\*\*  $p < .001$

In addition, the correlation between effort and impact is significant ( $p < .01$ ).

Table 4 presents more detailed analyses on item-by-item basis in each category. We can see that overall concern has significant positive correlations with efforts such as reducing energy consumption, reducing pollution, waste recycling, working with customers, working with suppliers, and obtaining ISO 14001 certification. Also, Individual items in the concern category such as personal concern, coworkers' concern, top management concern, operational workers' concern, customers' concern, suppliers' concern are mostly positively correlated with individual items in the effort category except obtaining ISO 14001 certification.

The bottom-half of Table 4 shows the correlations between items in the effort and impact category. Looking at the items in the effort category, we can see that reducing energy consumption has impacts most of the performance variables while waste recycling and obtaining ISO certification has least impact on performance. It can be concluded that in general, the perception is that managers' environmental concern will lead to effort and effort will lead to some positive impact.

**Table 4. Pearson Correlation Between Concern, Effort and Impact**

<b>Effort ( n=100)</b>						
	<b>Reducing Energy consumption</b>	<b>Reducing Pollution</b>	<b>Waste Recycling</b>	<b>Working with customers</b>	<b>Working with suppliers</b>	<b>Obtaining ISO 14001 Certification</b>
<b>Overall environmental concern</b>	0.437***	0.432***	0.271**	0.418***	0.303**	0.086
<b>Personal concern</b>	0.406**	0.365**	0.231*	0.259**	0.152	0.041
<b>Coworker's concern</b>	0.371**	0.404**	0.320**	0.342**	0.242*	0.137
<b>Top Management concern</b>	0.444**	0.347**	0.197	0.256*	0.168	0.147
<b>Operational worker's concern</b>	0.305**	0.399**	0.289**	0.287**	0.165	0.084
<b>Customer's concern</b>	0.221*	0.205*	0.186	0.371**	0.226*	0.000
<b>Supplier's Concern</b>	0.317**	0.272**	0.224*	0.329**	0.357**	0.019
<b>Impact on ( n=100)</b>						
	<b>Profit</b>	<b>Revenue</b>	<b>Customers</b>	<b>Suppliers</b>	<b>Operations Efficiency</b>	<b>Company Image</b>
<b>Reducing energy consumption</b>	0.223*	0.204*	0.261**	0.233*	0.308**	0.356**
<b>Reducing pollution</b>	0.206*	0.238*	0.251*	0.201*	0.327**	0.269**
<b>Waste recycling</b>	0.027	0.043	0.131	0.137	0.108	0.269**
<b>Working With customers On the above</b>	0.291**	0.300	0.396**	0.310**	0.108	0.340**
<b>Working with the suppliers on the above</b>	0.157	0.235*	0.220*	0.379***	0.388***	0.386***

\* p<.05

\*\* p<.01

\*\*\* p<.001

#### **4.2 Hypothesis 2: Top Management Concern**

The respondents were asked about top management's concern for the environment based on a five-point scale, from one, no concern, to five, very high concern. The companies who chose "four" or "five" for top management concern were classified as high top management concern companies and the rest were classified as low, top management concern

companies. Table 5 presents the results of t-test for both type of companies in terms of their environmental efforts and its' impact on performances.

**Table 5. t-test for Effort and Impact for high top-management concern and low top-management concern companies**

	Mean		Standard Dev.		t-test significance
	High Concern N= 54	Low Concern N=43	High Concern N=54	Low Concern N=43	
<b>Environmental Effort</b>					
Overall effort	3.16	2.62	.79	0.82	0.002**
Reducing energy Consumption	3.81	3.02	1.01	1.22	0.001***
Reducing Pollution	3.63	3.02	1.12	1.12	0.01**
Waste Recycling	3.60	3.28	1.21	1.16	0.187
Working with customers	2.92	2.40	1.20	1.25	0.04*
Working with Suppliers	2.83	2.53	1.21	1.05	0.20
Obtaining ISO 14001 Certification	2.10	1.51	1.39	1.01	0.02*
<b>Impact of Environmental Strategy</b>					
Overall Impact	3.67	3.39	0.50	0.60	.02*
Profit	3.61	3.24	0.79	0.82	0.02*
Revenue	3.54	3.26	0.79	0.79	0.09
Customers	3.59	3.40	0.74	0.66	0.175
Suppliers	3.43	3.47	0.64	0.67	0.817
Operations Efficiency	3.66	3.33	0.71	0.80	0.02*
Company Image	4.13	3.70	0.65	0.67	0.002**

\* p<.05

\*\* p<. 01

\*\*\* p < .001

We can see from Table 5 that firms with high top management concern are likely to spend significantly more time and resources in environmental initiatives than those with low top-management concern.

In addition, companies with high top management concern perceive that environmental strategies have significant impact on profit, operations efficiency and company image. One performance measure where there was no significant difference is profit. Even though, companies with high top management concern think that environmental efforts will not generate more revenue, they may also perceive that these efforts may incur cost savings, which may have a positive effect on profit.

#### 4.3 Hypothesis 3: Manufacturing and Service Companies

Table 6 presents the results of t-test for manufacturing and service companies. It can be seen from

**Table 6. Difference between Manufacturing and Service companies**

Concern about Environment	Mean		Standard Dev.		t-test significance
	Manf. N=19	Service N=81	Manf. N=19	Service N=81	
Personal	3.47	3.65	0.90	0.98	0.464
Co-workers	3.06	3.14	0.97	1.01	0.774
Top Management	3.82	3.56	0.81	0.98	0.255
Operational Workers	2.94	3.00	0.83	0.93	0.810
Customer	2.81	2.99	0.98	1.02	0.525
Supplier	2.94	3.03	0.83	0.98	0.715
<b>Environmental Effort</b>					
Reducing energy Consumption	3.63	3.41	1.01	1.21	0.424
Reducing Pollution	3.58	3.32	0.69	1.23	0.216
Waste Recycling	3.78	3.38	1.00	1.23	0.154
Working with customers	2.33	2.78	1.03	1.29	0.125
Working with Suppliers	2.44	2.74	1.10	1.19	0.311
Obtaining ISO 14001 Certification	2.28	1.70	1.41	1.19	0.078
<b>Impact of Environmental Strategy</b>					
Profit	3.56	3.43	0.62	0.82	0.457
Revenue	3.53	3.39	0.61	0.83	0.422
Customers	3.42	3.55	0.69	0.72	0.478
Suppliers	3.42	3.47	0.61	0.67	0.763
Operations Efficiency	3.53	3.53	0.77	0.78	0.982
Company Image	3.95	3.94	0.40	0.75	0.942

\*  $p < .05$

\*\*  $p < .01$

\*\*\*  $p < .001$

Table 6 that employees in manufacturing organizations are as concerned about the environment as their service counterpart. In terms of environmental effort, and the perception about the impact of environmental strategy on company performance is not significantly different between these two categories of firms. Both firms tend to view the impacts as slightly positive rather than neutral or negative. However, both view environmental strategy to have a major impact on company image.

## 5. Future Research

One of the limitations that may affect findings is that survey data based on self-reports may be subject to social desirability bias [28,35]. However, Konrad and Linnehan [23] suggested that even in the case of sensitive subject matters, given an assurance of anonymity the bias could be minimized.

Future research should investigate through case studies or empirical research, the changes in the performances of companies after adopting some environmental strategies. This may allow more conclusive inferences about environmental efforts and its' impact on performance.

## 6. Conclusions

This research is an effort to empirically validate the relationship between environmental concern, effort and its impact on company performance for small firms. Results based on the survey data from one hundred companies indicate that there is a positive correlation between environmental concern and effort. We also observed positive correlations between effort and impact on such performance characteristics as operations efficiency, and company image. In addition, we found a positive correlation between environmental effort and profit. We did not find any significant correlation between environmental effort and revenue.

We also found evidence that the top management concern is a key to environmental initiatives. Companies with high top management concern seem to dedicate more resources to environmental initiatives. The companies with high top

management concern for the environment perceive that environmental efforts have a higher impact on profit, operations efficiency and company image than those companies with low top-management concern.

There is no significant difference between the manufacturing and service companies in terms of concern, effort and impact. However, perceptions of items related to environmental concerns, effort and impact for both type of companies are rather positive than neutral (scores for items higher than 3.0)

This study has managerial significance in terms of environmental consciousness and strategy implementation for U.S. Industry.

1) In general, managers in the small businesses consider themselves to have fair to high environmental concerns. This may make them receptive to any changes that may arise due to environmental initiatives.

2) Many of the articles on organizational change have emphasized the role of top management. Our research confirms that. For any major environmental initiative it is important that top management is involved in a significant way.

3) Some articles have suggested that environmental strategy has positive impact on the company bottom-line, especially profit. This may be an important motivator for many of the for-profit companies. The evidence in our research supports this. This may imply that it will not be difficult to convince the managers to implement environmental strategies, as it is also profitable.

4) The results of this study do not support the traditional view that manufacturing industries have more concerns for the environment than those of service companies. Small service companies are as concerned as small manufacturing companies on environmental issues. It is established that the service sector of the economy is larger and growing faster than the manufacturing sector and the trend will continue. It is imperative that steps be taken to raise the level of environmental involvement for service employees.

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## Appendix A: Environmental Consciousness Survey(Partial)

### Section I. Environmental concerns ( $\alpha=0.84$ )

Please indicate the level of concern each of the following has about environmental issues as they relate to your organization

	<u>Not at all</u>	<u>Fair</u>	<u>Some</u>	<u>High</u>	<u>Very high</u>	
You, personally	1	2	3	4	5	
Coworkers, peers	1	2	3	4	5	
Top management	1	2	3	4	5	
Operational Worker		1	2	3	4	5
Customer		1.	2	3	4	5
Supplier	1	2	3	4	5	

### Section II. Current Environmental Efforts ( $\alpha=0.80$ )

How would you describe the effort, time and resources your firm has invested in the following areas

	<u>Substantial</u>	<u>Adequate</u>	<u>None</u>
a. Reducing energy consumption	1	2	3
b. Reducing pollution	1	2	3
c. Waste recycling	1	2	3
d. Working with customers on items <b>a or b or c</b>	1	2	3
e. Working with suppliers on items <b>a or b or c</b>	1	2	3
f. Obtaining ISO 14001 certification	1	2	3

### Section III. Impact of Environmental Strategy ( $\alpha=0.85$ )

In your organization how would you rate the impact of environmental efforts on:

Very	Somewhat	No	<u>Positive</u>	<u>Very Positive</u>	<u>Impact</u>	<u>Negative</u>	<u>Negative</u>
			1	2	3	4	5
Profits			1	2	3	4	5
Revenues			1	2	3	4	5
Customers			1	2	3	4	5
Suppliers			1	2	3	4	5
Operations Efficiency			1	2	3	4	5
Company Image			1	2	3	4	5