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IF APPROACH TO INNOVATIONS DIFFERS IN LOCALLY AND FOREIGN OWNED FIRMS: CASE OF LITHUANIA

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Abstract. Presented paper aims to reveal differences, if any, in innovative behavior of business firms containing foreign and not foreign capital. Innovative behavior in that case is being characterized by scale of investment into research and development, self-financing pattern and business strategy undertaken by various firms. Juxtaposition of business firms operating in the same economy field but having different ownership origin – local and containing foreign capital – has been performed. Results let us identify differences in approach to innovative activity stipulated by presence of foreign capital. Tendencies obtained in Lithuania plausibly might have been verified in other less advanced European countries in order to check if a consistent pattern could be admitted.

Keywords: innovations, FDI, organizational behavior, Lithuanian business firms.

1. Introduction into problem

Economists almost unanimously agree on attitude to foreign direct investments (FDI) as a catalyst of economic growth. The simplest explanation of FDI role lies in the fact that incoming FDI usually means enhance of available capital in physical terms. We need to admit that in some cases capital of local firm can remain of the same size, while its origin was changed from local to foreign by process of privatization. In such cases changes in production quantity and quality can be recorded as well, if foreign capital transfers new technologies or tested practices of marketing or management in a broad sense. Various authors emphasize different facets of FDI impact. Nevertheless, majority points to importance of FDI as innovation accelerator rather than enhancer of physical capital. The latter approach has been supported by Mytelka and Barclay (2004), who stress that the impact of foreign direct investment (FDI) on future opportunities for catching up with developing countries is much greater than its importance as a source of capital. Kaderabkova (2005–2006) Kathuria and Das (2005) agree that innovations are vital to achieve sustainable country's competition and to catch-up with more developed economies.

Not going into discussion more deeply, we adopt approach to FDI shared by vast majority of authors: FDI is especially significant as innovation transfer from more to less developed countries. In our analysis we go further by raising another question: how differently business companies perform if to compare ones containing foreign capital to others of purely local origin. Hence, aim of presented paper is to trace differences in behavior of firms, which have already been exposed to changes related to inflow of foreign capital. We strive to detect how (if) behavioral differences occur, and if we can consider them as a sustainable pattern of behavior in developing country. In order to perform the set scientific task the following behavioral aspects are going to be elaborated. The first question is if business companies containing FDI are more active in spending on research and development compared to local ones; if field of economic activity determines attitude to innovation implementation. The second question is how foreign companies finance themselves, and typically, if so, act in market compared to those of exclusively local ownership.

2. Approach to innovations: if different patterns can be traced

Before starting comparison of firms innovative behavior we need to ground a criterion, which is going to be employed. A concrete criterion can be chosen only by adopting rather severe simplification of innovative process measure. Recall, that innovative process is to be understood more broadly, i.e. as "a system of innovations" and "can be defined as a network of economic agents, together with the institutions and policies that influence their innovative behaviour and performance" (Mytelka and Barclay, 2004).

Innovation process could also be interpreted as "an interactive process in which enterprises in interaction with each other and supported by institutions and a wide range of organisations play a key role in bringing new products, new processes and new forms of organization into economic use." Much narrower look at innovation process is represented by authors emphasizing three key elements – linkages, investment and learning (Mytelka and Barclay, 2004). Different scope of characteristic features attributed to innovation process shapes innovative behavior, or vice versa, only illustrates complexity of phenomenon under elaboration. As it was mentioned above, having rather a practical aim – to juxtapose innovative behavior – we need to choose sufficiently explicit criterions. Investment or spending on research and development (R&D) is the major statistically estimated index. Other listed aspects of innovative process listed above are rather tacit. Nevertheless, in order to look at innovative behavior we can investigate financing structure, i.e., we are to direct our focus not only to scale of spending on R&D but to sources of that spending expressed in terms of financing pattern. Finally, we will try to identify strategy of different firms that, we feel, at least partly let us trace, what can be perceived as the way through which organizations act in order to "bring their products into economic use".

In order to resolve scientific questions which have been set, a questionnaire has been developed. Randomly chosen Lithuanian business firms were supposed to reveal what percentage of annual turnover they devote to R&D, what are preferred sources of new projects' financing, and, finally, what behavior pattern as business organization they have adopted.

In order to take into account specifics imposed by economic sector, companies containing FDI and ones of purely local origin were compared only when they were identified as being engaged in the same economic activities. Economic sectors to which analyzed companies were to be attributed were identified according to classification of economic activities used by Lithuanian Department of Statistics and EUROSTAT. Hence below, 5 economic sectors which further are used for our analysis are listed. Next to them, economic activities which have been embraced by each sector together with their statistical abbreviations are listed:

- Agriculture (A – Agriculture, hunting and forestry, B – Fishing);
- Manufacturing (D – Manufacturing);
- Energy (E – Electricity, gas and water supply);
- Construction (F – Construction);
- Trade and Services (G – Wholesale and retail trade, H – Hotels and restaurants, I – Transport, storage and communications, J – Financial intermediation, K – Real estate, renting and business activities, O – Other community, social and personal service activities).

The scope of questioning was sufficiently wide: more than 1200 enterprises have been questioned. After formal checking of received responses 787 ones were chosen for further analysis. Out of 787 a major part (632) represented business firms of purely local origin and the remaining part (155) respectively represented those containing foreign capital. The ratio of firms under investigation representing local and foreign capital is sufficiently rational if to consider Lithuanian FDI statistical data (Lithuanian Department of Statistics, the World Bank).

3. Enterprise behavior analysis regarding research and development

This part of the paper analyzes what share of turnover companies spend on Research and Development activities. Companies belonging to different sectors were asked to point out, whether they spend less than 2 %, between 2 and 5 %, more than 5 % of their turnover, or they are not interested in investing to R&D activities. Below comments on the obtained results are outlined.

Fig 1 represents the answers of respondents who do not have foreign capital in their ownership structure. The majority (50 %) of respondents from ***agriculture*** sector spend more than 5 % on R&D activities. 38 % of respondents spend less than 2 %, there were no respondents who spend 2 to 5 %, and only 13 % who appeared to be not interested in investing to R&D activities. Overall, agricultural enterprises showed a trend that R&D activities are of quite high importance. Talking about ***Manufacturing*** sector, the majority of respondents (36 %) spend less than 2 % or more than 5 % (30 % of respondents). A quarter of respondents

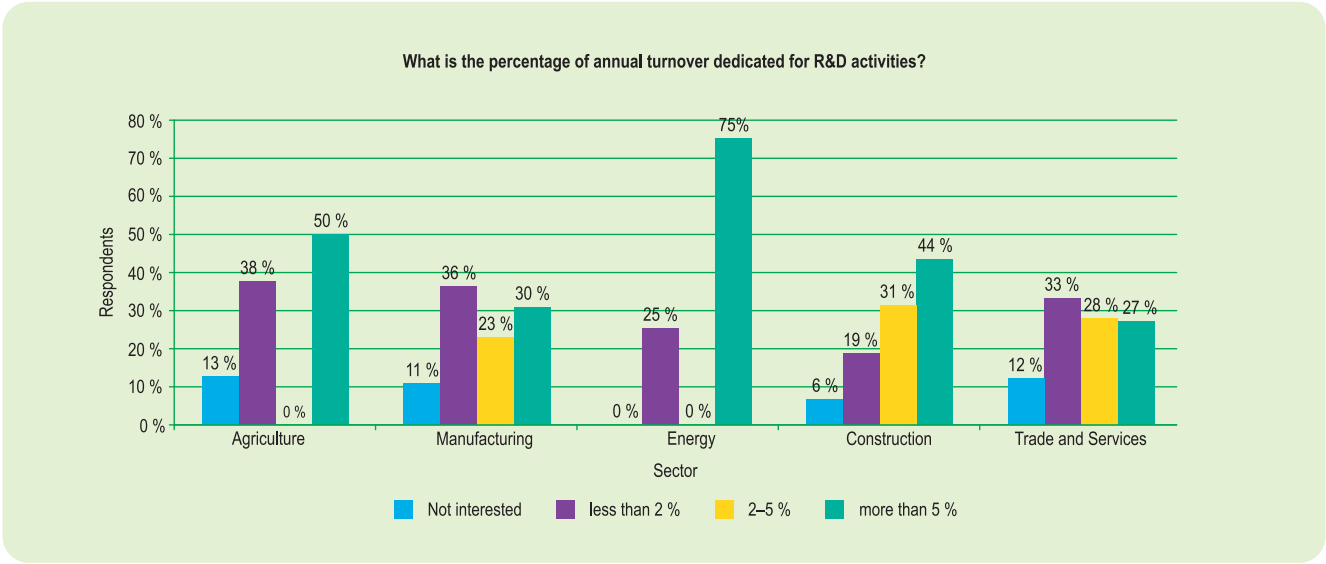

Fig 1. Percentage of dedicated funds for Research and Development activities for businesses with no FDI

spend between 2 and 5 %, and only 11 % are not interested. To sum up, manufacturing sector enterprises tend to perform R&D activities and investment is rather evenly distributed. ***Energy*** sector, on the contrary, invests either more than 5 % (75 % of respondents) or less than 2 % (25 % of respondents). This means, that energy companies are those who intensively implement development projects. ***Construction*** industry shows a very positive and consequent trend towards R&D activities. The minority of companies are not interested, and the majority spend more than 5 %. The trend here is obvious: construction industry tends to be more and more active in R&D. ***Trade and services*** sector spends mostly less than 2 % on R&D (33 % of respondents), or more than 2 % or 5 % (28 and 27 % of respondents respectively). This outcome represents that trade and services are much into R&D activities.

Fig 2 represents the answers of respondents who have foreign capital in their ownership structure. The majority (100 %) of respondents from ***Agriculture*** sector spend more than 5 % on R&D activities. However, there was only 1 respondent who fell into this category, so results can hardly be adequately interpreted. Talking about ***Manufacturing*** sector, the majority of respondents (39 %) spend between 2 and 5 % on R&D, 31 % of respondents spend more than 5 %, and only 11 % are not interested. To sum up, manufacturing sector enterprises tend to perform R&D activities and investment

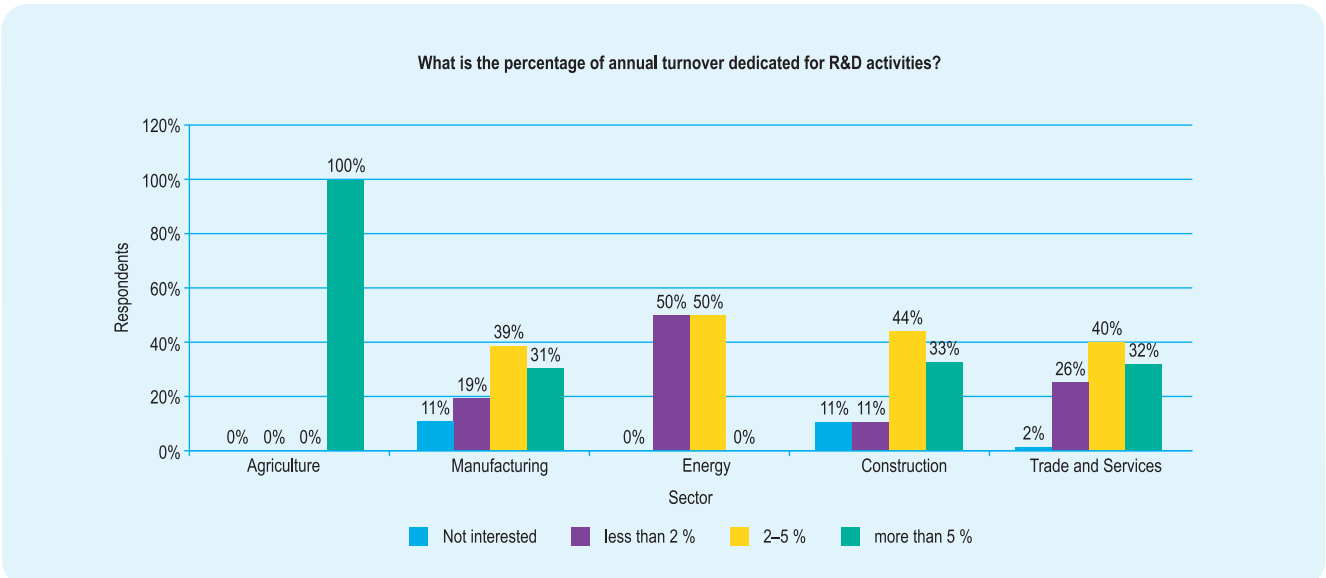

Fig 2. Percentage of dedicated funds for Research and Development activities for businesses with FDI

is rather evenly distributed. ***Energy*** sector, on the contrar, invests either less than 2 % (50 % of respondents) or 2–5 % (50 % of respondents). This means, that energy companies are those who implement development projects. ***Construction*** industry average investment to R&D activities is 2 – 5 % (44 % of respondents), also, one third of the respondents invest more than 5 %. The minority of companies are either not interested (11 %) or invest less than 2 % (11 % of respondents). The trend here is that: construction industry tends to be more active in R&D. ***Trade and services*** sector spends mostly 2 to 5 % on R&D (40 % of respondents), or more than 5 % (32 % of respondents). This outcome represents that trade and services sector performs rather intense R&D activities (Table 1).

Here are compared answers of respondents, who have Foreign Direct Investment in their ownership structure and those who have not. ***Agriculture*** sector can hardly be commented as there was only 1 respondent who had FDI in its ownership. Companies in ***Manufacturing*** sector have different priorities: companies without FDI tend to invest less than 2 % of the turnover to R&D activities, and companies with FDI – from 2 to 5 %. ***Energy*** sector, on the contrary, non-FDI companies invest more than 5 % and FDI companies up to 5 %. Non-FDI business in ***Construction*** industry tend to dedicate more than 5 % and FDI companies – 2 to 5 %. ***Trade and services*** sector is similar to manufacturing sector: the outcome is the same: companies without FDI tend to invest less than 2 % of the turnover to R&D activities, and companies with FDI – from 2 to 5 %.

Table 1. Percentage of dedicated funds for Research and Development activities for businesses with and without FDI (What is the percentage of annual turnover dedicated for R&D activities?)

	Agriculture		Manufacturing		Energy		Construction		Trade and Services	
	No FDI, %	With FDI, %	No FDI, %	With FDI, %	No FDI, %	With FDI, %	No FDI, %	With FDI, %	No FDI, %	With FDI, %
Not interested	13	0	11	11	0	0	6	11	12	2
Less than 2 %	38	0	36	19	25	50	19	11	33	26
2–5 %	0	0	23	39	0	50	31	44	28	40
More than 5 %	50	100	30	31	75	0	44	33	27	32

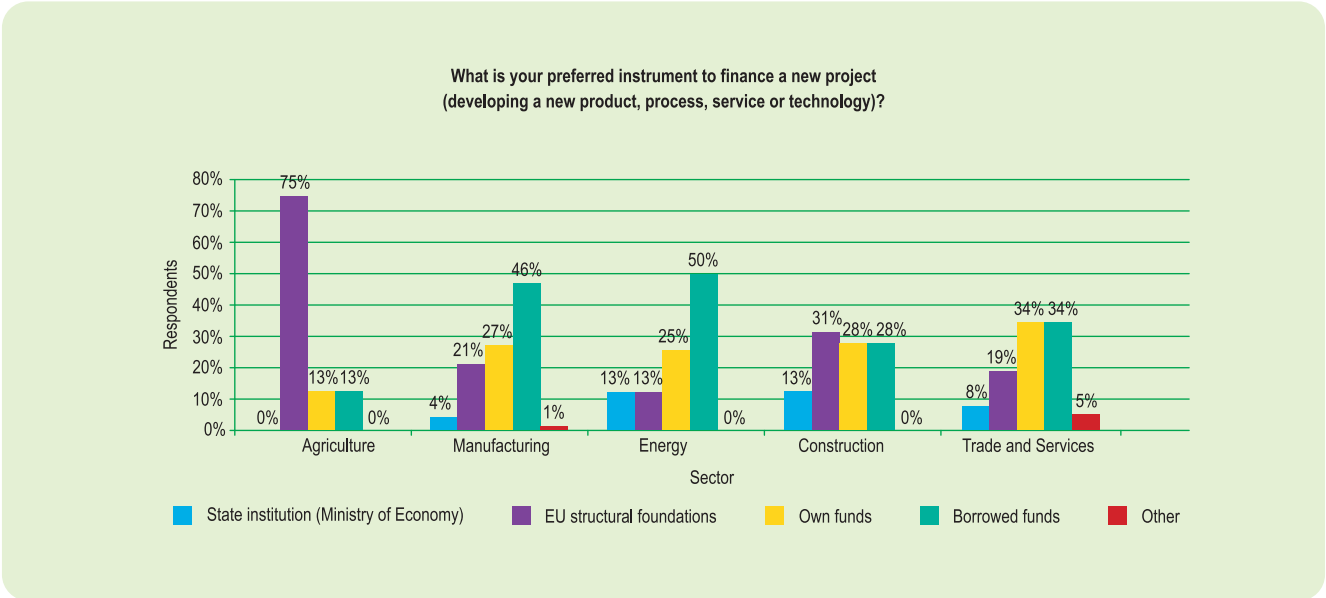

Fig 3. Preferred instruments to finance new projects for businesses with no FDI

4. Preferences analysis in financing new projects

Fig 3 represents the answers of respondents who do not have foreign capital in their ownership structure. The majority (75 %) of respondents from ***Agriculture*** sector prefer EU structural foundations to finance new projects. The rest 26 % prefer either own funds or borrowed funds. To sum up, agricultural enterprises tend to use the financial support from the European Union. Talking about ***Manufacturing*** sector, the majority of respondents (46 %) use borrowed funds, the next group belongs to those who use their own funds, only a minority uses State institutions or the EU funds. ***Energy*** sector, similarly to manufacturing, tends to use borrowed funds most (50 % of respondents), and then their own. This means, that energy companies are those who intensively look for financing in financial institutions. ***Construction*** industry nearly evenly uses all means of financing: the EU structural funds, own and borrowed funds. Only the majority of the respondents use the State institutions finances. ***Trade and services*** sector finances its projects mostly by their own or borrowed funds, a few companies use the EU funds, and just 8 % get the funds from the State institutions.

Fig 4 represents the answers of respondents who have foreign capital in their ownership structure. The majority (100 %) of respondents from ***Agriculture*** sector use State institutions funds. However, there was only 1 respondent who fell into this category, so results can hardly be adequately interpreted. Talking about ***Manufacturing*** sector, the majority of respondents (47 %) use own funds, the next group (25 %) belongs to those who use the EU structural funds, the third place is taken by borrowed funds, and only minority uses State institutions funds. ***Energy*** sector on the contrary, tends to use borrowed funds most (50 % of respondents), and then their own together with the EU funds (25 % each group). This means, that energy companies are those who intensively look for financing in financial institutions and elsewhere. ***Construction*** industry mostly uses borrowed funds (56 %), their own resources (33 %). 11 % of respondents use financial resources other than mentioned. ***Trade and services*** sector finances its projects mostly by their own funds (55 %), or borrowed funds, a few companies use the EU funds, and just 2 % get the funds from the State institutions. To say more, trade and services sector shows a similar pattern to manufacturing sector.

Here are compared answers of respondents, who have Foreign Direct Investment in their ownership structure and those who have not. ***Agriculture*** sector can hardly be commented as there was only 1 respondent who had FDI in its ownership. Companies in ***Manufacturing*** sector have different priorities: companies without FDI tend to use borrowed funds (46 %) and companies with FDI –rely more on their own funds. ***Energy*** sector, on the contrary, tends to show the same pattern: non-FDI companies finance their new projects mostly using borrowed funds, and FDI companies go in accord with previously mentioned ones – they also mostly use borrowed funds. Non-FDI business in ***Construction*** industry tends to use the EU structural funds and FDI companies – borrowed funds. ***Trade and services*** sector companies without FDI mostly use borrowed funds (34 % of respondents), and companies with FDI – mostly (55 % of respondents) rely on their own financial resources (Table 2).

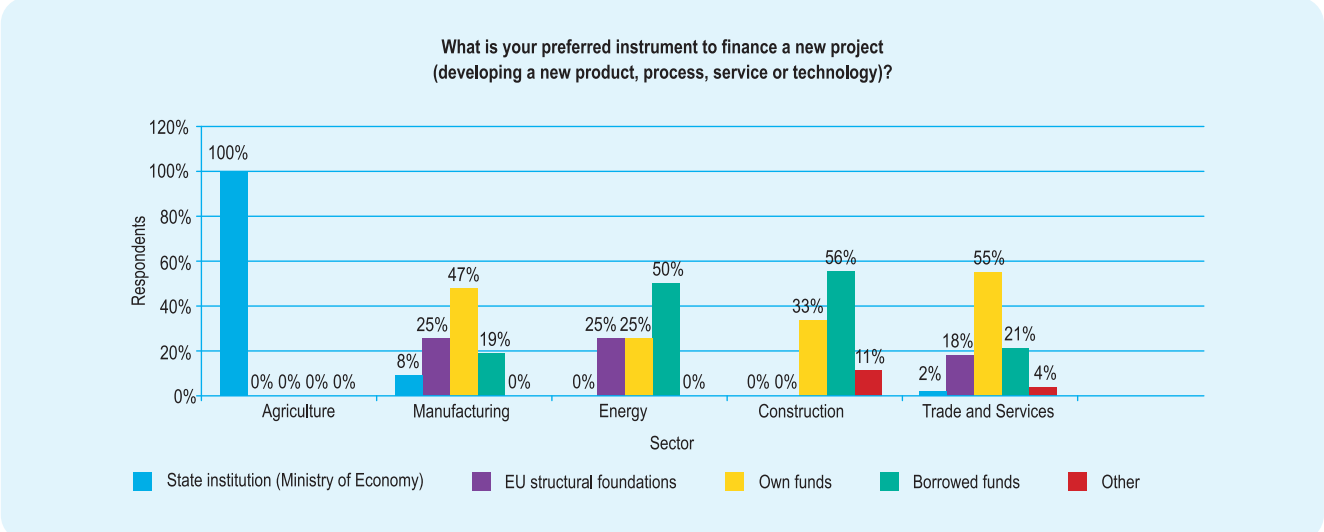

Fig 4. Preferred instruments to finance new projects for businesses with FDI

Table 2. Preferred instruments to finance new projects for businesses with and without FDI (What is your preferred instrument to finance a new project (developing a new product, process, service or technology)?)

	Agriculture		Manufacturing		Energy		Construction		Trade and Services	
	No FDI, %	With FDI, %	No FDI, %	With FDI, %	No FDI, %	With FDI, %	No FDI, %	With FDI, %	No FDI, %	With FDI, %
State institution (Ministry of Economy)	0	100	4	8	13	0	13	0	8	2
EU structural foundations	75	0	21	25	13	25	31	0	19	18
Own funds	13	0	27	47	25	25	28	33	34	55
Borrowed funds	13	0	46	19	50	50	28	56	34	21
Other	0	0	1	0	0	0	0	11	5	4

5. Innovation strategy analysis of the investigated enterprises

Fig 5 represents the answers of respondents who do not have foreign capital in their ownership structure. The majority of respondents from ***Agriculture*** sector aims to set up technology which allows to sharply reduce costs; efficiency is connected with the cost saving and agricultural companies appreciate widely accepted technologies, but intensively look for new opportunities. Talking about ***Manufacturing*** sector, similarly, firms aim to set up technology which allows to sharply reduce costs, efficiency is connected with the cost saving and they appreciate widely accepted technologies, but intensively look for new opportunities. ***Energy*** sector, businesses appreciate widely accepted technologies, but intensively look for new opportunities, they aim to set up technology which allows to sharply reduce costs, efficiency is connected with the cost saving. ***Construction*** industry aims to set up technology which allows to sharply reduce costs, appreciates widely accepted technologies, but intensively look for new opportunities, and efficiency is connected with the cost saving. ***Trade and services*** sector aims to set up technology that allows to sharply reduce costs, relies more on human resources qualification than on process integration, and aims to use wide range of technologies.

Fig 6 represents the answers of respondents who have foreign capital in their ownership structure. Since there was only 1 respondent who fell into the category of ***Agriculture*** sector, so results can hardly be adequately

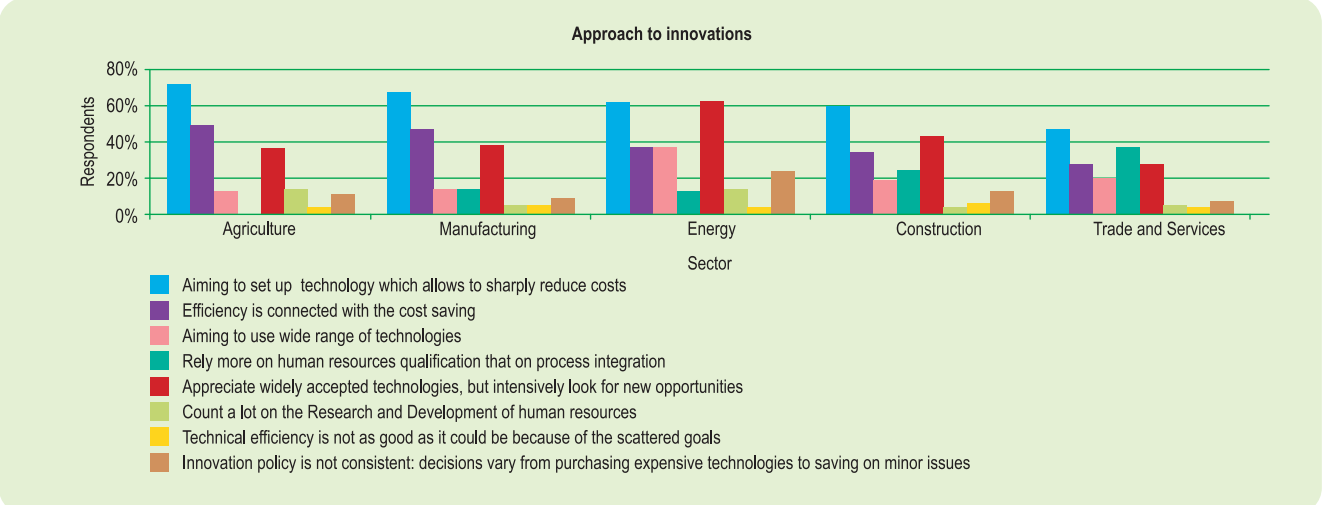

Fig 5. Innovation strategies of businesses with no FDI

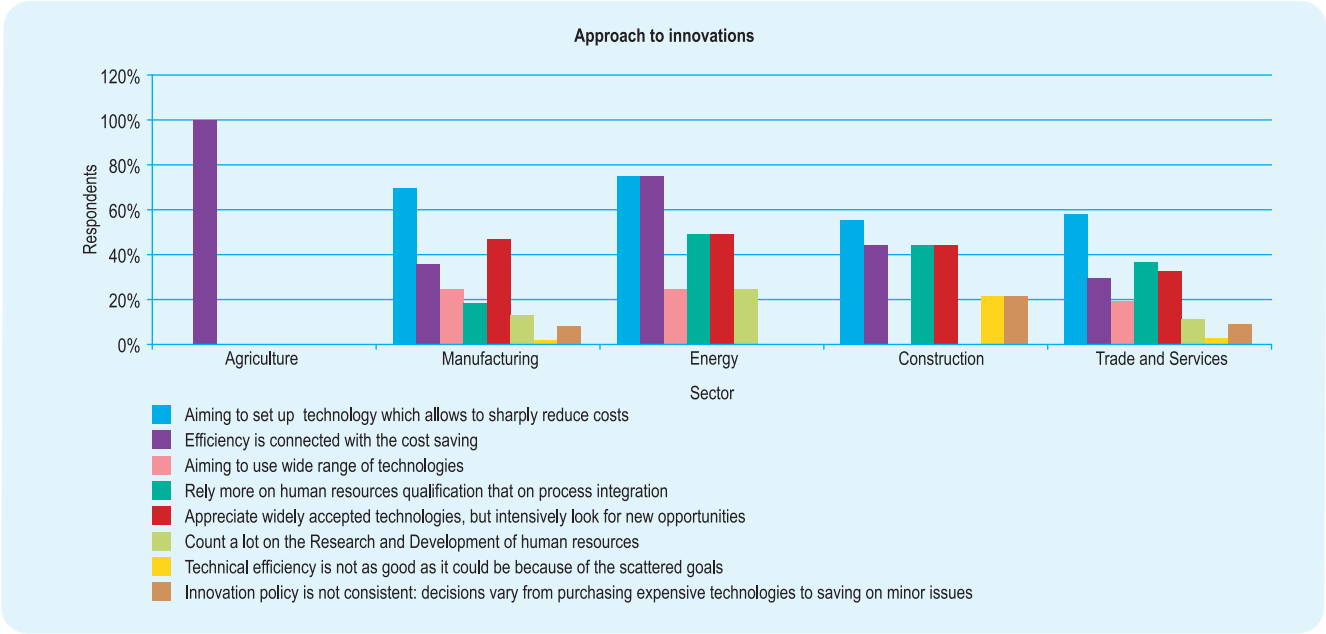

Fig 6. Innovation strategies of businesses with FDI

interpreted. Talking about ***Manufacturing*** sector, firms aim to set up technology which allows to sharply reduce costs, efficiency is connected with the cost saving, they appreciate widely accepted technologies, but intensively look for new opportunities. ***Energy*** sector aims to set up technology which allows to sharply reduce costs, efficiency is connected with the cost saving, it relies more on human resources qualification than on process integration, and appreciates widely accepted technologies, but intensively look for new opportunities. ***Construction*** industry companies aim to set up technology which allows to sharply reduce costs, efficiency is connected with the cost saving, they rely more on human resources qualification than on process integration. ***Trade and services*** sector firms aim to set up technology which allows to sharply reduce costs, rely more on human resources qualification than on process integration, and appreciate widely accepted technologies, but intensively look for new opportunities (Table 3).

Table 3. Innovation strategies of businesses with and without FDI

	Agriculture		Manufacturing		Energy		Construction		Trade and Services	
	No FDI, %	With FDI, %	No FDI, %	With FDI, %	No FDI, %	With FDI, %	No FDI, %	With FDI, %	No FDI, %	With FDI, %
1	75	0	68	69	63	75	59	56	47	58
2	50	100	46	36	38	75	34	44	28	30
3	13	0	14	25	38	25	19	0	21	20
4	0	0	13	19	13	50	25	44	36	37
5	38	0	38	47	63	50	44	44	28	33
6	0	0	5	14	0	25	3	0	5	11
7	0	0	4	3	0	0	6	22	3	4
8	0	0	8	8	25	0	13	22	7	10

1. Aiming to set up technology which allows to sharply reduce costs
2. Efficiency is connected with the cost saving
3. Aiming to use wide range of technologies
4. Rely more on human resources qualification than on process integration
5. Appreciate widely accepted technologies, but intensively look for new opportunities
6. Count a lot on the Research and Development of human resources
7. Technical efficiency is not as good as it could be because of the scattered goals
8. Innovation policy is not consistent: decisions vary from purchasing expensive technologies to saving on minor issues

Here are compared answers of respondents, who have Foreign Direct Investment in their ownership structure and those who have not. ***Agriculture*** sector can hardly be commented, as there was only 1 respondent who had FDI in its ownership. Both type of companies (FDI and non-FDI) in ***Manufacturing*** sector appreciate widely accepted technologies, but intensively look for new opportunities. FDI firms also aim to use wide range of technologies and count a lot on the Research and Development of human resources. FDI and non-FDI firms in ***Energy*** sector aim to set up technology which allows to sharply reduce costs, efficiency is connected with the cost saving, they appreciate widely accepted technologies, but intensively look for new opportunities. However, research showed, that for non-FDI companies innovation policy is not consistent: decisions vary from purchasing expensive technologies to saving on minor issues, while FDI firms rely more on human resources qualification than on process integration and count a lot on the Research and Development of human resources. FDI and non-FDI ***Construction*** industry firms state that efficiency is connected with the cost saving and appreciate widely accepted technologies, but intensively look for new opportunities. However, non-FDI firms aiming to keep the same products and services look for new innovative opportunities, while FDI companies intensively look for new innovative products and services. Both FDI and non-FDI ***Trade and services*** sector companies aim to set up technology which allows to sharply reduce costs. Nevertheless, non-FDI firms tend to use wide range of technologies, while FDI firms appreciate widely accepted technologies, but intensively look for new opportunities, and count a lot on the Research and Development of human resources.

Preferred instrument to finance a new project differs in manufacturing sector: non-FDI firms prefer borrowed funds while FDI firms mostly use own funds. Energy sector shows similar preferences in financing new projects: both types of firms use both own and borrowed funds. Construction industry showed similar results as energy sector. In Trade and services sector non-FDI firms prefer borrowed funds while FDI firms mostly use own funds to finance new projects.

Approach to innovations in manufacturing sector is that firms with foreign capital aim to use wide range of technologies and count a lot on the Research and Development of human resources, while companies without foreign capital appear not to have these features. In Energy sector non-FDI firms proved to be using wide range of technologies but their innovation policy is not consistent: decisions vary from purchasing expensive technologies to saving on minor issues. Meanwhile, FDI companies rely more on human resources qualification than on process integration and count a lot on the Research and Development of human resources. In Construction industry foreign capital firms rely more on human resources qualification than on process integration. In Trade and services sector non-FDI firms aim to use wide range of technologies, while FDI companies appreciate widely accepted technologies, but intensively look for new opportunities.

Generally, the most innovation-driven Foreign Direct Investment falls into trade and services as well as manufacturing sectors. These findings were obtained after performing micro-level analysis of the firms. Surprisingly, energy and construction sectors failed to be innovation-driven.

6. Conclusions

Due to lack of respondents in agriculture sector the obtained results can hardly be interpreted. Nevertheless, it appeared that agriculture sector proved to be not innovative as FDI did not cause any significant spillover effect.

Based on the survey results, manufacturing firms that have foreign capital spend more on research and development than non-FDI ones. Non-FDI energy companies spend more on R&D (more than 5 % of the annual turnover) while businesses with foreign capital dedicate less funds for R&D activities (2 – 5 %). Construction companies with foreign capital spend less on R&D than those without it. FDI-related trade and services firms invest more to R&D activities.

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