

**Market Sizing and
Socioeconomic Importance
of Direct Selling**

**Associação Brasileira de Empresas
de Vendas Diretas - ABEVD**

Product 3 – Final Report

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Technical Data

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Executive Summary

The Direct Selling is a marketing system of goods and services based on the personal contact, between the salesman and the buyer, outside a fixed commercial establishment. Practiced under different forms, present everywhere in the world and involving the most diverse sectors of the economy, the Direct Selling stands out, among other factors, by its capillarity and capacity of expanding itself geographically.

For the companies, it represents and distribution channel with major expansion potential, capable of adding value to their products and services through personal relationships. For the reseller, it is an alternative to the traditional job, which allows working in flexible hours, earn according to the dedication and growing personally and professionally. For the consumer, the Direct Selling represents a custom service which does not exist in the traditional market. For the society, it is a way of contributing to reduce the unemployment problem, since it offers the opportunity for supplementing the family income and work for the minorities.

According to the World Federation of Direct Selling Associations - WFDSA, which represents major global companies in the segment through their national associations, the business volume of the Direct Selling in the world was US\$ 115 billion in 2007 and involved 62.9 million resellers in 57 countries. In Brazil, the business volume of Direct Selling in 2010 totaled R\$ 26 billion, index 17.2% superior to the obtained in 2009. In the first quarter of 2011, the nominal volume of sales was R\$ 5.8 billion, result 8,9% more than the one registered in the same period of 2010. The sector is also responsible for the tax contribution of marketing products and services performed by millions of self employed resellers.

For the Associação Brasileira de Empresas de Vendas Diretas – Brazilian Association of Direct Selling (ABEVD), it is very important to size and monitor the evolution of the Direct Selling Market and the importance of it for the society and the Brazilian Economy. The work developed by the Fundação Getulio Vargas has the purpose of not only supplying quantitative and updated information regarding the Direct Selling market, but also evaluate and improve the methodology of market sizing currently applied by the ABEVD, defining the principles and concepts which must be followed for the continuous updating of these numbers.

As a first step of this process, a survey is necessary in order to size the market, i.e., estimate the number of active resellers in the channel. For this it is essential, in addition to obtaining information on the total number of representatives in each company, developing a procedure for estimating the level of overlap of these resellers between the companies.

The information of interest on the issue of resellers overlapping was raised through Field Survey with the self employed representatives, held in eleven units of the federation through telephone interviews, the results are shown in this paper. The main result of this step of the study concluded that, within the total of resellers registered in direct selling as a whole, 42.3% are the result of overlap, i.e., double counting the registers corresponding to resellers working in two or more companies.

Due to this substantial overlapping between the companies in the resellers' universe, including the companies which are not members of ABEVD, it is important to investigate the profit segmentation in this market. The present study estimates that, for those agents working with both, registered and non registered companies, 86.5% of the profit comes from ABEVD companies.

In addition to the issues related to the double overlapping of the resellers of the sector, aspects of their employability and social condition were also investigated, aiming to identify a profile of agents working in the direct selling market in Brazil.

Upon completion of the estimates of the direct impacts of the Direct Selling industry, FGV conducted a comprehensive analysis of the socioeconomic importance of this sector's operations in the Brazilian economy, with the following objectives:

- Improve, consolidate and size the productive chain of the Direct Selling sector in Brazil, identifying the sector connections and the monetary flows involved;
- Estimate the direct, indirect and induced impacts of the productive chain of Direct Selling on the production of assets and services, employment income and taxation in the country; and
- Produce socioeconomic indicators of the importance of the Direct Selling in the Brazilian economy.

This study was based in a methodology of a multi sector analysis based on the model of the Input-Extended Product Matrix. This model was developed and implemented by FGV based on information coming from ABEVD itself, as well as data and studies provided by the Brazilian Institute of Geography and Statistics - IBGE and various other entities.

Taking as a reference year 2010, the impacts of the companies operating in the Brazilian market for direct selling were analyzed. The Direct selling was represented within the input product model through the characterization of a "Direct Selling Sector This sector stands out as part of a separate productive activity within the model, and has its own intermediate consumption links with other sectors, as well as its own characteristics to generate employment, income and revenue.

From the design and analysis of the input-extended product model, there is the existence of indirect and induced effects whose magnitude, as a rule, is far superior to the direct effects. Thus, although the direct selling industry is an important productive activity per se, directly responding to 0.77% of GDP and more than 4.05 million people, these impacts are multiplied significantly when considering the indirect and induced effects. The total impact on the GDP is of R\$ 145,3 billion, corresponding to a multiplier of 5,15. This translates into 4,0% of the country's gross domestic product in 2010. The generated occupations are multiplied by 2,13 reaching 8,65 million of total occupations generated by the sector, between full and part time occupations. Finally, the important part reserved to the government is observed in the generation of the added value of the Direct selling sector. In fact, 31,3% of the R\$ 28,2 billion of the sector's GDP are destined only to the taxes imposed over the production.

The results above show the great importance of the Direct Selling Sector as a component of production structure and generation of social well being in the country. These impacts may be interpreted as a counterfactual. Hypothetically, if the Brazilian Direct Selling ceased to exist, the resellers would not have the income generated by the activity and therefore have to reduce their consumption. Moreover, the inputs and intermediate goods needed to operate the industry would no longer be produced. Thus, the hypothetical "disappearance" of the sector would represent not only a cessation of its production, but also the partial cessation of production of goods and services of the other 47 sectors that were exercised indirectly by the Direct Selling. Considering as valid the assumptions of the input-product model, this counterfactual scenario, there would be "loss" equivalent to the total impact shown above, i.e., 8.6 million jobs and R\$ 145.3 billion in GDP.

1. Introduction

The present report, regarding product 3, has the purpose of presenting the following results:

- Procedure adopted and results obtained through field survey with resellers registered with the companies associated to ABEVD;
- Results for the market sizing of market for the year of 2010;
- System Methodology proposal to allow the regular monitoring of the market evolution by ABEVD; and
- Estimation of the socioeconomic importance of the Direct Selling in Brazil.

This report is divided in 7 sections, as follows: Executive Summary, Introduction, Field Survey, Field Survey Results, Sizing of the Direct Selling Market, Socioeconomic Importance of the Direct Selling and Conclusive Observations.

Section 3 consists of a description of the methodology employed in the Field survey, the sampling procedure and the preparation of the questionnaire. This methodology was developed and implemented with the main purpose of measuring the overlap between the consulting sector and the companies analyzed, but also includes issues related to employability and their social condition. This makes it possible to identify a profile of agents that act in the direct selling market in Brazil. The results of the study were also presented, summarizing all the main points and targeting the analysis of the geographical regions of the country (Federative Units, major regions and Brazil).

Section 4 is divided into two parts, namely, the results of 2010 and the proposed methodology to design and monitor the market. The first part presents the methodology in the estimate of the total of active resellers in the Brazilian Market of Direct Selling as a whole, i.e., including **ABEVD** and non **ABEVD** companies. A study on the income noticed by the representatives of Direct Selling is also presented, analyzing the disaggregation of the average profit between companies registered and not registered at **ABEVD**. Finally, the section presents a brief analysis of a few results obtained with the sizing system used by **ABEVD**.

In section 5, the importance of the role of the Direct Selling in Brazil was quantified through the implementation of an input-extended product model to the Brazilian economy in 2010. The input-product analysis aims to quantify the relations of production and consumption between different productive activities and economic sectors. Thus it was possible to demonstrate the magnitude of the direct selling industry interactions with the rest of the economy, mainly as a consumer of products and services of various kinds.

Completing the study, Section 6 contains reports of the main observations and comments on the results of the studies on the direct selling market.

2. Field Research

This section consists of a description of the methodology employed in the Field survey, the sampling procedure and the preparation of the questionnaire. This methodology was developed and implemented with the main purpose of measuring the overlap between the consulting sector and the company analyzed, but also includes issues related to employability and their social condition. This makes it possible to identify a profile of agents that act in the direct selling market in Brazil.

2.1 Methodology

The field survey which the present report discusses has the purpose of measuring the overlapping of the consultants between the companies of the sector. This survey was executed with the self employed resellers of the companies registered at **ABEVD** and had the following characteristics:

- Communication Method: Interviews by telephone with the resellers;
- Sample: Obtained from the application of random sampling techniques over the data base of the resellers of the companies involved in the study;
- Questionnaire: Involved nine questions elaborated with the purpose of raising the aspects regarding the following points: Employability, overlapping in the Direct Selling Companies and social condition;

- Geographic Scope: 11 (eleven) states of the country in the 5 (five) Geographic regions; and
- Total of interviews: 2.350 (200 by state, except São Paulo, with 350).

2.2 Selection of the Simple Random Sample

The records provided by the Associação Frutos da Terra Brasil (AFTB), Avon, Hermes, Hinode, Jequiti e Natura consisting of the full universe of resellers¹ (registration number of the company, name, CPF and phone numbers) present in Paraná, Rio Grande do Sul, Minas Gerais, Rio de Janeiro, São Paulo (metropolitan area and countryside), Federal District, Mato Grosso do Sul, Pernambuco, Bahia, Pará and Amazonas were first segmented between resellers residing in the metropolitan region and those living in other cities outside the metropolitan area. This segmentation had the purpose of ensuring that the sample properly represented the distribution of the resellers between the MR and the other cities.

Through a simple random sampling, 200 “research units” were selected for each state and 150 for the metropolitan region of São Paulo, distributed into two groups (MR and other cities) proportional to the distribution of the resellers enrolled. Each unit is composed by a “official” and five “reserves”. The number of 200 “survey units” was estimated in function of the performed “pilots”, which indicated that it was a sufficient size to generate a efficient estimator.

Chart 2.2.1 – Shows the participation of Each Company in the Sample Composition Considering the information about the active representatives, obtained from the data management system of ABEVD, it can be concluded that the companies included in the field survey correspond to more than 90% of all resellers associated with the participating companies of the association.

¹ Except for Hermes, who sent a sample of its resellers by following the procedures used by FGV for the realization of the samples.

Chart 2.2.1 – Participation of Each Company in the Sample Composition

Region	Size Sample											
	Rest of the Federal Unit						Metropolitan Region					
	AFTB	Avon	Hermes	Hinode	Jequiti	Natura	AFTB	Avon	Hermes	Hinode	Jequiti	Natura
Paraná	0,01%	32,55%	11,98%	0,03%	2,64%	20,06%	0,01%	16,76%	4,17%	0,01%	1,18%	10,61%
Rio Grande do Sul	0,01%	28,90%	13,65%	0,01%	2,08%	17,32%	0,01%	17,98%	6,38%	0,00%	0,87%	12,80%
Rio de Janeiro	0,02%	7,36%	6,16%	0,01%	1,30%	8,62%	0,04%	34,85%	13,72%	0,06%	2,97%	24,89%
Minas Gerais	0,02%	32,22%	13,57%	0,02%	2,75%	18,01%	0,01%	16,41%	5,21%	0,02%	1,32%	10,42%
São Paulo	0,03%	51,74%	15,60%	0,10%	4,37%	28,15%	0,05%	54,96%	12,59%	0,12%	4,13%	28,15%
Pernambuco	0,02%	20,11%	13,13%	0,22%	1,17%	13,54%	0,03%	26,03%	7,31%	0,16%	1,30%	16,97%
Bahia	0,01%	22,76%	21,95%	0,09%	1,47%	15,81%	0,02%	17,17%	10,09%	0,08%	0,93%	9,63%
Pará	0,00%	17,51%	26,10%	0,15%	1,32%	14,76%	0,00%	14,96%	13,10%	0,34%	0,93%	10,83%
Amazonas	0,00%	5,91%	4,00%	0,08%	0,59%	4,67%	0,01%	38,70%	14,94%	1,26%	2,31%	27,53%
Brasília	0,02%	73,84%	18,95%	0,08%	0,22%	6,89%	-	-	-	-	-	-
Mato Grosso do Sul	0,02%	42,38%	28,18%	0,35%	3,42%	25,64%	-	-	-	-	-	-

2.3 Formatting of the Questionnaire

The questions formulated in the questionnaire raised the aspects regarding the following points: Employability, overlapping in the Direct Selling Companies and social condition.

The questionnaire was elaborated and tested with some of the consultants randomly selected in the previous stage. In these pilots, different ways of verbalizing the surveys above were tested, with the aim of selecting statements that generate the least possible bias, ambiguity or divergent interpretations. In its final form, the questionnaire included the following questions presented in the Chart 2.3.1.

Chart 2.3.1 – Questionnaire Applied in the Field Survey

Good morning/ afternoon/ evening, my name is (X) and I work for the FGV/ABEVD. We are conducting a survey with our consultants/ resellers, would you have a few seconds to answer our questions?

1 – Do you work with more than one company of the direct selling sector?

2 – Which companies of Direct Selling do you work with? Or how many companies of the Direct Selling sector do you work with?

3 – Do you have any other income source in addition to the Direct Selling, such as other job or retirement?

3.1 – In this other activity, are you registered or participate as the owner (legal person)?

4 – Are you registered as self employed for your Direct Selling activity?

5 – Do you have a team to help you selling?

5.1 – Is your team registered in the company?

5.2 – How many people do you have in your team?

6 – How much do you make monthly with the Direct Selling?

2.4 Survey Process

Inside each survey unit, each listed reseller was contacted, according to the pre-defined sequences, until the following criteria were fulfilled:

- It was possible to contact the reseller;
- The reseller agreed to answer the questionnaire; and
- The s answers were true and consistent.

The survey with the independent resellers was performed and tabulated in the months of May and June of 2011. This process generated 2.350 useful answers.

3. Results of the Field Research

In this section, the results of the field survey performed with the representatives registered in the companies associated to ABEVD are presented. In Section 3.1, we list the results targeted to each of the major regions of the country, and in Section 3.2, we make a comparative analysis between the results of the different regions.

3.1 Results by the Major Regions

The results of field survey for each of the major regions of the country were computed on a segmented way: North, Northeast, Midwest, Southeast and South. These results are presented as follows.

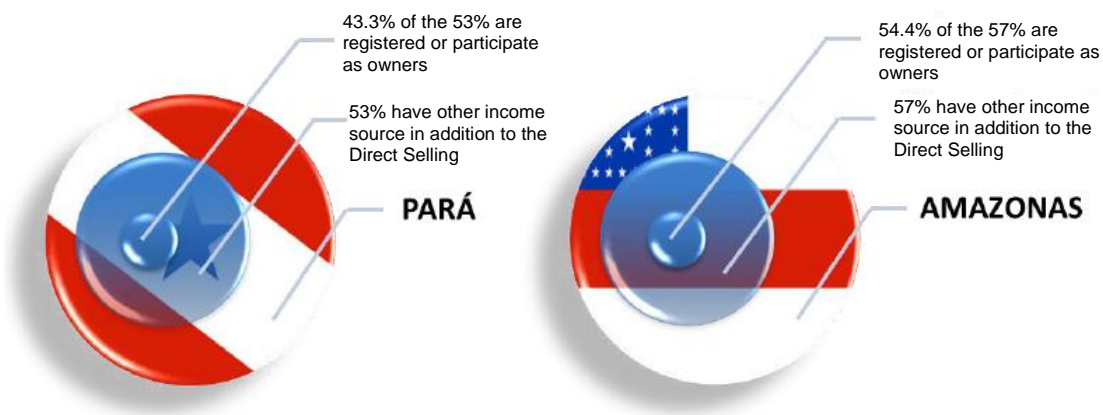
3.1.1 North Region

Due to its high participation in the direct selling industry and high number of resellers, the states of Amazonas and Pará were selected to represent the Northern region as a whole.

Analyzing these two states, it is observed that over 50% of resellers in the state of Amazonas work with more than one company in the direct selling sector, while in Pará this percentage reaches 46%. Dividing the analysis of companies registered and not registered at ABEVD, it is observed that 25% of the Amazonas resellers who work with companies listed also work with at least one not registered company. In Pará, this resellers represent 17.5% of the total.

Regarding the social condition of the resellers, it appears that, in the Amazonas, 57% of agents have other income sources beyond the direct selling and that this subset, 54% have a formal contract or are proprietary. In Pará, these percentages are, respectively 53% and 43% (Chart 3.1.1.1).

Chart 3.1.1.1 – Social Status of the Resellers – North Region



From the resellers of Amazonas, 27% form teams to improve their Sales, in Para 17.5% of resellers are part of one, and these have an average of 3.16 and 1.71 individuals, respectively. In Amazonas and Pará the average profit obtained with Direct Selling is R\$ 478,99 and R\$ 336,54, respectively. These values refer to the monthly net income based on year of 2010.

Chart 3.1.1.2 summarizes the results per region.

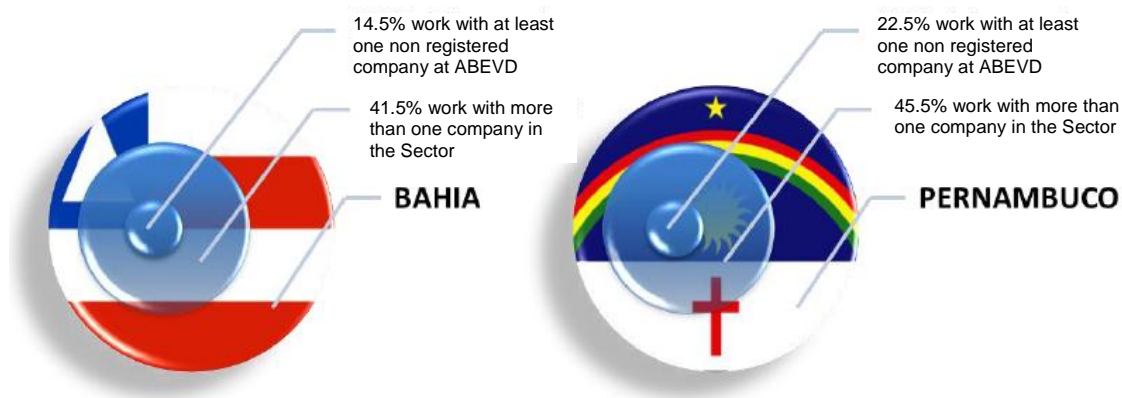
Chart 3.1.1.2 – Summary of the Field Survey Results – North Region

Items		Amazonas	Pará
Percentage of consultants/ resellers which...	...Work with more than one company if the sector	53.5%	46.0%
	...Work with only one company in the sector	46.5%	54.0%
	...Work with two companies in the sector	25.5%	23.5%
	...Work with three or more companies in the sector	3.0%	23.5%
	...Work with only one company in the sector	16.0%	10.5%
	...Work with two companies in the sector	4.0%	4.5%
	...Work with three or more companies in the sector	5.0%	2.5%
	...Have any other income source besides the direct sale	57.0%	53.0%
	...in this other activity, he is registered or participate as owner	54.4%	43.4%
	...is registered as self employed for his direct Sales activity	13.0%	6.0%
...has a team to help him with the sales	27.0%	17.5%	
...has a team registered in the company	11.1%	0.0%	
Average of people by team		3.16	1.71
Average monthly income with direct sales		R\$ 478.99	R\$336.54

3.1.2 Northeast Region

In Northeast, the states of Bahia and Pernambuco were chosen for the execution of the survey. In these states, the number of active representatives who work with more than one company in the sector of direct selling were 41.5% and 45.5%, respectively (Chart 3.1.2.1). These values are significantly lower than that observed for Brazil as a whole (48.4%).

Chart 3.1.2.1 – Percentage of the Resellers in Non Registered Companies – Northeast Region



In Bahia, over half of the sample individuals reported that they have another source of income outside of the Direct Selling and among these, 56.1% have a formal contract or participates as a business owner.

The ones from Pernambuco operating in direct selling, only 24% add others to increase their sales and teams formed by these representatives have an average of 3.46 members. For Bahia, this number reaches 31,5% of teams with an average of 3,81 people. The average profit with Direct Selling in both states is approximately R\$ 288. Chart 3.1.2.2 summarizes the results for the region.

Chart 3.1.2.2 – Summary of the Field Survey Results – Northeast Region

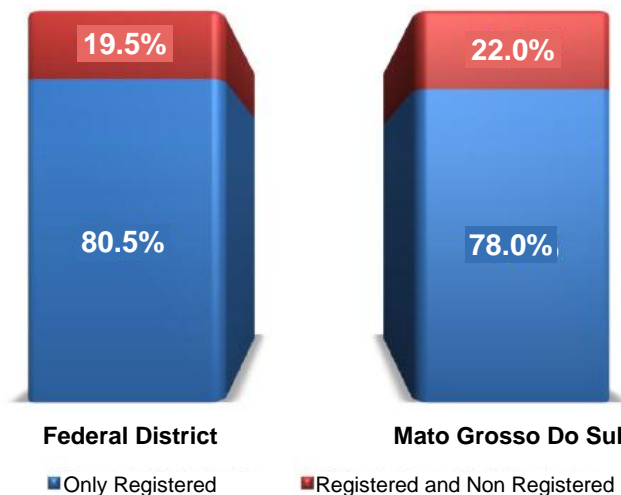
Items		Bahia	Pernambuco	
Percentage of consultants/ resellers which...	...Work with more than one company if the sector	41.5%	45.5%	
	ABEVD	...Work with only one company in the sector	58.5%	54.5%
		...Work with two companies in the sector	21.0%	21.0%
		...Work with three or more companies in the sector	6.0%	2.0%
		...Work with only one company in the sector	8.5%	16.5%
	Non ABEVD	...Work with two companies in the sector	5.0%	4.0%
		...Work with three or more companies in the sector	1.0%	2.0%
		...Have any other income source besides the direct sale	53.5%	46.0%
	...in this other activity, he is registered or participate as owner	56.1%	31.5%	
	...is registered as self employed for his direct Sales activity	16.5%	11.5%	
	...has a team to help him with the sales	31.5%	24.0%	
	...has a team registered in the company	15.9%	4.2%	
Average of people by team		3.81	3.46	
Average monthly income with direct sales		R\$287.81	R\$287.70	

3.1.3 Midwest Region

The survey in the Midwest involved the Federal District and the state of Mato Grosso do Sul, two federal units of expressive participation in the direct selling channel in this region. The states analyzed in the Midwest region had the second and third largest number of resellers who reported having some other source of income outside of the direct selling activity, namely, 65.5% from Mato Grosso do Sul and 61% from the Federal District.

Chart 3.1.3.1 shows the participation of companies not registered at **ABEVD**. It is observed that the total number of resellers who not only work with companies registered in **ABEVD**, but also with at least one non registered company is around 20% in the Midwest. The number is similar to the one observed for Brazil (19.7%).

Chart 3.1.3.1 – Distribution of the Resellers among Registered and Non Registered Companies – Midwest Region



In the Federal District, the sales teams, organized by registered resellers and constituted mostly by individuals not linked to any company in the industry, have on average 2.33 members. In Mato Grosso do Sul, the average size of the teams is of two members.

The average profits in the Midwest are above the national average, especially in Mato Grosso do Sul, which had an average profit of R\$ 376.12.

Chart 3.1.3.2 summarizes the results per region.

Chart 3.1.3.2 – Summary of the Field Survey Results – Midwest Region

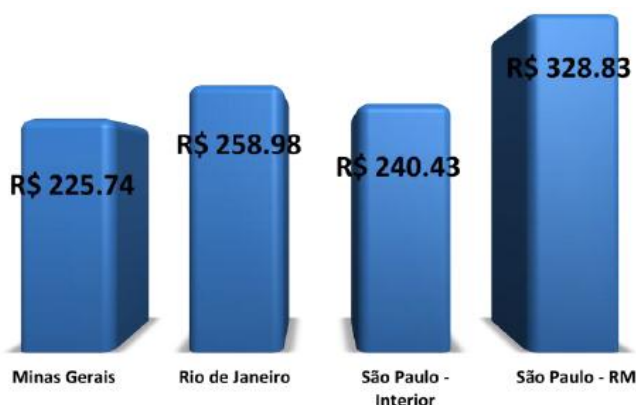
Items		Bahia	Pernambuco	
Percentage of consultants/ resellers which...	...Work with more than one company if the sector	49.5%	53.5%	
	ABEVD	...Work with only one company in the sector	50.5%	46.5%
		...Work with two companies in the sector	24.0%	22.0%
		...Work with three or more companies in the sector	6.0%	9.5%
		...Work with only one company in the sector	12.5%	16.0%
	Non ABEVD	...Work with two companies in the sector	4.5%	2.5%
		...Work with three or more companies in the sector	2.5%	3.5%
		...Have any other income source besides the direct sale	61.0%	65.5%
	...in this other activity, he is registered or participate as owner	57.4%	53.4%	
	...is registered as self employed for his direct Sales activity	9.5%	4.5%	
	...has a team to help him with the sales	23.5%	27.0%	
	...has a team registered in the company	10.6%	3.7%	
	Average of people by team		2.33	2.00
Average monthly income with direct sales		R\$321.92	R\$376.12	

3.1.4 Southeast Region

In the Southeast region, the investigated states were Minas Gerais, Rio de Janeiro and São Paulo, the latter was divided into inner and metropolitan region, i.e., a survey was conducted exclusively for the countryside of São Paulo and another for the Metropolitan Area.

Table 3.1.4.1 shows a comparison between the average profits, calculated with the results of the field survey, for each of the regions studied. It is observed that the metropolitan region of São Paulo presents a value above the others and above the national average. The other states are below the Brazilian average, which is R\$ 303.43.

Chart 3.1.4.1 – Average Profit Obtained with the Direct Sale – Southeast Region



In the Southeast, the metropolitan region of São Paulo is the place that has the largest number of resellers working with at least one company not registered at **ABEVD** (30%), whereas in the other states of this region, this percentage is around 17%.

In the state of Rio de Janeiro, 53% of the resellers reported not having another source of income besides the Direct Selling. In the other states, this percentage does not surpass 43%. Half of the representatives who reported having another source of income in Minas Gerais has a formal contract or engage in business as owner. In municipalities outside the metropolitan region of São Paulo the number of resellers registered with the INSS as independent reaches 17% of the total. The average size of a sales team in the Southeast is 2.5 members.

Chart 3.1.4.2 summarizes the results per region.

Chart 3.1.4.2 – Summary of the Field Survey Results – Southeast Region

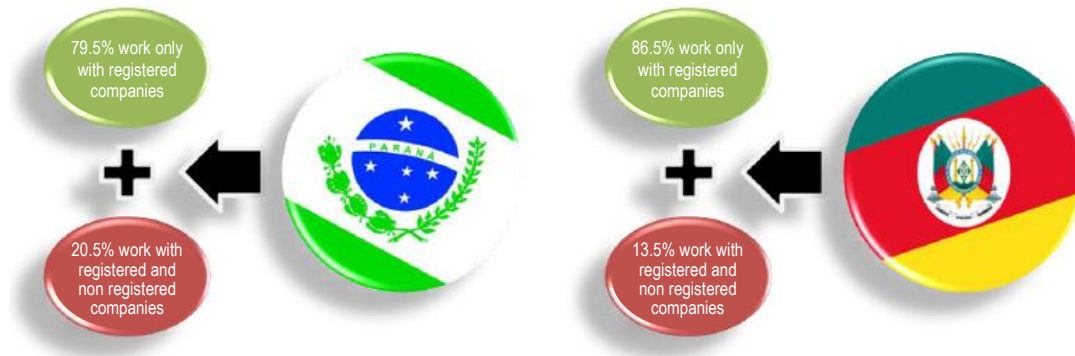
Items		Minas Gerais	Rio de Janeiro	São Paulo – Countryside	São Paulo - MR	
Percentage of consultants/ resellers which...	...Work with more than one company if the sector	50.0%	50.0%	51.5%	54.0%	
	ABEVD	...Work with only one company in the sector	50.0%	50.0%	48.5%	46.0%
		...Work with two companies in the sector	27.5%	25.0%	29.0%	18.0%
		...Work with three or more companies in the sector	7.0%	6.0%	4.0%	6.0%
	Non ABEVD	...Work with only one company in the sector	11.0%	13.5%	15.5%	21.3%
		...Work with two companies in the sector	2.0%	1.5%	2.0%	6.0%
		...Work with three or more companies in the sector	2.5%	4.0%	1.0%	2.7%
	...Have any other income source besides the direct sale	58.0%	47.0%	57.0%	58.0%	
	...in this other activity, he is registered or participate as owner	50.0%	35.1%	49.1%	47.1%	
	...is registered as self employed for his direct Sales activity	14.5%	12.5%	17.0%	10.7%	
	...has a team to help him with the sales	37.5%	26.5%	23.5%	32.0%	
	...has a team registered in the company	4.0%	0.0%	4.3%	0.0%	
	Average of people by team		2.79	2.30	2.80	2.33
	Average monthly income with direct sales		R\$225.74	R\$258.98	R\$240.43	R\$328.83

3.1.5 South Region

The states of Paraná and Rio Grande do Sul were selected to represent the South region. These states were chosen because they have greater representation in the region, i.e., greater number of registered resellers in the companies.

As shown in Table 3.1.5.1, in Paraná 79.5% of resellers only work with companies registered at **ABEVD**, and in Rio Grande do Sul, this number is higher, 86.5%.

Chart 3.1.5.1 – Distribution of the Resellers among Registered and Non Registered Companies – South Region



In the state of Rio Grande do Sul was observed the largest number of retailers with some other source of income in addition to the Direct Selling (retirement, pension or other activity).

From the resellers in Paraná who have a source of income different from the Direct Selling, 61,6% are registered or participate as owner in the business.

Approximately 28% of the resellers from the South organize teams to improve their sales. In Rio Grande do Sul 5.4% of these teams are registered in the companies, in Paraná, this percentage is only 1.8%. The average size of a sales team in the south of the country is 4,14 resellers. Chart 3.1.5.2 summarizes the results for the South Region.

Chart 3.1.5.2 – Summary of the Field Survey Results – South Region

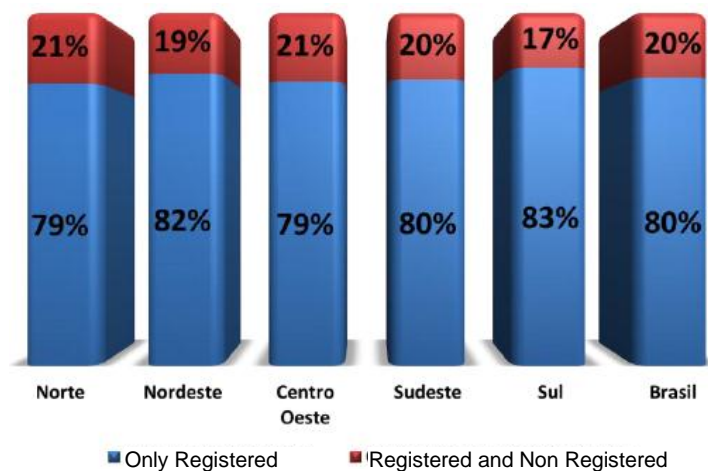
Items		Bahia	Pernambuco	
Percentage of consultants/ resellers which...	...Work with more than one company if the sector	48.0%	39.5%	
	ABEVD	...Work with only one company in the sector	52.0%	60.5%
		...Work with two companies in the sector	24.0%	22.0%
		...Work with three or more companies in the sector	3.5%	4.0%
		...Work with only one company in the sector	13.5%	9.0%
	Non ABEVD	...Work with two companies in the sector	4.5%	3.0%
		...Work with three or more companies in the sector	2.5%	1.5%
		...Have any other income source besides the direct sale	56.0%	71.5%
	...in this other activity, he is registered or participate as owner	61.6%	59.4%	
	...is registered as self employed for his direct Sales activity	12.5%	11.0%	
	...has a team to help him with the sales	28.5%	28.0%	
	...has a team registered in the company	1.8%	5.4%	
Average of people by team		3.66	4.62	
Average monthly income with direct sales		R\$249.57.92	R\$243.99	

3.2 Comparison between Regions

Aggregating information from the states according to the regions of the country to which they belong (North, Northeast, Southeast, South and Midwest) it is possible to make comparisons between these regions and the major results obtained for Brazil as a whole.

The Southern region was the location that had the largest number of people who only work with companies registered in **ABEVD**. Only the South and Northeast regions were above the national average with respectively 83% and 82% of representatives working only with **ABEVD** companies (Table 3.2.1).

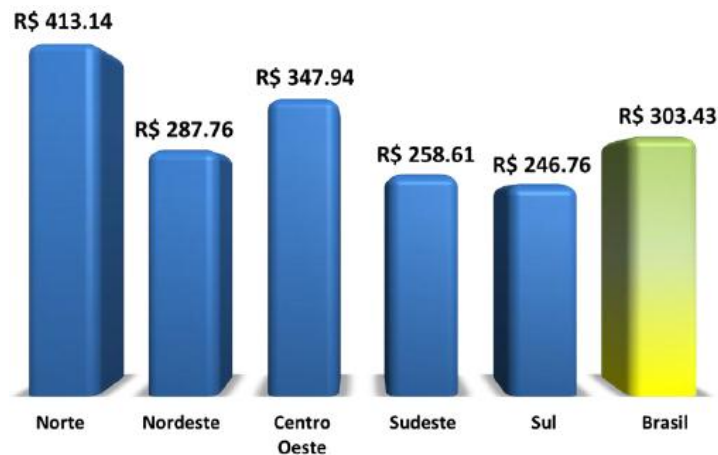
Chart 3.2.1 – Distribution of the Resellers among Registered and Non Registered Companies – Major Regions and Brazil



The Midwest and Southeast had the highest number of resellers who work with more than one company of the direct selling channel, 51.5% and 51.2%, respectively. The Northeast was the region that presented the largest number of resellers registered in the INSS as self-employed: 14% of this total contribute to the Social Security. In the Midwest region this number reaches 7% of the total.

The average profit of the North and Midwest was above the national average, while in the North this value becomes 36% greater than the value observed for Brazil (Table 3.2.2). This phenomenon, observed in the North, may be partly explained by the difficulty of access or poor presence of traditional retailing in this region, causing many products to be accessible to the public only through Direct Selling.

Chart 3.2.2 – Average Profit Obtained with the Direct Sale – Major Regions and Brazil



The representatives active in the South were the most reported having a source of income different from Direct Selling (63.8%) and this group, more than half (60.4%) reported is registered in this other activity or participates as owner.

In average 27,1% of the resellers working in the Brazilian market of direct selling, form teams to leverage their sales. Only the Midwest and North regions are below this average.

Table 3.2.3 presents a summary comparing of the results of field survey for the five major regions and for Brazil as a whole.

Chart 3.2.3 – Summary of the Field Survey Results – Major Regions and Brazil

Items		North	Northeast	Midwest	Southeast	South	Brazil	
Percentage of consultants/ resellers which...	...Work with more than one company if the sector	49%	43.5%	51.5%	51.2%	43.8%	48.4%	
	ABEVD	...Work with only one company in the sector	50.3%	56.5%	48.5%	48.8%	56.3%	51.6%
		...Work with two companies in the sector	24.5%	21.0%	23.0%	25.3%	23.0%	23.7%
		...Work with three or more companies in the sector	4.0%	4.0%	7.8%	5.7%	3.8%	5.1%
		...Work with only one company in the sector	13.3%	12.5%	14.3%	14.9%	11.3%	13.5%
	Non ABEVD	...Work with two companies in the sector	4.3%	4.5%	3.5%	2.7%	3.8%	3.6%
		...Work with three or more companies in the sector	3.8%	1.5%	3.0%	2.5%	2.0%	2.6%
		...Have any other income source besides the direct sale	55.0%	49.8%	63.3%	54.8%	63.8%	56.9%
	...in this other activity, he is registered or participate as owner	49.1%	44.7%	55.3%	45.7%	60.4%	50.7%	
	...is registered as self employed for his direct Sales activity	9.5%	14,0%	7.0%	13.9%	11.8%	11.6%	
	...has a team to help him with the sales	22.3%	27.8%	25.3%	29.7%	28.3%	27.1%	
...has a team registered in the company	6.7%	10.8%	6.9%	2.2%	3.5%	5.3%		
Average of people by team		2.57	3.65	2.15	2.57	4.14	2.98	
Average monthly income with direct sales		R\$413.14	R\$287.76	R\$347.94	R\$258.61	R\$246.76	R\$303.43	

Observing the country as a whole, we notice that, from the resellers which have other income source, 50,7% are registered or participates as owner; Approximately 12% are registered as self employed and contribute to the social security. Moreover, 27,1% of the individuals working with direct selling in Brazil make up sales teams and these teams have the average of 2,98 participants.

An interesting characteristic was observed when the average profits were segmented between representatives who have another job besides direct selling and those that act only on the market. These results were, respectively, R\$303.38 and R\$303.50, indicating that there is no difference with regard to the profit seen between these two groups of resellers. Table 3.2.4 summarizes some of the information.

Chart 3.2.4 – Summary of the Field Survey Results – Brazil



4. Sizing of the Direct Sales Market

In this section the sizing methodology of ABEVD will be assessed and based on this assessment, a proposal for the improvement of the methodology of the used will be developed. This proposal will consider the information provided by the associated companies and te results obtained with the field survey. The results of sizing for the base year of 2010 will also be presented. The following products are obtained:

- Market Sizing of the market for the year of 2010; and
- System Methodology proposal to allow the regular monitoring of the market evolution by ABEVD.

4.1 Results – Sizing 2010

In this section, we present the results of the sizing of the direct selling channel for the base year of 2010. In Sections 4.1.1 to 4.1.3, we present the results and methodology used to obtain the rates of overlap of the resellers between the sector companies, including in this analysis, companies which are not associated with **ABEVD**; in Section 4.1.4, uses overlap rates obtained to estimate the total of resellers active in the sector. In Section 4.1.5, we analyze the segmentation of the profit realized by the resellers, i.e., part of the profit that comes from the activity performed with companies registered at **ABEVD** and companies not registered at **ABEVD**. Finally, in Section 4.1.6, the total revenue obtained by the resellers active in direct selling is presented.

4.1.1 Overlapping of the Resellers among the ABEVD Companies

In order to obtain an estimate of the rate reseller overlap in the Brazilian Market of Direct Selling, the percentage observed in the results of the field research were used. With this information, it was possible to identify not only the participation of each company in the market, but also the intersection between them, i.e., the number of resellers working in more than one company of the sector at the same time.

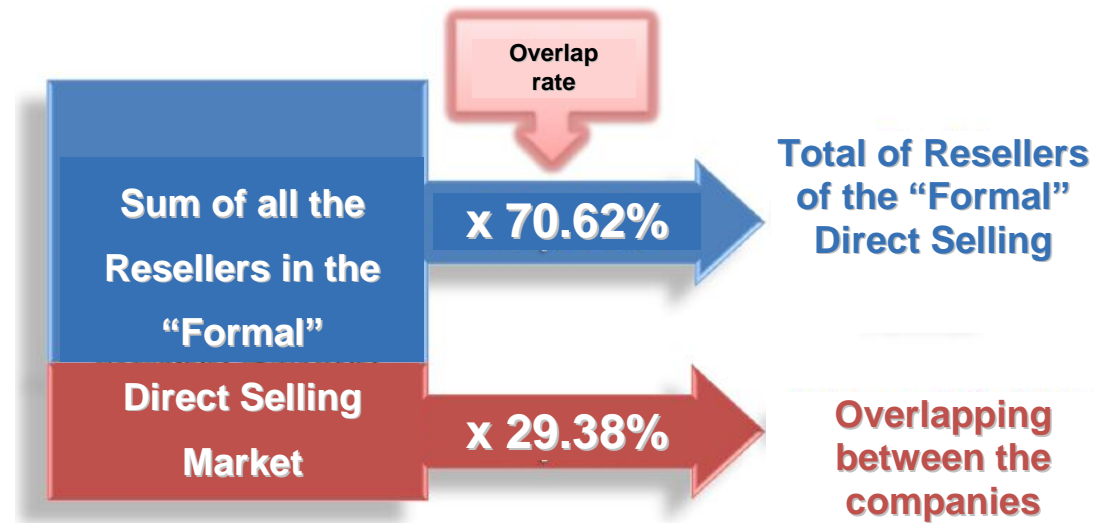
The application of the formula below gives a percentage to be applied to the total of resellers of all companies to purge the effect of overlap between them.

$$\left| \bigcup_{i=1}^n A_i \right| = \sum_{i=1}^n |A_i| - \sum_{i,j:1 \leq i < j \leq n} |A_i \cap A_j| + \sum_{i,j,k:1 \leq i < j < k \leq n} |A_i \cap A_j \cap A_k| - \dots + (-1)^{n-1} |A_1 \cap \dots \cap A_n|$$

where the groups represent the reseller bases of each company registered at **ABEVD**.

Chart 4.1.1.1 shows the results obtained with the procedure application.

Chart 4.1.1.1 Overlapping of the Resellers among the ABEVD Companies



The percentage of resellers overlapped between the records of the different companies of **ABEVD** is **29,38%**. Equivalently, the overlap rate is **70.62%**, i.e., the universe of resellers in **ABEVD** companies is equal to **70.62%** of registers.

4.1.2 Overlapping of the Resellers among the Non ABEVD Companies

The figures presented above refer only to the "formal" market, i.e., only companies registered at **ABEVD**. The field survey identified a number of other companies operating in the channel but are not associated with **ABEVD**. Given this fact, it was necessary to conduct a second survey, by telephone contact with the companies identified in the field, trying to figure out the approximate value of the number of registered resellers in each of them.

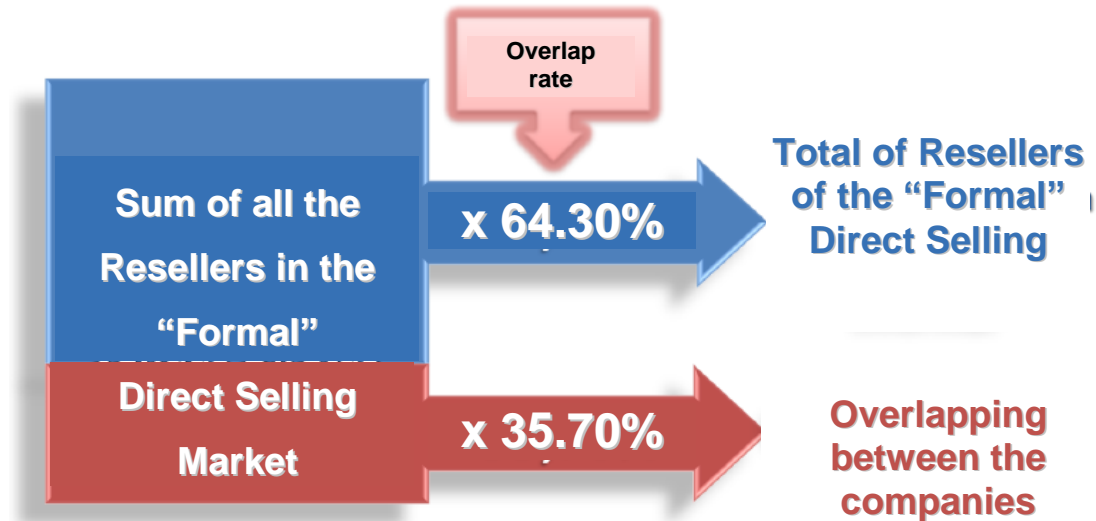
With the telephone survey, it was possible to identify the total number of resellers in **76%** of the citations made by representatives of **ABEVD** companies registered in the initial field survey. Extrapolating this value to obtain an estimate of the total representatives in the "informal" direct selling market, the value of **3.813,026** is obtained for non-registered² resellers at **ABEVD**.

Considering this estimate, the next step was to obtain data from the field survey, an approach the actual rate of overlap between the companies not associated with **ABEVD**. This rate was obtained as explained in Section 4.1.1 with the difference that the calculation was made taking into account

² This information does not consider if the resellers are active or not

only those representatives who work with non-affiliated companies. Table 4.1.2.1 shows the rate of overlap obtained with the procedure, a rate slightly lower than that observed for the companies associated with **ABEVD**.

Chart 4.1.2.1 Overlapping of the Resellers among the Non ABEVD Companies

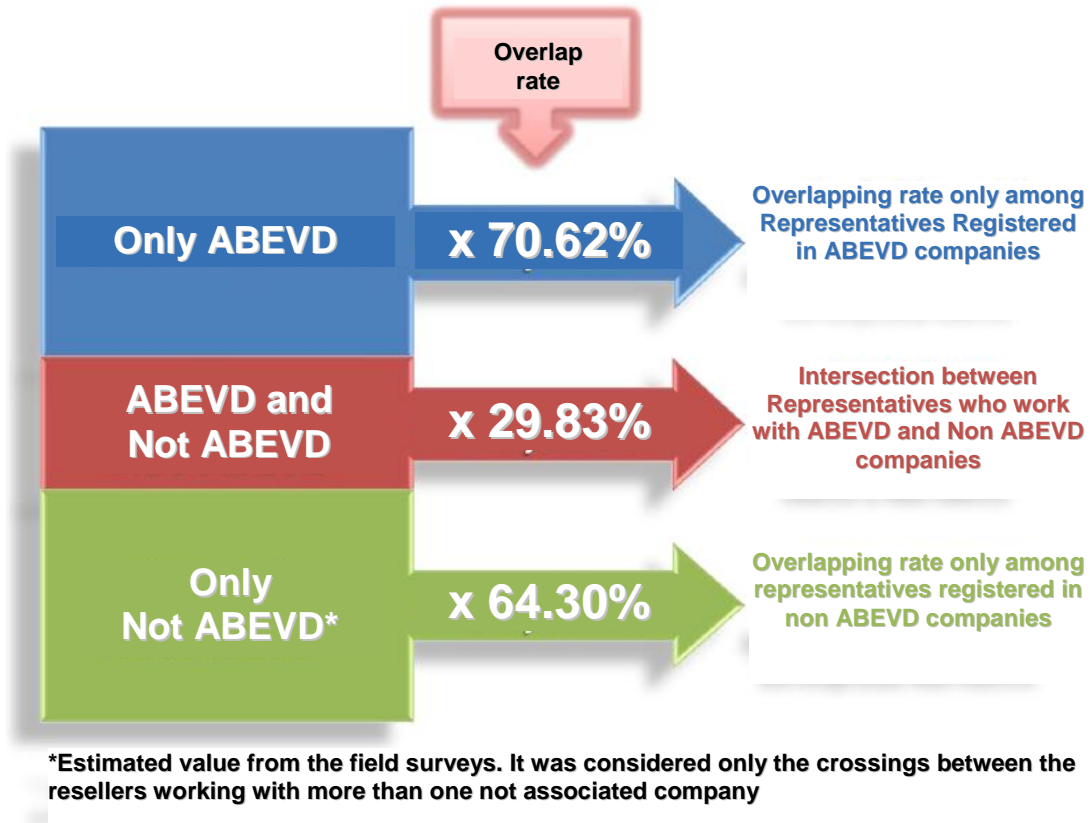


4.1.3 Overlapping of the Resellers among the ABEVD and Non ABEVD Companies

As previously mentioned, the field survey has identified the presence of resellers who worked with companies associated and not associated to **ABEVD**. That is, there is a rate of overlap between affiliated and non-affiliated companies.

Using the same method described in Section 4.1.1 an overlap rate is obtained according to the illustration in Chart 4.1.3.1.

Chart 4.1.3.1 Overlapping Rates of the Resellers among the ABEVD and Non ABEVD Companies



4.1.4 Number of Resellers in the Direct Sales

Using the overlap rates obtained with the information reported by the representatives in the Field survey and the total of resellers registered provided by companies associated with **ABEVD**, and those obtained by the survey mentioned in Section 4.1.2, it was possible to estimate the total of resellers in the market as a whole, i.e., the total number of representatives with the overlapping eliminated.

Chart 4.1.4.1 – Total of Resellers Registered in the Brazilian Sales Market

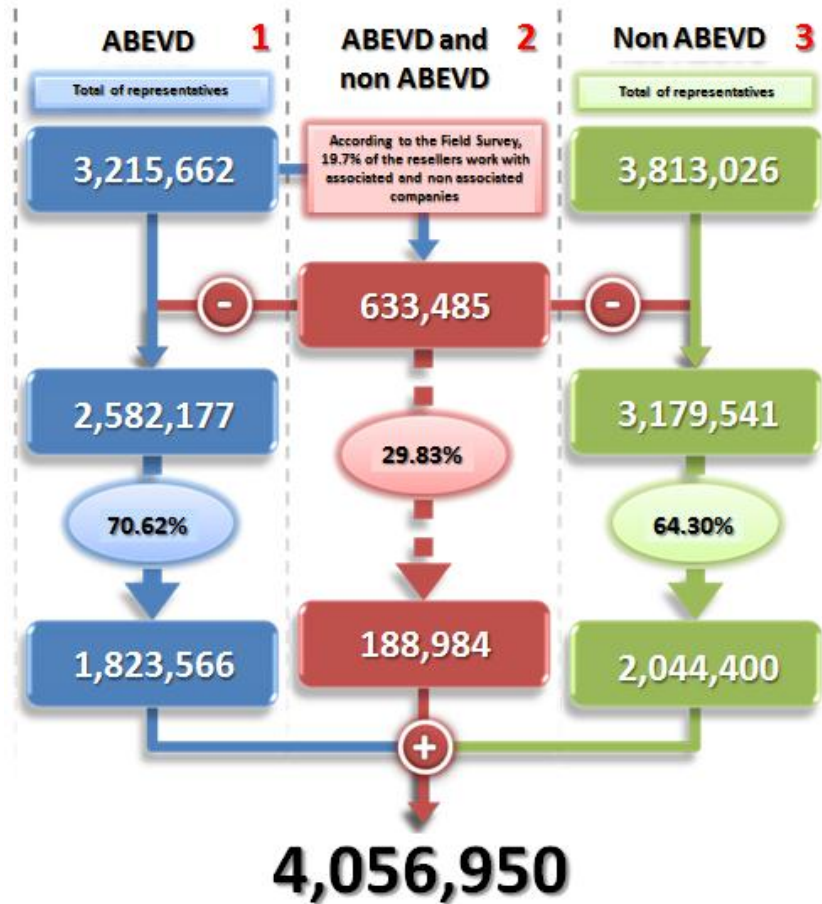


Chart 4.1.4.1 shows that, if they are simply added up the totals of resellers in each company, the overestimated value of the resellers would be of **7.028,688**. After application overlapping rates, this value falls to **4.056,950** representatives which is equivalent to an overall overlap rate of **57.7%**.

Taking into consideration that 27.1% of the interviewed representatives form sales teams and these teams have an average of 2.98 members (Table 3.2.3), and assuming that the resellers of **ABEVD** and not **ABEVD** do not have the same pattern of behavior, the number of people working in the Brazilian direct selling market would increase from **4,056,950** resellers to **6,233,828**.

$$\sum \text{Revendedores em Empresas Não ABEVD} - \left(19,7\% \times \sum \text{Revendedores em Empresas ABEVD} \right)$$

This operation reports the exact total of resellers who work with companies associated and not associated with **ABEVD**³.

4.1.5 Segmentation of the Reseller's Profits

One of the issues investigated during the field survey was the perception of the resellers on their gains from the sales. This information allows us to estimate the additional income obtained by the resellers coming from companies not registered in **ABEVD**. The procedure consists in comparing the average profit obtained by the resellers who work only with registered companies and the weighted difference of the average profits noticed by the resellers who work with registered companies and the ones working with registered and not registered companies;

Chart 4.1.5.1 – Adopted Procedure for the Segmentation of the Average Profit

$$\sum_{i=1}^4 (\text{Lucro Médio}_i^{\text{ABEVD}} \times \text{Revendedores}_i^{\text{ABEVD}}) \rightarrow \text{Parcela ABEVD}$$

$$\sum_{i=1}^4 [(\text{Lucro Médio}_i^{\text{N\~{a}o ABEVD}} - \text{Lucro Médio}_i^{\text{ABEVD}}) \times \text{Revendedores}_i^{\text{N\~{a}o ABEVD}}] \rightarrow \text{Parcela n\~{a}o ABEVD}$$

$$\frac{\text{Parcela n\~{a}o ABEVD}}{(\text{Parcela ABEVD} + \text{Parcela n\~{a}o ABEVD})} \rightarrow \text{Acr\~{e}scimo Proveniente de N\~{a}o Cadastradas}$$

where I is the total of registered companies at **ABEVD** in which the representative works for

Legenda:

Lucro Médio:	Average Profit
Revendedores:	Resellers
Parcela ABEVD:	ABEVD Part
Parcela n\~{a}o ABEVD:	Not ABEVD Part
Acr\~{e}scimo proveniente de N\~{a}o Cadastradas:	Increase Resulting from Non-Registered

In order to make the method more accurate, a comparison was made between the resellers who work with the same number of companies registered, i.e., the sample was divided between representatives working with only one **ABEVD** company, two **ABEVD** companies and so on. Each selected subgroup was divided between individuals who work only with registered companies and those working with at least one not registered company. With this division, the comparison

³ For a further refinement in the estimates, would be able to assume a rate of inactivity among the resellers of the non ABEVD part, in proportion to that observed for representatives of ABEVD companies. This rate, which gravitates around 85%, would generate a 9% reduction in the final result, which would reach a new total of 3,689,192 resellers.

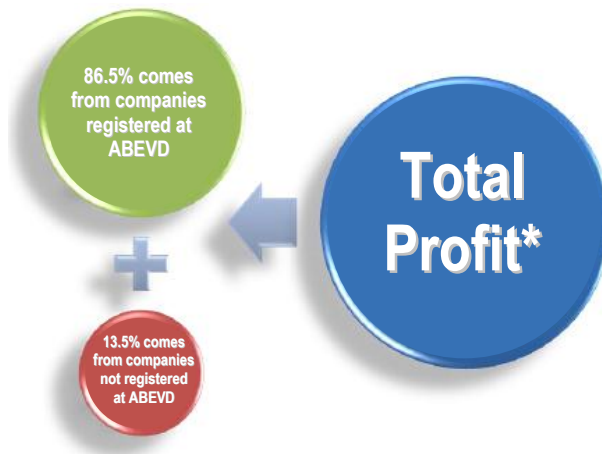
between these two groups was performed. Table 4.1.5.2 presents the results of applying the formulas to the research data.

Chart 4.1.5.2 – Segmentation of the Profit Obtained by the Active Resellers

Total of Registered Companies with which the Reseller works	Only Registered		Registered and Not Registered		Difference of the Average profit (AP 1- AP2)	Total Monthly Profit – Not Registered	Total Monthly Profit – Only Registered
	Frequency (F1)	Average Profit (A1P)	Frequency (F2)	Average Profit (A12)			
1	1212	R\$189.28	186	R\$414.70	R\$216.42	R\$40.254.12	R\$240.315.36
2	556	R\$351.44	189	R\$485.36	R\$133.92	R\$25.310.88	R\$195.400.64
3	119	R\$433.79	76	R\$564.58	R\$130.79	R\$9.940.04	R\$51.621.01
4	2	R\$375.00	9	R\$436.11	R\$61.11	R\$549.99	R\$750.00
Total						R\$76.055.03	R\$488.087.01
Participation						13.5%	86.5%

Applying this procedure, it is estimated that 86.5% of the profit realized by the representatives who work with both registered and not registered companies of the **ABEVD** and the rest (13.5%) of companies which are not from ABEVD (Table 4.1.5.3) .

Chart 4.1.5.3 – Segmentation of the Profit Obtained by the Active Resellers - Summary



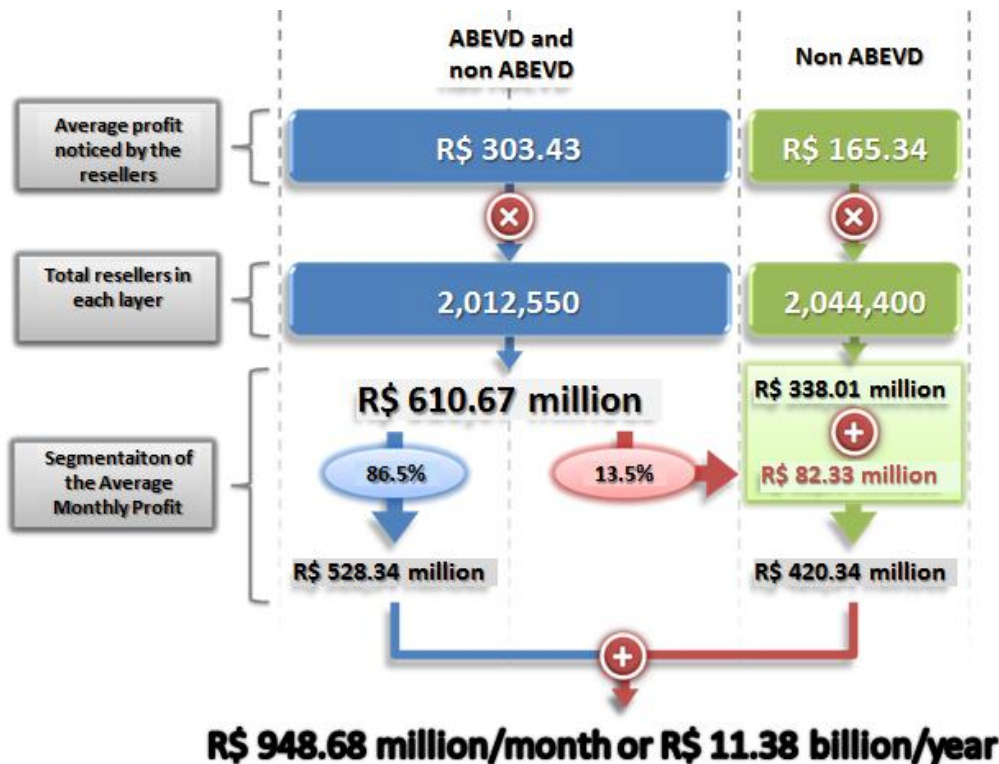
***Note: this analysis only takes into account interviews with resellers that operate in at least one of the companies associated to ABEVD.**

4.1.6 Total Revenue Noticed by the Resellers

According to the results obtained with the field survey, the average profit realized with the Direct Selling in Brazil is **R\$303.43**. Combining this information with the total number of active representatives in the market (Table 4.1.4.1) and the percentage of segregation obtained in this

section, it was possible to estimate the total annual income achieved by the resellers in the Brazilian market for direct selling. Table 4.1.6.1 illustrates the process of calculating the total profit. It is worth emphasizing that, to obtain the total profit for the share of resellers that work only with non-affiliated companies, it was necessary to estimate the average monthly income for this stratum of the market, obtained by the procedure described in the previous section.

Chart 4.1.6.1 – Total Profit Obtained by the Resellers (Method I – Average)

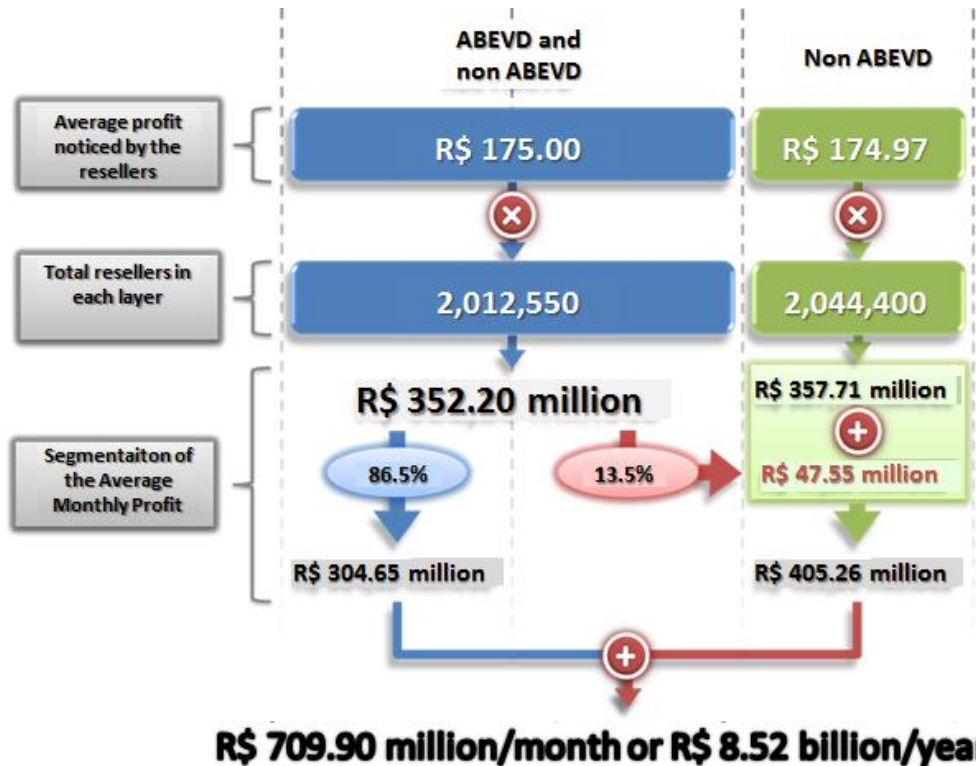


Of the R\$ 11.38 billion a year earned by the representatives in the direct selling market as a whole, 55.7% are from resellers who work only with companies associated with **ABEVD** and the rest (44.3%) are sourced from people enrolled in associated and non-associated companies.

Analyzing the distribution of the average profit reported by the resellers, some values well above the average of R\$303.43 were identified. Since the arithmetic average is influenced by all the values of a distribution, this indicator can be distorted due to statistical anomalies in the sample.

Thus, we performed a second estimate, using the median returns for each stratum to replace the medium⁴.

Chart 4.1.6.2 – Total Profit Obtained by the Resellers (Method II – Median)



The results of calculations using the median income can be seen in Table 4.1.6.2. With the use of medians is noted a significant drop of the final result, especially in the part belonging to the **ABEVD**, from R\$11.38 billion to U\$8.52 billion per year, i.e., a decrease of 25.1% . When comparing the results between associated and not associated, we observe that the profit from **ABEVD** companies decreased by 42.3% while that for the non-associated, this fall is only 3.3%.

4.2 Methodology Proposal for the Market Sizing

For the **ABEVD**, it is very important to size and monitor the evolution of the Direct Selling Market and the importance of it for the society and the Brazilian Economy. This activity should be based

⁴ The median, defined as the midpoint of an ordered distribution divides the data by keeping half of the events below and half above its value was not influenced by extreme values.

on a methodology based on the principles of economic theory, guided by information from the membership and official broader socioeconomic data.

Assessing the sizing methodology currently employed by **ABEVD** it was possible to identify some points that must be adjusted to generate more accurate estimates about the behavior of the market as a whole.

The following drawbacks were identified in the current methodology for sizing of the association:

- Lack of a systematic monitoring process, information collection and consolidation of results, consistent with assignment of responsibilities between the **ABEVD** and its associates;
- Lack of commitment to the provision of information by the member companies;
- Estimates too long for companies with significant representation in the market;
- The estimation method does not take into account relevant economic factors;
- There is no segregation of regional information;
- Lack of standardization in the classification of the products marketed by the companies;
- Lack of definition of variables that must be reported by companies in the system.

With these points identified, studies were performed to allow improvement of the system for sizing the channel. The following proposals were developed to provide an improved set of estimates of indicators of the direct selling market in Brazil:

- Collection of CPFs of all active resellers in their respective geographic units of residence;
- Periodically field survey to measure the participation of companies not associated with **ABEVD** in the market;
- Development of econometric models to generate estimates consistent with the economic reality of the country⁵.

Besides the items listed above, the work would include three additional stages, whose proposition and detail are beyond the scope of this study:

⁵ This procedure is only implemented if there is the provision of information by companies associated with ABEVD.

- Standardization of groups of products marketed in the channel, so that at the time of reporting the information, companies can provide their data correctly;
- Determination of a set of important variables for monitoring and sizing of the direct sales market with their respective definitions, and
- Definition and implementation of a formal and ongoing monitoring, information collection and consolidation of results within the **ABEVD**, with allocation of responsibilities and resources as appropriate. This would relevantly include, the institution of the figure of the system administrator, an outsourced hired by ABEVD specifically for data manipulation and presentation of results.

Following, are the detailing of the developed propositions.

4.2.1 Collections of the CPFs of all the Active Resellers

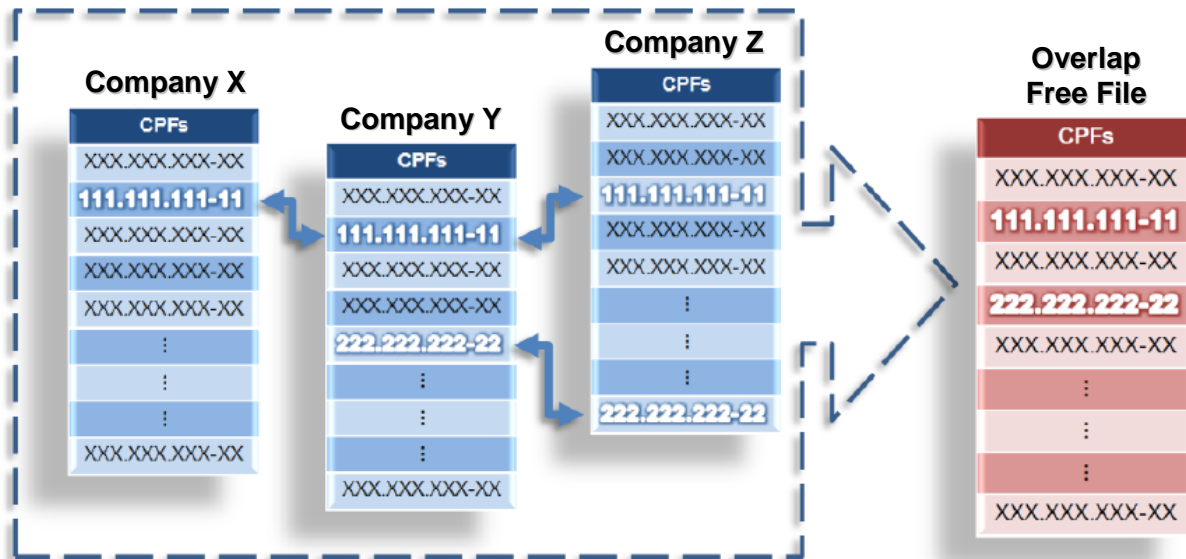
As previously mentioned, for **ABEVD**, to know the size of the direct selling market is of paramount importance. An important indicator of this size is the number of active resellers in the market.

Currently the rates of overlap are estimated and used for long periods of time without constant updating, the total number of resellers is not segregated by geographical units and the growth rates do not take into account economic aspects and social implications.

The proposal to improve the estimation of this indicator is in the collection of CPFs of registered and active representatives in each company associated with **ABEVD**. These numbers, together with their respective federal units of residence of the representatives shall be sent to the system administrator on a monthly basis, so that it may proceed with the method of identification of overlaps between the companies.

The procedure will take place in two stages: 1) validation of all CPFs of the bases to eliminate the numbers reported incorrectly, and 2) comparisons between the valid CPFs from the resellers of each company to identify the total number of intersections between them. Chart 4.2.1.1 illustrates the process operation.

Chart 4.2.1.1 – Comparison of the CPFs of the Companies’ Active Representatives



The advantage of this method is the possibility to obtain the actual overlap rate observed direct selling channel and not only an estimate from this value. Another advantage is the availability of these numbers by federal units, which allows an analysis of market behavior in the various regions of the country.

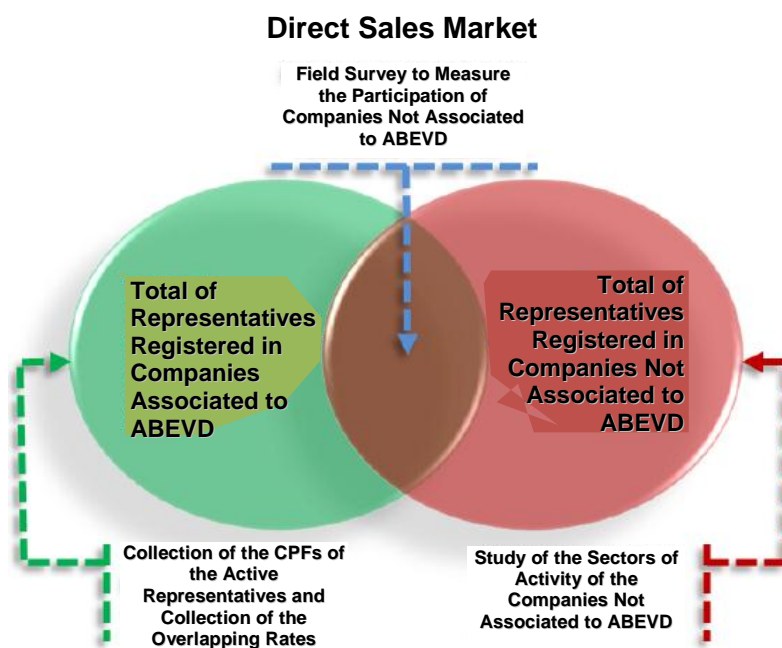
4.2.2 Field Research

Given that companies associated with **ABEVD** do not represent the totality of companies in the direct selling market, it is important to have an estimate of the participation of non-associated companies in the market as a whole. For it is necessary to implement a two-step procedure, namely, a field survey to measure the participation of companies not associated with **ABEVD** in the market, and a study of the behavior of the activity sectors of these companies.

The field survey must be performed at least every two years and be carried out in Brazilian regions with representatives of **ABEVD** companies to measure the percentage of retailers who work with companies associated and not associated.

Since the Field survey can only be achieved with registered resellers in companies associated with **ABEVD**, it becomes necessary to study the behavior of the activity sectors of the associated companies not mentioned by respondents in the Field survey. This study can cover from a simple analysis of the sectoral indexes where their companies operate to the production of more complex econometric models. The objective of this study is to refine the estimates obtained with the field survey, i.e., to obtain weights that minimize the estimation errors.

Chart 4.2.2.1 – Estimate Components of the Total of Active Representatives in the



4.2.3 Econometric modeling

In addition to the market size, measured by total of active resellers in the channel, it is equally important to obtain estimates of other relevant indicators for the direct selling market as a whole, as the number of items sold in the channel, the turnover made in the sector, amount of taxes paid, etc.

To do so is necessary, in addition to collecting this information from the companies associated with **ABEVD**, develop a method of estimating these information for **ABEVD** companies not reporting their numbers and companies non **ABEVD** companies to have their numbers unknown by the Association. This method should take into account the social and economic aspects relevant to the country's economy.

During the econometric modeling, statistical methods will be combined with economic theories, from secondary data sources available at the **Brazilian Institute of Geography and Statistics - IBGE** and the **Ministry of Labor and Employment - MTE**. As we are dealing with group of companies, these databases can be queried through consolidated CNPJs previously defined. In this case, the following variables may be computed, for any segment of Direct Selling?

- Production Value;
- Value of the industrial transformation;
- Personnel involved;
- Salaries;
- Sales;
- Other variables.

These indicators should be supplemented by direct information from companies registered with **ABEVD**.

5. Socioeconomic Importance of the Direct Sale

In this section, the socioeconomic importance of the direct selling industry is investigated and analyzed quantitatively by applying a model of Input-Extended Product Matrix (MIP-X). This model was developed and estimated by **FGV** for the year 2010, based on data and studies of the IBGE and **ABEVD**.

First, the objective is to provide an overview of input-extended product analysis and its main applications, as well as to mark the steps of applying this framework in this study. Further discussion of the methodology for estimation of the model is presented in Appendix A. The following shows the results of applying MIP-X as follows: measuring the degree of insertion of the Direct Selling industry in the national economy as well as consolidated and sector impacts of Direct Selling over the productive chain.

5.1 Introduction to the Input-Extended Product Analysis

The input-product analysis is a quantitative methodological framework of widely and established in various sectors of the national economy and which fits perfectly with the objectives of this study. It is an approach widely used to estimate the importance of sectors, industries or individual enterprises on the totality of an economy, whether regional, national or even international (IBGE, 2008; Fundação Cide, 1996; Montoya, 2001). The models reported in these references take as its starting point a division of the economy into various sectors or economic activities, each with their respective accounts of production and consumption of goods and services, which are called social accounting in the economy of interest. The accounts of each sector meet certain accounting identities, and identities of particular importance:

$$\begin{aligned}
 x_1 &= c_{11} + c_{12} + \dots + c_{1n} + d_1 \\
 x_2 &= c_{21} + c_{22} + \dots + c_{2n} + d_2 \\
 &\dots \\
 x_n &= c_{n1} + c_{n2} + \dots + c_{nn} + d_n
 \end{aligned}
 \tag{1}$$

These identities express the segregation of the value of production of goods and services according to your destination:

- **Intermediate Consume**, i.e., consume by the productive sectors of the economy; and
- **Final Demand**, i.e., the absorption of the products by other means, namely: Gross fixed capital formation (investment), exports, changes in inventories, government consumption and household consumption.

Thus, x_i is the sector's production value i , c_{ij} represents the consumed value by the sector j of goods and produced services or services produced by the sector i , and d_j is the final demand for these goods or services. The fundamental hypothesis of an input-product model is that the intermediate consumption by each sector is directly proportional to its own production: $c_{ij} = a_{ij}x_j$, where the coefficients a_{ij} are called technical production coefficients. This hypothesis can be easily understood as the postulation of a fixed technology for each sector where the use of inputs is required in direct proportion to production volume, with no economies of scale, substitutes or complementary goods.

From this hypothesis, one can write the accounting identities (1) in matrix form

$$x = A x + d \quad (2)$$

or yet, if the matrix $(I - A)$ is invertible⁶,

$$\begin{aligned} x &= (I - A)^{-1} d \\ &= L d \end{aligned} \quad (3)$$

$L = (I - A)^{-1}$ is called the *Leontief matrix* (IBGE, 2008), which shows how much each sector should produce not only to meet the final demand for their products, as well as intermediate consumption by all other activities that use them as inputs (called *indirect effect*).

In particular, in the event of a shock Δd in the final demand, by linearity, the level of production activities will change in $Ax = L \Delta d$, which incorporates the direct impact of increased demand and the impact generated by the increase in intermediate consumption of sectors.

The elements of the matrix L can be directly interpreted as coefficients which directly associate final demand to the production, including all stages (infinite in principle) of the intermediate consumption. Specifically, the element L_{ij} reports the value that the sector j needs to produce, if there is an increase of R\$1 in the final demand for products of sector i .

Often, it is important to have a comparative measure of different sectors as plaintiffs or producers in the economy. For this purpose, it usually defines the *binding rates* (or *Rasmussen-Hirschman indexes*) back and forth (Guilhoto, 2004). These are, respectively:

$$\bar{U}_j = \frac{L_{*j}}{\frac{1}{n}L_*} \quad \text{e} \quad \bar{U}_i = \frac{L_{i*}}{\frac{1}{n}L_*} \quad (4)$$

where $L_{*j} = \sum_{i=1}^n L_{ij}$, $L_{i*} = \sum_{j=1}^n L_{ij}$ e $L_* = \sum_{i=1}^n L_{i*} = \sum_{j=1}^n L_{*j}$ is abbreviated

⁶ Here I is the identity matrix $n \times n$.

5.1.1 Extension of the Input-Product Analysis: Incorporation of the Income-Effect

In the model adopted in this study, following (Najberg and Ikeda, 1999), are also taken additional assumptions related to household consumption, which, as seen above, is one of the components of final demand. It is observed that household consumption is made up of individual consumption of each of the F families in the economy:

$$d_i = k_{i1} + k_{i2} + \dots + k_{iF} + d'_i \quad (5)$$

The other components of final demand, namely, gross fixed capital formation (investment), exports, changes in inventories and government consumption are considered as exogenous as before, being aggregated in the vector d' .

In the input-extended product model, is postulated that each household consumes the production of given sector in a quantity proportional to their own household income:

$$k_{if} = K_{if} y_f \quad (6)$$

As for household income of each family, it is assumed that the production is determined by the sector or sectors in which its members work, according to the functional form:

$$y_f = \sum_{j=1}^n V_{fj} x_j \quad (7)$$

Thus, we can write the vector of final demand in matrix form

$$d = B x + d' \quad (8)$$

⁷ The denominator $\frac{1}{n}L_i$, is a normalization factor, chosen so the average of the indexes are 1, as it can be easily verified]

As seen above d' , represents the other components of final demand, which remain exogenous. and $B = K V$ is the analogue of Leontief matrix for household consumption. Replacing in (2), we have

$$x = A x + B x + d' \quad (9)$$

Or yet

$$x = (I - A - B)^{-1} d' \quad (10)$$

$$= \tilde{L} d'$$

The matrix $\tilde{L} (I - A - B)^{-1}$ it is said to be the *expanded Leontief Matrix*. This interpretation is very similar to the original Leontief matrix, because it shows how much each sector is expected to produce to meet not only the exogenous demand for its products and to the intermediate consumption by the other activities, as well as the consumption of families whose income is determined by own production sectors where its members are employees (called *induced effect or income effect*).

In particular, in the event of a shock $\Delta d'$ - for example, an increase or decrease in exports, investments in public or private or government consumption - so, for linearity, the level of production activities will change in $\Delta x = \tilde{L} \Delta d'$, which incorporates the direct impact of the increased demand, the impact generated by the increase in intermediate consumption of the sectors, and impact induced by the increase in available income of households.

The observations made concerning the coefficients of the Leontief matrix have exact analogues in the extended model. Moreover, it is possible to define the Rasmussen-Hirschman indexes for the extended model, applying the same formula to the matrix \tilde{L} . However, this approach was not used in this study.

5.2 Implementtion and Application of the Input-Extended Product Model

IBGE releases an Input-Product Matrix for the Brazilian economy, disaggregated by 55 industries and 110 products, taking as reference the year of 2005. This matrix is considered an appropriate starting point for developing an input-product model itself, by allowing the identification of linkages

between all production and institutional sectors individually. From the input-product matrix of the IBGE, the following steps were performed:

- Definition and characterization of the Direct Sales Sector in Brazil;
- Analysis of input-product model of the IBGE and identification of industry classifications used in the Direct Selling;
- of the Input-Extended Product Matrix (MIP-X) This model has the following characteristics in relation to the model of the IBGE, which is based:
 - Update for base year 2010 and incorporated in the sector "domestic services", from the data crossing the System of National Accounts (SNA) and Quarterly National Accounts (CNT);
 - Incorporation of the effect of household consumption (income effect), as described above, and
 - Representation of the activities of direct selling in Brazil as an outstanding sector (the "Direct Selling sector").
- Applying the model to calculate the socioeconomic impacts of Direct Selling.

The rest of the section is dedicated to detail such stages.

5.2.1 Characterization of the Direct Sales Sector in Brazil

The purpose of this step was to map and size the structure of production, absorption and tax generation, employment and income of the Direct Selling industry in Brazil, to allow the identification of this structure in the representation of flows and economic activities in the model adopted by IBGE .

According to the records provided by **ABEVD**, the Direct Selling Industry is composed by the following companies:

Chart 5.2.1.1 – Companies Associated to the ABEVD

Companies
AFTB - Associação Frutos da Terra Brasil
Amway do Brasil Ltda
Avon Cosméticos Ltda
Belcorp do Brasil Distribuição de Cosméticos Ltda
Cellcred Telecomunicações e Serviços
Cozinet Comércio de Artigos de Uso Pessoal e Doméstico Ltda
Distribuidora Jafra de Cosméticos Ltda
Dokmos Life Cosméticos Ltda
Embarque Nessa - Viagens e Turismo
FM Group Brasil
Herbalife International do Brasil Ltda.
Hermes (Sociedade Comercial e Importadora Hermes S/A)
Larru's Ind. E Com. De Cosméticos Ltda (Hinode)
Ig Sikué (N. R. Ind. Com. Exp. De Cosméticos Ltda)
Inspiração Perfumes
Jequití (SS Com. de Cos e Prod de Hig Pes Ltda)
Mary Kay do Brasil Ltda
Monavie do Brasil
Natura Cosméticos S/A
Perfam Brasil Comércio de Cosméticos
Photon do Brasil Indústria e Comércio
Pierre Alexander (São Nicolau Com. de Cosm e Exp Ltda)
Di Santinni (PKK Calçados Ltda)
Polishop (Polimport - Com. E Exp. Ltda)
Tiens do Brasil Ltda.
Torres Confeccões Ltda. / Catálogo Torres
Tupperware (Dart do Brasil Ind e Comércio Ltda)
WOW! Empreendimentos S/A

The information regarding revenues, number of registered resellers, segregation of revenues by product and tax revenues of these companies were gathered with **ABEVD**. This information was used to represent the direct selling industry prominently in input- extended product Matrix.

5.2.2 Analysis of the IBGE's Input-Product Model

This step aimed to identify and map the activities of companies that make up the direct selling market in Brazil, as outlined above, within the input-product model of the IBGE. It was determined that the operations of Direct Selling in Brazil are encompassed in the classification structure of the National Accounts according to the Table 5.2.2.1 below.

Chart 5.2.2.1 – SCN Classification of the Direct Sales Sector Activities

IBGE Code	Sector (Level 56)
030118	Other Food Products
030401	Clothing and accessories
030801	Newspapers, magazines and other recorded products
031501	Perfumes, soaps and toiletries
031802	Plastic Articles

The products involved are encompassed in the corresponding classifications.

5.2.3 Implementation of the Input-Extended Product Matrix (MIP-X)

The starting point for estimating the impacts of the Direct Selling industry is the accounting model presented in Section 5.1, rewritten here as:

$$\begin{aligned}
 x &= A x + B x + d' \\
 &= ci + cf + d'
 \end{aligned}
 \tag{11}$$

where the vector x represents the value of production of the economic activities, $ci = A x$ is the intermediate household consumption, $cf = B x$, and d' , the sum of the other components of final demand (consumption of nonprofit institutions to Service to Families, government, exports, gross fixed capital formation and changes in inventories). The matrices A and B were estimated according to the methodology described in detail in Appendix A.

As will be seen below, this equation allows to calculate the impact of any shock or activity on the production value (at basic prices, i.e., received by the manufacturer) of each of the 57 sectors represented in the MIP-X (including the Direct Selling industry itself), consolidated in the vector x . To determine the other impact categories, *sector distribution coefficients* were estimated according to which production value of each sector is transformed into income (y_i), employment (l_i), taxes on production (t_i) and imports (m_i), respectively:

$$\begin{aligned}
 y_i &= \rho_i x_i \\
 l_i &= \lambda_i x_i \\
 t_i &= \theta_i x_i \\
 m_i &= \mu_i x_i
 \end{aligned}
 \tag{12}$$

The method of estimation of these coefficients is also described in Appendix A. It is important to note that these coefficients were applied only to estimate impacts on those who do not have information directly observable, notably with regard to the specific impacts of the Direct Selling industry.

5.2.4 Application of the Input-Extended Product Matrix (MIP-X)

The model thus obtained was used to calculate the socioeconomic impacts of the Direct Selling industry. As seen above, the operations of the Direct Selling industry involves the production of five of the 110 product categories in the model, with a total value of U\$45.5 billion. This production has basically, two destinations:

- The intermediate consumption in the domestic market as a production input of one of the 57 sectors of the model, or
- The household consumption⁸.

Although the intermediate consumption is not a component of final demand, the production for the domestic market demand activation of the same production chain than that for consumption of households, so that, in relation to indirect and induced impacts generated by the production sector for Direct Selling the destination of this production is not relevant. Thus, the total impact of the Direct Selling industry on domestic production can be computed simply as:

$$x = \tilde{L} r \quad (13)$$

where r is a column vector containing only the production value of the Direct Selling industry, and zero in all other lines. The results of this analysis are presented in the next section.

The estimation methodology encapsulated in equation (13) is an estimate because the full impact of a sector on the economy. However, it is very important to keep in mind its correct interpretation. In particular, since the vector r includes the value of production activity of interest (in this case, the

⁸ From the original analysis of the System of National Accounts and the information from the industry itself, we could say that, for statistical purposes, the goods and services directly produced by the direct selling industry as a destination does not have any of the other components of final demand, namely, gross fixed capital formation, exports, consumption of ISFLSFs or governments'. Also, production for stock formation can be ignored in a intertemporal view.

direct selling industry) is intended for intermediate consumption of other sectors, it is not possible to sum the results obtained by this same method to other sectors. In fact, if it were performed the same analysis for an activity in the productive chain of direct selling (for example, the chemicals sector), the vector r calculated for this second sector "include" conceptually part of the production value of the direct selling. This way, such vector would represent double counting. Thus, the results (i.e., the respective x vectors) cannot be summed either. By this same logic, it is seen that only two sectors could have their impacts summed in case their supply chains were completely independent of each other, which is never the case, as can be seen by examining the matrix $\sim L$.

5.3 Consolidated Impacts of the Direct Sales Sector

Having characterized the direct selling industry in the context of input-extended product model, we can estimate the impact that this industry has on the economy as a whole, through cascades of indirect and induced effects.

We define the **direct impacts** of operations as those performed directly according to the marketing of end-products. The **indirect and induced impacts** are those generated by the operations of the Direct Selling industry, through the consumption of the production chain (indirect effect) and household consumption (income effect).

It appears that the indirect and induced effects are usually much higher than the direct effects. This fact can be expressed in absolute terms or by analysis of multipliers.

Alone, the direct sales sector is an important productive activity. The sector is directly responsible for 0,77% of the GDP, or R\$ 28,2 billion in 2010. The production generates added value or GDP, as labor income (R\$ 11,38 billion) and taxes over the production (R\$ 8,8 billion). The mass of workers directly employed in the sector is substantial in itself, reaching over 4,05 million people. It is worth noting, however, that 56.9% of total jobs are part time, as verified by field survey. Namely, the Direct Selling directly generates 2.30 million part-time jobs and 1.75 million full-time occupations.

Considering the indirect and induced effects, these impacts are substantially multiplied (Table 5.3.1). The total impact on the GDP is of R\$ 145,3 billion, corresponding to a multiplier of 5,15. This translates into 4,0% of the country's gross domestic product in 2010. The generated

occupations are multiplied by 2,13 reaching 8,65 million of total occupations generated by the sector, between full and part time occupations. Note that, depending on the accounting criteria of the IBGE, the indirect and induced Jobs are fully corresponding to full-time occupations.

Additionally, the important part reserved to the government is observed in the generation of the added value of the Direct selling sector. In fact, 31.3% from R\$28.2 billion GDP of the sector are intended only to taxes on production (including ICMS, ISS, PIS/COFINS, CFEM and a variety of other taxes and contributions). These add up to substantial share of taxes on income and property that the government collects (income tax and social contribution on profits of group companies, and IRPF on income of their employees and shareholders), which is embedded in the account of income generation⁹.

Chart 5.3.1 – Impacts of the Direct Sales on the Economy

Impacts on the Oeprations of the Direct Selling Sector on the Economy					
Variable	Direct Impact	Indirect and Induced Impact	Total Impact	Multiplier	Brazil's %
DGP (R\$ Million)	28.204,57	117.093,37	145.297,94	5,15	4,0%
Income (R\$ Million)	19.371,05	115.392,45	134.763,50	6,96	4,4%
Cash Income (Gross Surplus)	7.986,86	66.103,73	74.090,58	9,28	4,8%
Work Income (Payments)	11.384,20	49.288,73	60.672,92	5,33	3,9%
Employment (Job Positions)	4.056.950 ¹⁰	4.595.700	8.652.650	2,13	7,4%
Taxes over the Production (R\$ Million)	8.833,52	23.527,00	32.360,52	3,66	5,4%
Production Value (R\$ Million)	45.536,79	244.313,57	289.850,36	6,37	4,2%

The results above show the great importance of the Direct Selling Sector as a component of production structure and generation of social well being in the country. These impacts may be interpreted as a counterfactual. Hypothetically, if the Brazilian Direct Selling ceased to exist, the resellers would not have the income generated by the activity and therefore have to reduce their consumption. Moreover, the inputs and intermediate goods needed to operate the industry would no longer be produced. Thus, the hypothetical "disappearance" of the sector would represent not only a cessation of its production, but also the partial cessation of production of goods and services of the other 47 sectors that were exercised indirectly by the Direct Selling. Considering as valid the assumptions of the input-product model, this counterfactual scenario, there would be "loss" equivalent to the total impact shown above, i.e., 8.6 million jobs and R\$ 145.3 billion in GDP.

⁹ Such taxes, though important, cannot be directly modeled on the basis of production value, the key driver of the input-product model. Because of this, were not analyzed prominently in the way of taxes on production.

¹⁰ This value does not include jobs related directly to production and management of plants, members of sales teams were not incorporated.

Evidently, the results of such analyzes should be interpreted with consideration, since no one is dealing with information deduced from observational data, but the counterfactual based input-product model and its assumptions. In particular, the dynamic effects are not taken into consideration. For example, in the first scenario, it is clear that other industries could now export their products, thereby offsetting the "disappearance" of the Direct Selling industry. Similarly, in the second scenario, some sectors might be able to meet the additional demand through the occupation of the previous idle capacity, thus reducing the total impact on employment¹¹.

5.4 Sector Distribution of the Direct Sales Impact

The indirect and induced impacts of the Direct Selling spread to the economic activities substantially different from one another. In Table 5.4.1, the highlights are the eight most impacted sectors in absolute terms, based on analysis of their production to basic values. The analysis of the basic values allows identifying the contributions on trade and transport sectors, which, in the analysis of consumer prices, would be embedded in the value of production of goods produced in the other sectors.

The production of the Direct Selling industry generates a substantial indirect impact on many sectors of services, and consumer goods such as food and beverages (due in large part to the income effect).

¹¹ Additionally, the remark that the actual production functions of different sectors are not linear in their inputs often arise, so that, for direct effects of great magnitude, indirect impacts may be overestimated. However, there is evidence that the concavity of these production functions, if any, is substantial enough to generate significant biases in the context analyzed here (impacts equal to less than 5% of the national total).

**Chart 5.4.1 – Impacts of the Direct Sales on the Basic Price Production by Sector
(R\$ millions)**

Código da atividade Nível 55	Setor	Impacto Direto	Impacto Indireto e Induzido	Impacto Total	% do Setor
0000	Venda direta	37.201	2.756	39.957	100,0%
0601	Comércio	0	17.836	17.836	3,3%
0301	Alimentos e bebidas	0	6.879	6.879	1,6%
0701	Transporte, armazenagem e correio	0	6.513	6.513	2,1%
0901	Intermediação financeira e seguros	0	5.456	5.456	1,6%
1001	Serviços imobiliários e aluguel	0	4.961	4.961	1,8%
1103	Serviços prestados às empresas	0	4.562	4.562	1,8%
0311	Produtos químicos	0	4.222	4.222	4,3%
Outros Setores		0	48.675	48.675	1,2%
Total		37.201	101.859	139.061	2,2%

6. Conclusive Observations

The results obtained with the field survey, in addition to measuring the rate of overlap between the representatives of the companies in the industry, also allow some considerations that may explain certain behaviors observed. Furthermore, these results provide a regional profile (state, Brazil and Major Regions) of the agents involved.

Considering all the states, it can be noted that approximately half of the representatives of the companies registered in ABEVD works with more than one company in the direct selling, except for the State of Rio Grande do Sul, which showed only 39.5% its resellers in this situation. Another important point to highlight is the diversity in the work of resellers linked to at least one company associated with **ABEVD** which also work with companies not registered in **ABEVD**. In the Metropolitan Region of São Paulo and the State of Amazonas, these numbers became 25% of the total, while the states of Rio Grande do Sul and Bahia had the lowest percentages, respectively 13.5% and 14.5%.

The social status of the representatives also present major differences. For example, 71.5% of resellers from the South reported having, in addition to direct selling activity, some other source of income (other activity, retirement, pension, etc.). On the other hand, in Pernambuco only 46% of resellers had this attribute.

When comparing the behavior of representatives in the major regions, it is noted that the average profit of the North was above the national average (36% higher than the observed value for Brazil). This may be partly explained by the presence of traditional retailing in this poor region, strengthening direct selling to consumer choice.

The state of Minas Gerais was the location that showed the highest percentage of registered resellers with sales teams, a total of 37.5%. On average, 27.1% of resellers that operate in the Brazilian market for direct selling team up to boost their sales, with only the Midwest and North regional averages are lower than the national average in this respect.

Looking at Brazil as a whole, it is observed that the average profit from a reseller registered in **ABEVD** companies is R\$303.43 and 80.4% of these workers work only with companies associated with **ABEVD**. We also notice that, from the resellers which have other income source, 50,7% are registered or participates as owner; Approximately 12% are registered as self employed and contribute to the social security. Moreover, 27,1% of the individuals working with direct selling in Brazil make up sales teams and these teams have the average of 2,98 participants. Finally, we note that, from the total number of active registered representatives in **ABEVD** companies, 19.7% also work with at least one not registered company.

Furthermore, it can be concluded that the Double counting generates a general overlapping percentage of 42.3%¹². Equivalently, the "overlap rate" is 57.7%, i.e., the universe of resellers operating in the direct selling market is equal to 57.7% of total registrations. Using this rate and the total of entries made by representatives of associated companies and estimates of the field survey, it was possible to reach an estimate of 4,056,950 resellers registered in a company operating in the direct selling market in Brazil.

This value can also be segregated between **ABEVD** (2.012.550) and non **ABEVD companies**(2.044.400).

Another important result from the field survey was targeting the average profit earned by the representatives. The present study estimates that, for those agents working with both, registered and non registered companies, 86.5% of the profit comes from **ABEVD** companies. Joining the information about the market size and segregation of profit is estimated that the total income

¹² General Overlap Override means that ABEVD and Non ABEVD companies were considered, i.e., the market as a whole.

moved by Direct Selling resellers is approximately R\$11.38 billion a year, where 55.7% of this value are from resellers who work only with companies associated with **ABEVD** and the remainder (44.3%) are sourced from people enrolled in associated and non-associated companies.

Using the input-product method, it was possible to analyze the socioeconomic impacts of the operations of direct selling companies, far beyond the immediately visible effects. In fact, the indirect and induced effects are usually much higher than the direct effects. Thus, although the direct selling industry is an important productive activity per se, directly responding to 0.77% of GDP and more than 4.05 million people, these impacts are multiplied significantly when considering the indirect and induced effects. The total impact on the GDP is of R\$ 145,3 billion, corresponding to a multiplier of 5,15. This translates into 4,0% of the country's gross domestic product in 2010. The generated occupations are multiplied by 2,13 reaching 8,65 million of total occupations generated by the sector, between full and part time occupations. Finally, the important part reserved to the government is observed in the generation of the added value of the Direct selling sector. In fact, 31,3% of the R\$ 28,2 billion of the sector's GDP are destined only to the taxes imposed over the production.

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Appendix A – Estimation Methodology of the MIP-X

As seen, the input-extended product model requires the estimation of the matrices A and B of technical coefficients of production, and household consumption coefficients as well as the coefficients of sector transformation. This appendix presents the methodology for estimating such matrices and coefficients in the present context, i.e., taking the base year 2010 and with the inclusion of the Direct Selling industry between economic activities of the model.

1. Estimation of the Matrix for Technical Coefficients of Production

The methodology for estimating the matrix *A* is based on the *Tables of Resources and Uses of Goods and Services*, available until the year 2008 as part of the System of National Accounts (IBGE 2008; IBGE 2007; IBGE 2010). The *Tables of Resources and Uses of Goods and Services* shows, for each of 56 sectors or economic activities, the value of its production (in basic prices, i.e., received by the producer) for each one on a categorization of 110 products in a given year ($p_{ij}, i = 1 \dots 110, j = 56$), as well as the total value of imports of such goods and services during the same period ($m_i, i = 1 \dots 56$). Moreover, it presents the factors that add to the value of production in basic prices of various products to result in its value of production to consumer prices. These factors are the *transport margin*, *trade margin* and *taxes* on products (respectively mc_i, mt_i, t_i). The total offer of each product to consumer prices (including imports) is then given by

$$am_i = \sum_{j=1}^{56} p_{ij} + m_i + mc_i + mt_i + t_i \quad (14)$$

Since the *Table of Uses of Goods and Services* data shows the destinations of these products, namely, the intermediate consumption activities (u_{ij}), gross fixed capital formation ($fbkfi$), export (e_i), the changes in inventories (vs_i), consumption of public administration (cg_i), household consumption (cf_i) and the consumption of the Non profit Institutions Serving Households (ISFLSF) (ci_i) As the total offer of each product is equal to its demand, it then

$$am_i = \sum_{j=1}^{56} u_{ij} + fbk f_i + e_i + vs_i + cg_i + cf_i + ci_i \quad (15)$$

Intuitively, the derivation of the technical coefficient between two sectors make use of production matrices and intermediate consumption of these sectors. However, the intermediate consumption as represented by u_{ij} is expressed in consumer prices, while the production is represented by p_{ij} expressed in basic prices. Thus, it is necessary to reconcile these two representations estimating an *absorption matrix of basic rates* ab_{ij} , $i = 1...110, j=62$)¹³. This matrix details the structure of the absorption value of production, explaining how the consumption of activities and final demand represents margins, taxes and imports, and the remainder (the absorption by base price) is the amount actually received by the domestic producer.

Because they represent a decomposition of the absorption of the products by industries and final demand, these elements are consistent with the decomposition already specified in the *Table of Uses of Goods and Services*:

$$\sum_{j=1}^{62} Ab_{ij} = ab_i = \sum_{j=1}^{56} p_{ij} \quad (16)$$

The absorption matrix at basic prices and ab production matrix P are jointly producing the so-called input-product matrices. In fact, one can define the matrix of technical coefficients (product x activity) Bn by

$$Bn_{ij} = \frac{Ab_{ij}}{\sum_{i=1}^{110} p_{ij}}, 1 \leq j \leq 56, 1 \leq i \leq 110 \quad (17)$$

Of course, Bn_{ij} corresponds to the intermediate consumption of product i by industry j , expressed as a proportion of total production value of that sector. The *market-share matrix* D is defined by

$$D_{ij} = \frac{p_{ij}}{\sum_{j=1}^{56} p_{ij}}, 1 \leq j \leq 56, 1 \leq i \leq 110 \quad (18)$$

¹³ The first 56 ab columns correspond to the intermediate consumption of industries, the final six columns, the components of final demand.

The element D_{ij} corresponds to the production of good i by sector j , expressed as a proportion of total production value of this asset by all sectors. Thus, the technical coefficient matrix (activity x activity) is defined:

$$A = D^T Bn \quad (19)$$

Analyzing the definitions of the two factors, it becomes clear that the element A_{ij} actually represents the consumption, by sector j for goods produced by sector i as a proportion of production value of the first, which corresponds precisely to definition of technical coefficients given in Section 5.

It is seen then that the estimation of the technical coefficient matrix requires the specification of a production matrix and a matrix of absorption at basic price. Following, the detailing of the methodologies used to estimate such matrices.

The production matrix P is given by IBGE as part of the System of National Accounts - SCN, and must include the Direct Selling as a separate economic sector¹⁴. Thus, the column P referring to the Direct Selling industry was drawn from the data of operating revenue and production for own consumption of the group companies, the necessary adjustments being made to obtain these values at basic prices. Consequently, the production by the Direct Selling sector of each product was deduced from the columns relating to the original corresponding sectors, so that there was no double counting.

With respect to the absorption, as previously seen, IBGE discloses at the SCN the matrix of absorption at consumer prices Am , and the total values for each product, which is assigned to the margins of commerce and transportation, and taxes on production and imports, as well as the rest of the production value of each product, which is precisely the domestic offer at the base price of the good or service:

$$am_i = mc_i + mt_i + t_i + m_i + ab_i \quad (20)$$

¹⁴ In order to obtain a valid matrix for the base year 2010, it was assumed that the production structure of the national economy (technical coefficients and market shares) did not change substantially between 2008 and that year. This allows to obtain production and absorption matrices from the SCN/2008 by applying the coefficient of variation from CNT/2010.

Thus, to obtain the absorption matrix at basic prices, it is necessary to estimate how the intermediate consumption of each product for each sector is distributed between the domestic offer at base price and the other components. Once the IBGE chose not to disclose the methodology used in MIP/2005 to estimate this distribution, we adopted the simplifying assumption that the sectors (and components of final demand) do not differ in this respect. That is, we adopted the same conversion coefficient between base price and consumer price for each product, regardless of their destination:

$$Ab_{ij} = \delta_i Am_{ij} \quad (21)$$

where [formula] Although in this respect the methodology adopted by FGV may differ from that used by the IBGE, a comparative analysis of the matrix Bm obtained by the above method (for the base year 2008) and that released by the official institution (for 2005) showed no statistical evidence of inconsistency, despite the difference between the reference years.

Finally, similarly to what was done with P , The Direct Selling was included in the sector of the ab matrix. The column on the structure of absorption of Direct Selling industry was calculated on the basis of expenditure data and costs provided by the companies and, again, the absorption of other sectors was deducted to avoid double counting.

2. Estimation of the Coefficient Matrix of Family Consumption

Contrary to what occurs in the case of technical coefficients, there is an established model for the relationship between household consumption and production value of industries in which its members are employed. The approach adopted in this work is based on (Najberg and Ikeda, 1999), incorporating improvements and upgrades. As seen in Section 5, these two relationships are described by the matrices K and V , which, in principle, incorporate the consumption and income (respectively) of each individual household in the economy. The first practical hypothesis adopted is to aggregate these households in ten income deciles (decile 1 = 10% poorest households, 2nd decile = 10% following, etc.). Thus, adopting the same classification of economic activities used for the technical coefficients matrix K and V , and start having dimensions 56 x 10 and 10 x 56, respectively.

The calculation of the matrix K requires the estimation of the different deciles in the household consume of each sector. This estimation is based on the most recent edition of the Household Budget Survey (POF) by IBGE, referring to the biennium 2008/2009. For each income decile, we analyzed the profile of expenditure (recurrent and capital) of households in R\$. A match was made between the categorization of expenditures in the POF and the product groups and activities adopted in the System of National Accounts, from which we obtained the matrix q_{ji} , consisting of the value in R\$, from the household expenditure on the i th-decile of income with products from sector j . Thus obtained if the weight matrix γ :

$$\gamma_{ji} = \frac{q_{ji}}{\sum_{i=1}^{10} q_{ji}} \quad (22)$$

The weights computed are used to distribute household consumption between different deciles, obtaining the equivalent to the matrix k defined in Section 5:

$$k_{ji} = \gamma_{ji} cf_j \quad (23)$$

Finally, the hypothesis of proportionality between consumption and income k_{ji} seen in each decile is used:

$$K_{ji} = \frac{k_{ji}}{v_i} \quad (24)$$

This equation defines the matrix K in function of the income by decile. This quantity, in turn, can be estimated by calculating the matrix V , which is necessary to estimate another set of weights, now in order to allocate the revenue generation of each sector between the 10 deciles. For this purpose, we used data from the National Survey by Household Sampling (PNAD) of IBGE, whose most recent year is 2009. Namely, the matrix d_{ij} was developed, consisting of the number of households in the i th- income decile in which there was at least one member employed in sector j . The weight matrix was defined by ρ :

$$\rho_{ij} = \frac{d_{ij}}{\sum_{i=1}^{10} d_{ij}} \quad (25)$$

These weights were used to distribute the income Y_i generated by the sectors. This, in turn, is considered equal to the sum of the wages, social contributions and surplus of each sector, as set forth in the *Table of Uses of Goods and Services*. The income generated by each decile for each sector is given by

$$y_{ij} = \rho_{ij} Y_j \quad (26)$$

With this equation, the value of the total income per decile is defined, necessary for the calculation of the matrix K :

$$v_i = \sum_{j=1}^{56} y_{ij} \quad (27)$$

Finally, to define the matrix V , the proportionality hypothesis is used between the income generation y_{ij} and the production $x_{ij\text{em}}$ in each sector:

$$V_{ij} = \frac{y_{ij}}{x_j} \quad (28)$$

Regarding the matrix K , it was assumed that there is no consumption of the families of goods for the sector of Direct Selling, which is consistent with the commercial profile of the group. To include the Direct Sales sector in the matrix V , precisely analogous criteria were adopted to those used in relation to the matrix ab using job and income data calculated in the study.

3. Estimation of the Sector Coefficient of Distribution

As seen in Section 5, the vectors of distribution coefficients ρ , λ , μ and θ have the function of calculating, from impacts on the value of sector production, the corresponding amounts of impacts on income, employment, taxes on production and imports. These coefficients were estimated from the TRU from 2008 and the CNT from 2010, through the following procedure:

- 1) Development of an matrix of components of the sector production, derived from the combination of sector information in the TRU (replicated directly) and the product level (transferred to industry level through the application of the matrix of *market share*) This

matrix has the total amounts of each one of the variables of interest for each sector, regarding the year of 2008.

- 2) Update for the year 2010, using the sector growth rates presented in the CNT, and making adjustments on the trade and transport sectors in order to maintain the consistency criteria.
- 3) Calculation of distribution coefficients, by dividing the sector totals estimated in the previous stage:

$$\begin{aligned}\rho_i &= y_i/x_i \\ \lambda_i &= l_i/x_i \\ \theta_i &= t_i/x_i \\ \mu_i &= m_i/x_i\end{aligned}\tag{29}$$

where here means each component y_i , l_i , t_i , and x_i as the total of the respective sectors in 2010, and not the values of the impacts (as in Section 5).