FACULTY OF ECONOMICS AND BUSINESS ADMINISTRATION

DEPARTMENT OF MARKETING, INNOVATION AND ORGANISATION

CENTER FOR ENTREPRENEURSHIP RESEARCH

# Sustainable behavior and economic performance:

# (when) does it pay for SMEs?

## The role of knowledge and strategic thinking

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# Introduction

The literature on **corporate sustainability** has grown rapidly in the last 10 years, with a predominant focus on **large firms** in a global economic context.

The role of **SMEs** and the impact of environmental and/or social behavior on the economic performance of SMEs, however, remain underexposed.

More research is needed to understand **“whether” and “when” it pays for SMEs to be socially and environmentally responsible** (Alshehhi et al. 2018, Dixon-Fowler et al. 2013, Yin et al. 2022)

> role of firm age, firm size and industry

> role of knowledge, strategic approach to sustainability

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# Sustainable behavior and economic performance

**Corporate sustainability literature**

1. focus on **large and/or public firms**

2. using **accounting-based performance measures** (e.g. ROA, ROS, ROE) or **market-based performance measures** (market value, stock returns, Tobin's Q)

Endogeneity - **direction of causality** between sustainable behavior (performance) and economic performance

**Survey on sustainability of SMEs in Flanders (BE)**

1. **(independent) SMEs**

2. using **economic performance measures** that are suitable for **measuring the sustainable behavior-performance link** in SMEs

Insights in ***paths*** through which sustainable behavior affects economic performance (***mediation model)*** and the role of knowledge and strategic thinking ***(moderation)***

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# 2023 Survey

- Stratified random sample of Flemish SMEs
  - 8,437 SMEs with minimum 5 employees
  - strata based on company size (micro/small/medium-sized firms)
    and sector of activity (wide variety of production and service sectors)
  - SMEs meet “independence” definition (additional question in the survey)

- 2,316 responses (response rate of 28.6%)
  - 1,580 answers are useful for further analyses




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# Sustainable behavior (Eikelenboom, M. & de Jong, G., 2019)

**Please indicate whether your company engaged in these behaviors in the past 12 months** (yes/no)

1. Investing in energy savings (incl. switching to the use of renewable energy)
2. Applying water-saving programs
3. Carrying out environmental audits/controls to evaluate the company's impact on the environment
4. Design products and packaging that can be reused, repaired and recycled
5. Reusing old products or waste as raw materials
6. Voluntarily applying stricter environmental standards than the legally applicable environmental standards
7. Developing or selling ecological products/services

8. Implementing development programs for disadvantaged/vulnerable groups
9. Supporting cultural and sporting activities
10. Including the interests of the local community in decisions
11. Considering the development of the local community



**<u>Green</u> sustainable activities -> preserving or improving the environment**

**<u>Social</u> sustainable activities -> creating benefits for society**

**Almost all firms (95%) did engage in any sustainable activities in the last 12 months**

**On average, SMEs engaged in 3.93 different sustainable activities (std. dev 2.49)**

(micro firms 3.53 < small firms 3.96 < medium-sized firms 4.79 sustainable activities)

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# Knowledge about sustainability (cfr. Shane, S., 2000)

**To what extent was the following knowledge and information available within your company over the past 12 months?**

5-point Likert scale: (-2) strongly disagree, (-1) disagree, (0) neither agree nor disagree, (1) agree, and (2) strongly agree

- the way in which sustainable innovations (e.g. adjustments to the current production process, development of new products/services) can be applied in the company;
- the functioning of markets in which sustainable innovations can be exploited (e.g. how we collaborate with suppliers, which specific sales techniques are used, required capital);
- the problems that customers experience and for which sustainable products and/or services can provide a solution;
- new, sustainable business models

**KNOWLEDGE about sustainability: average -0.04 (std. dev. 0.90)**

(micro firms -0.09 = small firms -0.06 < medium-sized firms 0.11)

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# Strategic thinking (cfr. Porter, M., & Kramer, M., 2006)

**Strategic *approach: Which description best fits the way these activities were chosen?***

*RESPONSIVE* *We gradually decided to carry out sustainable activities to **respond to questions and/or pressure from outside**. These activities are **not part of our core activity** and **often incur additional costs**. However, they may improve the **reputation** or **media attention** of our company*

*STRATEGIC* *The choice for sustainable activities was mainly **internally driven**: we first examined **which sustainable activities would strengthen the core activity** of our company. The chosen sustainable activities are therefore **valuable for the environment/society and also provide** our company with a **strategic/competitive advantage**.*

**Strategic thinking = RESPONSIVE: 23% of the firms that engaged in sustainable activities**

(micro firms 24% = small firms 22% = medium-sized firms 24%)

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# Economic impact from sustainable behavior: profit

**To what extent has your company experienced the following impacts as a result of sustainable behavior in the past 12 months?**

5-point Likert scale: (-2) decreased substantially, (-1) decreased slightly, (0) remained stable, (1) increased slightly, and (2) increased substantially

| Impact on profit margins | Freq. | Percent | Cum. |
|---|---|---|---|
| decreased substantially | 22 | 1.98 | 1.98 |
| decreased slightly | 280 | 25.16 | 27.13 |
| remained stable | 706 | 63.43 | 90.57 |
| increased slightly | 96 | 8.63 | 99.19 |
| increased substantially | 9 | 0.81 | 100.00 |
| Total | 1,113 | 100.00 | |

**PROFIT impact of sustainable behavior: average -0.19 (std. dev. 0.64)**

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# Economic impact from sustainable behavior: sales, cost & investment

**To what extent has your company experienced the following impacts as a result of sustainable behavior in the past 12 months?**

5-point Likert scale: (-2) decreased substantially, (1) decreased slightly, (0) remained stable, (1) increases slightly, and (2) increased substantially

**SALES impact of sustainable behavior: average 0.06 (std. dev. 0.52)**

Cfr. Zhu, Q. et al. 2013

- the costs for the purchase of materials and raw materials;
- the costs for energy consumption;
- the costs for waste processing;
- the costs for disposing of waste;
- the costs of financial sanctions for environmental damage;

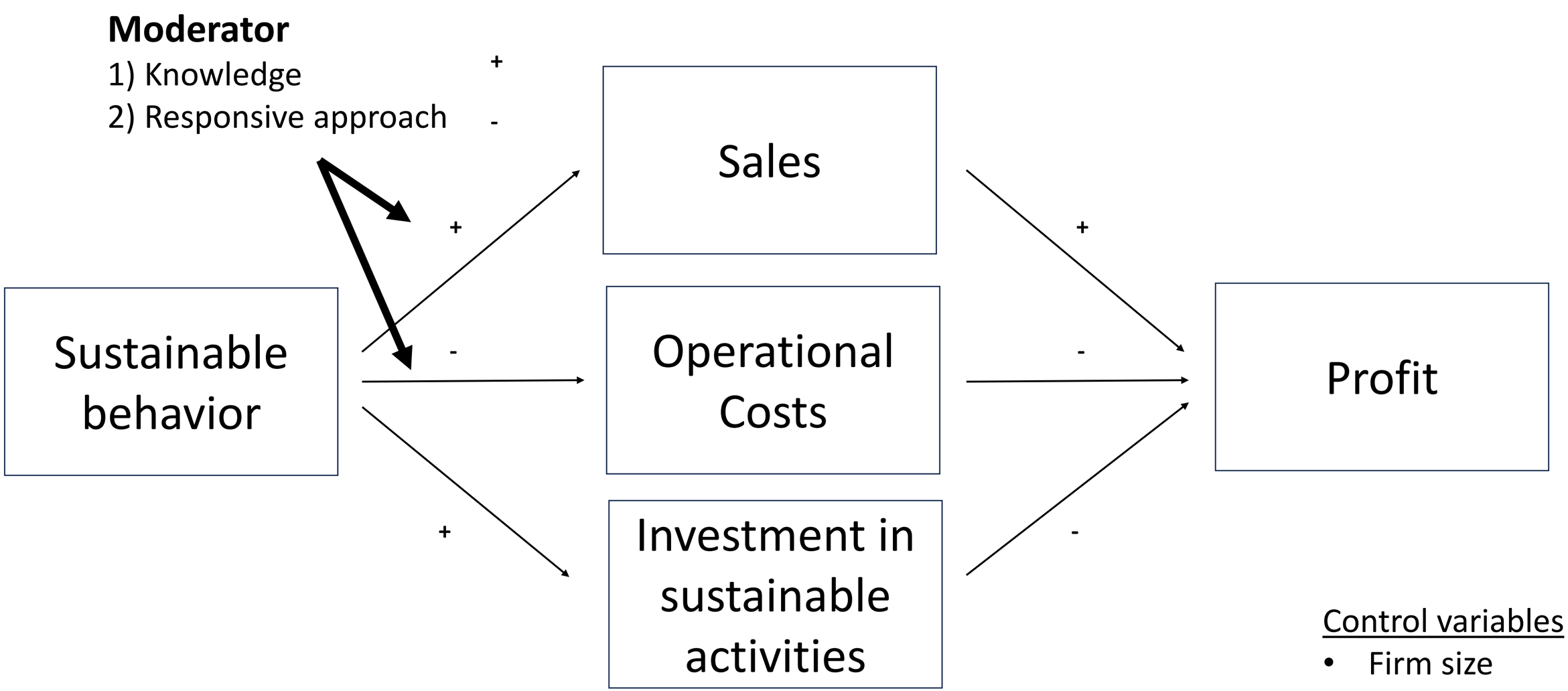
**COST impact of sustainable behavior: average 0.25 (std. dev. 0.68)**

**What percentage of turnover did the investments (and/or expenditures) for these sustainable activities represent ?**

**Scale 1-7:** (1) less than 1%, (2) 1-5%, (3) 6-10%, (4) 11-30%, (5) 31-50%; (6) 51-75%, (7) 76-100%

**INVESTMENT impact of sustainable behavior – average 2.19 (std. dev. 1.12)**

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Control variables

- Firm size
- Firm age
- Sector
- Knowledge

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# Main effect from sustainable behavior

**Impact on sales, cost, investment & profit**

indirect effect on sales, cost & investment

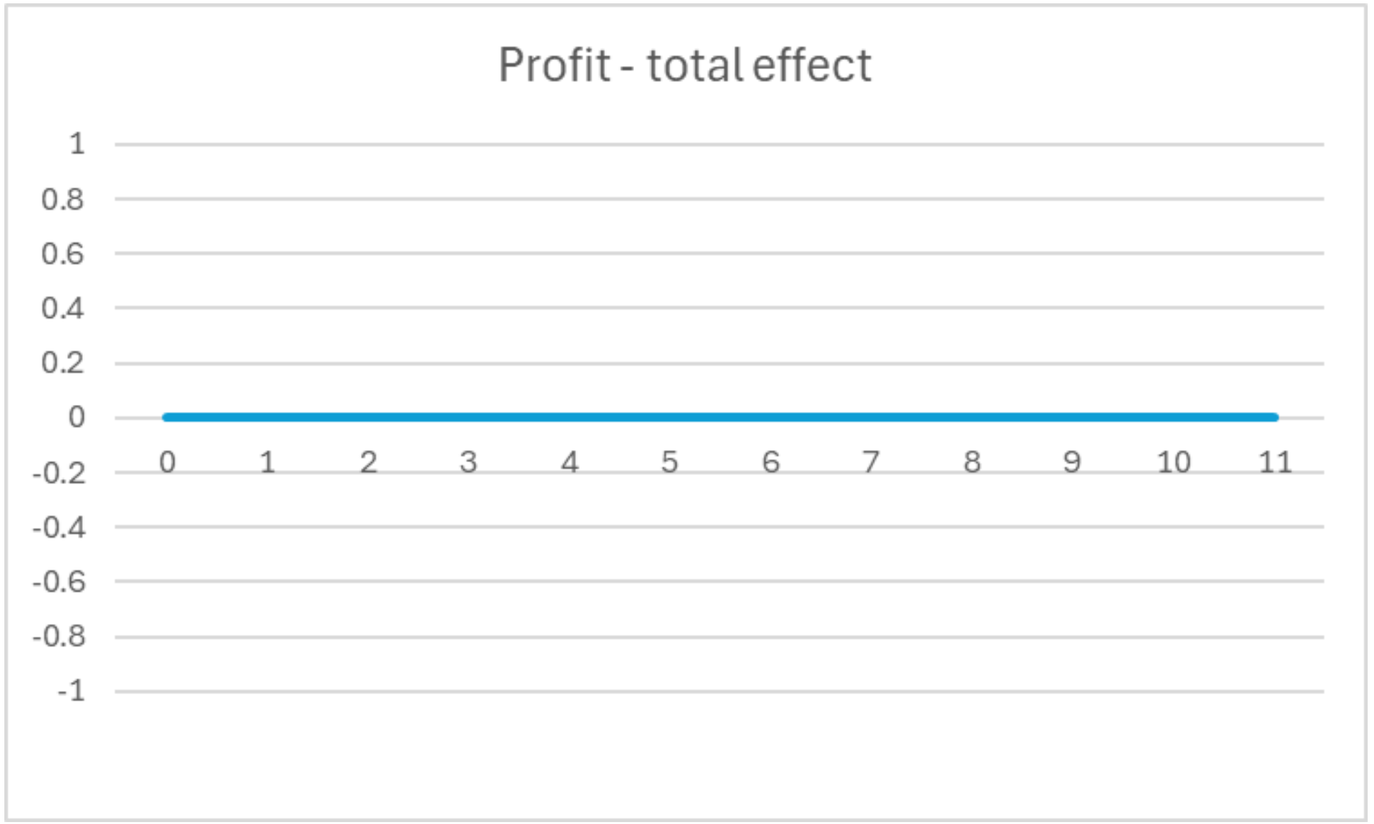
no (total) effect on profit

| | Model 1 | Model 2 | Model 3 | Model 4 | Model 5 | Model 6 |
|---|---|---|---|---|---|---|
| VARIABLES | sales | cost | investment | profit | profit | profit |
| | | | | | | |
| sustainable behavior | 0.016** | -0.022** | 0.128*** | 0 | | -0.01 |
| | [0.007] | [0.009] | [0.014] | [0.008] | | [0.007] |
| sales_impact | | | | | 0.589*** | 0.591*** |
| | | | | | [0.032] | [0.032] |
| cost_impact | | | | | -0.208*** | -0.211*** |
| | | | | | [0.024] | [0.024] |
| investment_impact | | | | | -0.039*** | -0.033** |
| | | | | | [0.015] | [0.015] |
| knowledge | 0.111*** | 0.033 | 0.162*** | 0.089*** | 0.029 | 0.035* |
| | [0.018] | [0.024] | [0.037] | [0.022] | [0.019] | [0.019] |
| age | 0.001 | 0.001 | -0.002 | -0.002 | -0.002** | -0.002** |
| | [0.001] | [0.001] | [0.002] | [0.001] | [0.001] | [0.001] |
| small | -0.007 | -0.004 | -0.249*** | 0.068 | 0.059 | 0.063* |
| | [0.035] | [0.047] | [0.072] | [0.044] | [0.037] | [0.037] |
| medium | 0.04 | -0.157** | -0.304*** | 0.141** | 0.066 | 0.074 |
| | [0.049] | [0.066] | [0.103] | [0.062] | [0.052] | [0.052] |
| industry2 | -0.028 | 0.001 | -0.029 | -0.052 | -0.037 | -0.036 |
| | [0.036] | [0.048] | [0.074] | [0.045] | [0.038] | [0.038] |
| industry3 | 0.008 | -0.155*** | -0.023 | 0.057 | 0.022 | 0.019 |
| | [0.042] | [0.056] | [0.087] | [0.052] | [0.044] | [0.044] |
| Constant | -0.008 | 0.376*** | 1.937*** | -0.174*** | -0.046 | -0.026 |
| | [0.049] | [0.065] | [0.101] | [0.061] | [0.058] | [0.059] |
| | | | | | | |
| Observations | 1,113 | 1,113 | 1,113 | 1,113 | 1,113 | 1,113 |
| R-squared | 0.056 | 0.022 | 0.124 | 0.027 | 0.314 | 0.315 |

Standard errors in brackets; *** p<0.01, ** p<0.05, * p<0.1

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# Main effect from sustainable behavior: profit impact




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# Moderation effect from sustainable behavior x knowledge

**Impact on sales, cost, investment & profit**

indirect effects via sales & cost

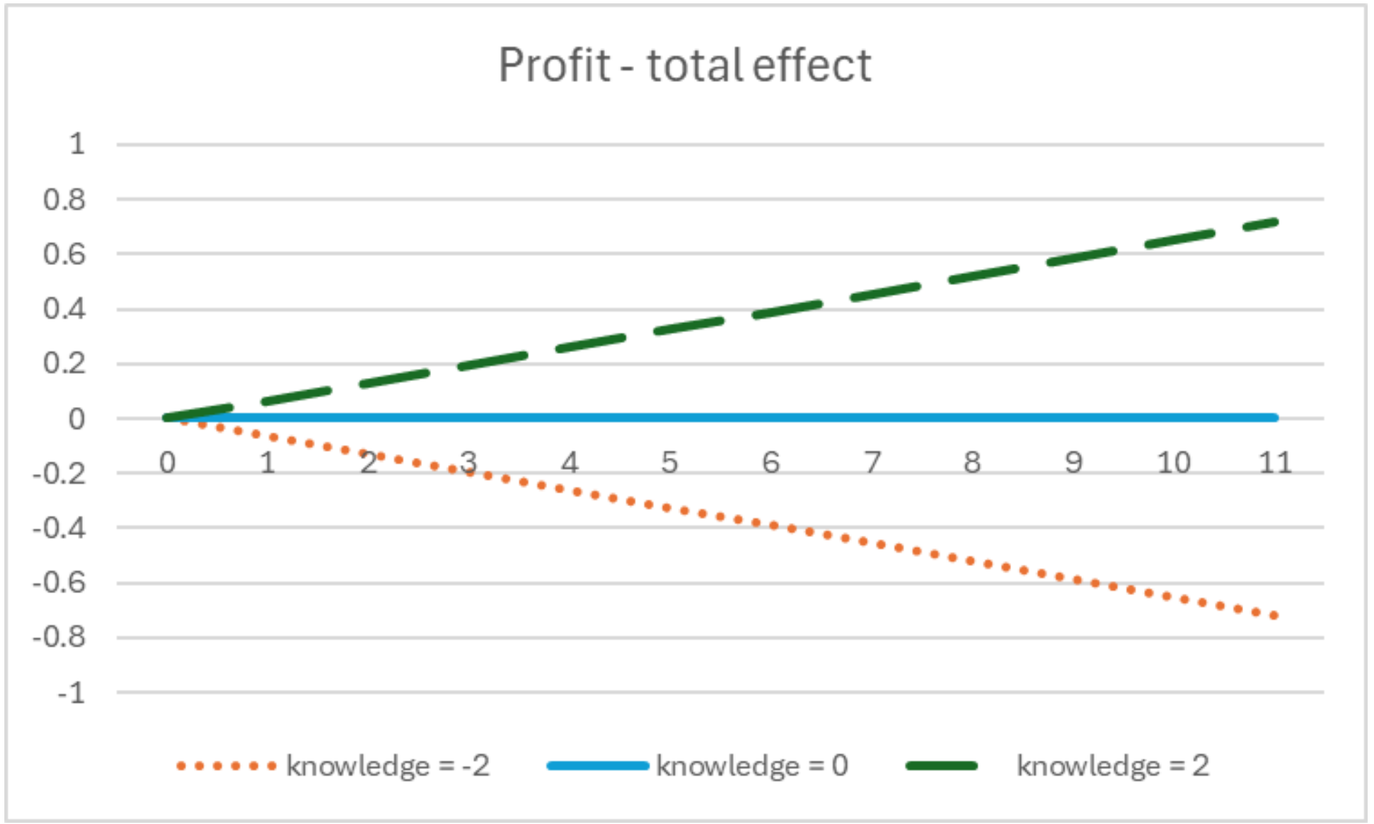
positive moderation effect on profit

| | Model 1 | Model 2 | Model 3 | Model 4 | Model 5 | Model 6 |
|---|---|---|---|---|---|---|
| **VARIABLES** | **sales** | **cost** | **investment** | **profit** | **profit** | **profit** |
| | | | | | | |
| sustainable behavior | 0.013** | -0.019** | 0.129*** | -0.005 | | -0.012* |
| | [0.007] | [0.009] | [0.014] | [0.008] | | [0.007] |
| sust. behavior x knowledge | 0.020*** | -0.024*** | -0.004 | 0.033*** | | 0.016** |
| | [0.007] | [0.009] | [0.014] | [0.008] | | [0.007] |
| sales_impact | | | | | 0.599*** | 0.585*** |
| | | | | | [0.031] | [0.032] |
| cost_impact | | | | | -0.207*** | -0.207*** |
| | | | | | [0.024] | [0.024] |
| investment_impact | | | | | -0.035** | -0.033** |
| | | | | | [0.015] | [0.015] |
| knowledge | 0.037 | 0.120*** | 0.175*** | -0.031 | | -0.022 |
| | [0.030] | [0.040] | [0.063] | [0.038] | | [0.032] |
| age | 0.001 | 0.001 | -0.002 | -0.002 | -0.002** | -0.002** |
| | [0.001] | [0.001] | [0.002] | [0.001] | [0.001] | [0.001] |
| small | -0.002 | -0.01 | -0.250*** | 0.076* | 0.06 | 0.067* |
| | [0.035] | [0.046] | [0.073] | [0.043] | [0.037] | [0.037] |
| medium | 0.049 | -0.167** | -0.305*** | 0.155** | 0.07 | 0.082 |
| | [0.049] | [0.066] | [0.103] | [0.062] | [0.052] | [0.052] |
| industry2 | -0.035 | 0.008 | -0.028 | -0.062 | -0.04 | -0.041 |
| | [0.036] | [0.048] | [0.074] | [0.045] | [0.038] | [0.038] |
| industry3 | -0.005 | -0.139** | -0.021 | 0.035 | 0.02 | 0.009 |
| | [0.042] | [0.056] | [0.088] | [0.052] | [0.044] | [0.044] |
| Constant | -0.006 | 0.374*** | 1.937*** | -0.171*** | -0.058 | -0.026 |
| | [0.049] | [0.065] | [0.101] | [0.061] | [0.057] | [0.059] |
| | | | | | | |
| Observations | 1,113 | 1,113 | 1,113 | 1,113 | 1,113 | 1,113 |
| R-squared | 0.064 | 0.028 | 0.124 | 0.041 | 0.312 | 0.318 |

Standard errors in brackets; *** p<0.01, ** p<0.05, * p<0.1

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# Moderating effect of knowledge: profit impact




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# Moderation effect from sustainable behavior x responsive

**Impact on sales, cost, investment & profit**

indirect effects via sales & cost

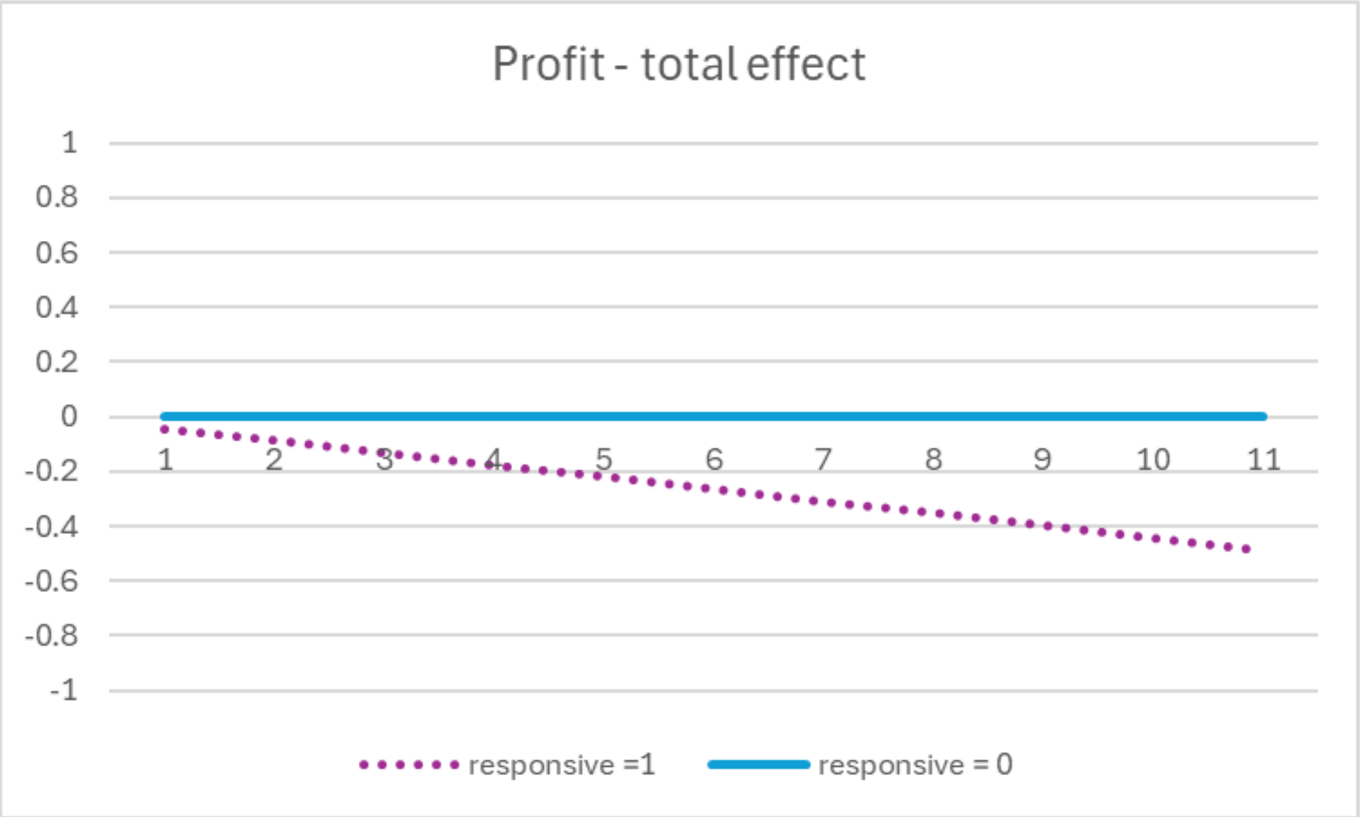
negative moderation effect on profit

| VARIABLES | Model 1<br>sales | Model 2<br>cost | Model 3<br>investment | Model 4<br>profit | Model 5<br>profit | Model 6<br>profit |
|---|---|---|---|---|---|---|
| sustainable behavior | 0.025*** | -0.047*** | 0.092*** | 0.015 | | -0.006 |
| | [0.008] | [0.011] | [0.016] | [0.010] | | [0.009] |
| sust. behavior x responsive | -0.043** | 0.066*** | 0.043 | -0.044** | | -0.005 |
| | [0.017] | [0.023] | [0.035] | [0.021] | | [0.018] |
| sales_impact | | | | | 0.588*** | 0.586*** |
| | | | | | [0.033] | [0.033] |
| cost_impact | | | | | -0.205*** | -0.203*** |
| | | | | | [0.025] | [0.025] |
| investment_impact | | | | | -0.032** | -0.030* |
| | | | | | [0.016] | [0.016] |
| responsive | 0.121 | -0.142 | -0.222 | 0.021 | | -0.086 |
| | [0.075] | [0.099] | [0.154] | [0.093] | | [0.079] |
| knowledge | 0.113*** | 0.049* | 0.170*** | 0.080*** | 0.033* | 0.029 |
| | [0.019] | [0.025] | [0.039] | [0.024] | [0.020] | [0.021] |
| age | 0.001 | 0.001 | -0.002 | -0.002 | -0.002** | -0.002** |
| | [0.001] | [0.001] | [0.002] | [0.001] | [0.001] | [0.001] |
| small | -0.005 | -0.004 | -0.269*** | 0.074 | 0.067* | 0.068* |
| | [0.037] | [0.049] | [0.076] | [0.046] | [0.039] | [0.039] |
| medium | 0.046 | -0.160** | -0.306*** | 0.152** | 0.074 | 0.084 |
| | [0.052] | [0.068] | [0.106] | [0.064] | [0.054] | [0.055] |
| industry2 | -0.032 | 0.014 | -0.011 | -0.061 | -0.042 | -0.039 |
| | [0.037] | [0.049] | [0.077] | [0.046] | [0.039] | [0.039] |
| industry3 | 0.001 | -0.151*** | -0.008 | 0.047 | 0.018 | 0.016 |
| | [0.044] | [0.058] | [0.090] | [0.055] | [0.046] | [0.046] |
| Constant | -0.042 | 0.471*** | 2.146*** | -0.213*** | -0.07 | -0.028 |
| | [0.056] | [0.074] | [0.115] | [0.069] | [0.062] | [0.068] |
| | | | | | | |
| Observations | 1,057 | 1,057 | 1,057 | 1,057 | 1,057 | 1,057 |
| R-squared | 0.065 | 0.041 | 0.094 | 0.044 | 0.313 | 0.318 |

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Standard errors in brackets; *** p<0.01, ** p<0.05, * p<0.1

# Moderating effect of responsive: profit impact




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# Conclusions & policy implications

- **Sustainable behavior of SMEs is related to higher sales, lower operational costs and higher investment, but no (direct/total) impact on profit.**

- **Unlike large firms, SMEs do not seem to benefit from (more) sustainable behavior in terms of enhanced profit unless coupled with sufficient knowledge and/or a more strategic approach towards sustainable entrepreneurship.**

- **Our research highlights the importance of strategic thinking and knowledge about sustainability in SMEs:**

  - *which sustainable activities can strengthen the core activities of the firm, be valuable for the environment and/or society and at the same time create a strategic / competitive advantage to the company*

  - *Internal knowledge on how to develop and implement a strategic approach to sustainability needs to be further strengthened, especially in the smaller SMEs*

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