

# **THE ACCOUNTANCY OF THE POTENTIAL INCOME LOST DUE PREMATURE DEATH: DIFFERENCES DETERMINED BY GENDER**

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**ABSTRACT** - Introduction The proposition of the study is to accomplish the measurement using the accountancy of the loss of potential income due premature death of potential worker, emphasizing the differences between men and women. Method A descriptive search based on secondary data was conducted. It was collect the data from mortality information system – SIM, DATASUS, to Paraná state, 2006, classified by cause of death. Also life expectancy and average monthly income are crucial information taken into account in the study. To the countability of the life loss and the income loss there were elaborated indicators Productive Potential Years of Life Lost. Results The proposed method found out a potential income lost in a quantity of R\$ 11.1 billion, where masculine death represents R\$ 7.8 billion and the feminine death R\$ 3.4 billion, making clear therefore a loss eight times bigger on men case compared to women case. The Productive Potential Years of Life Lost for the women has become more evident at elder ages. Conclusion This difference occurred due the superposition of high infant mortality rate, high amount of death caused by violence and an overestimation of men labor over women labor.

**Keywords:** Potential Years of Life Lost. Accountancy. Sustainability.

## 1 INTRODUCTION

The evolution of the science of accountancy is associated to the development of the economic, politic, social and cultural activities (CODA et al. 2008). Because of nowadays big interest on the accountancy and planning of the social programs, one of the contemporary challenges in this area is the measurement of social phenomena (UNERMAN; BEBBINGTON; O'DWYER, 2007). This Challenge will only be exceeded with the right measurement instruments.

The accountancy, as well as other applied social sciences, tries to organize and comprehend phenomenon translating them into information, thus subsiding decisions and informing the community, based on hypothesis (PAULANI; BRAGA, 2007; HORNGREN; SUNDEM; STRATTON, 2008). The society waits for answers and wish to know what is happening with it's economic and social potential. These answers will lead the social efforts to a focus on building a society more equal and fair.

The phenomenon is complex, as people live, and therefore the difficulties to the accountability gets bigger. No indicators can actually be used to mensuration the human life in its plenitude, furthermore, how could this phenomenon be evaluated if they are strictly bounded to human life, reflecting the human way of being? The search for indicators and methods to prevent resources or to judge results of projects and programs in this area is urgent.

This context has lead two teams of researches to join together – epidemiology and accountancy – to try a

essay, achieving therefore the answer to the question “What would be the monetary quantity lost due to a specific mortality pattern?”. Each society has its own pattern of sickness, and also a specific evolution of this pattern as the incorporation of new habits and behaviors in this society occur. These differences can also be separated by women and men, due distinct insertions of the genders in the society, not only on the illness and death but also on productivity and income.

The subject in this preliminary study was to make the accountancy of incomes lost by the society, as consequence of the deaths occurred, emphasizing the differences on men and women case.

## 2 METHOD

To accomplish the aim of the study, a descriptive research was adopted, based on secondary information of the state of Paraná, Brazil, during the year of 2006.

The established criteria took into account two main blocks of variables:

- For the mortality: gender, cause of death, age when death occurred;
- For the society: gender, number of deaths, life expectancy and average income.

There was elaborated a equation to measure the Potential Incomes Lost as follows:

$$R_{pp} = \left[ \sum_{i=1}^n (E - a_i) \right] \times d \times R_{annual} \quad [1]$$

$$10 \leq a_i \leq E$$

Where:

$R_{pp}$  = Potential Income Lost

$E$  = Life expectancy:

- $E_{men} = 70,04$
- $E_{women} = 77,44$

$R_{anual}$  = annual income

$a_i$  = age when death occurred

$d_i$  = numbers of death during the analyzed period

The origin of each variable, as well as the contexts that justifies its utilization, and some of the application that have lead the elaboration of the equation are explained as follow:

Sex, age when death occurred and number of deaths

Men and women death were searched by age bracket and groups of basic causes of death found at the Mortality Information System – SIM, DATASUS; for the state of Paraná, occurred during the year of 2006 (BRASIL, 2009).

In this study the age bracket that was adopted was the one suggested by the Pan-American Healthy Organization (BRASIL, 2009) becoming then the average age bracket as the base age to the calculation.

## 2.1 Causes of death

To the classification of basic causes of death was used the International Classification of Disease, 10th Revision – ICD-10 (OMS, 1995). Following this classification it was considered groups for causes of death: Certain infectious parasitic diseases; Neoplasm's; Diseases of the blood and blood-forming organs and certain disorders involving the immune mechanism; Endocrine, nutritional and metabolic diseases; Mental and behavioral disorders; Diseases of the nervous system; Diseases of the eye and adnexa; Diseases of the ear

and mastoid process; Diseases of the circulatory system; Diseases of the respiratory system; Diseases of the digestive system; Diseases of the skin and subcutaneous tissue; Diseases of the musculoskeletal system and connective tissue; Diseases of the genitourinary system; Pregnancy, childbirth and the puerperium; Certain conditions originating in the perinatal period; Congenital malformations, deformations and chromosomal abnormalities; Symptoms, signs and abnormal clinical and laboratory findings, not elsewhere classified; External causes of morbidity and mortality.

## 2.2 Gender

Laurenti, Mello Jorge and Gotlieb (2005), and Connell (1995) affirm that the behavior of men and women, shapes itself according to the physical and social environment, not only exclusively by their biological determination, this fact generates differences on the illness processes, therefore on sickness and death paths. This means, being men don't just mean to be born as a male hymen, but also to live and interact in the society as a men. As a result of this fact, death ends up being a consequence of gender, be it masculine or feminine, given by the ideologies of the gender.

## 2.3 Life expectancy

This study has used the life expectancy at 70.04 years for men case, and 77.44 years for women case (IBGE, 2007). The life expectancy is one of the most complete indicators that we have today, once you can discriminate values to measure the potential of life in a community comparatively to others.

This indicator not only results from the diseases, but aggregate all the possibility of staying alive and preserving human life, including the nutrition, education, social cooperation, access to health care and serving technology, personal realization, prevention, social risks , etc.

In most societies, life expectancy in lower for men if compared to women.

## 2.4 Potential Years of Life Lost

The potential years of life lost is resulting from life expectancy. To consider the age that people die and not only the numeric incidence, allow us to quantify the potential years that a person could have achieved. The indicator “Potential Years of Life Lost” (PYLL) is the difference between the life expectancy when born and the age when premature death occurred. Giving emphasis that a premature death is the one that happens before the limit given by the life expectancy. Based on the PYLL is possible to calculate the impact of the premature deaths on the social potential and economic potential, how much of human potential is lost due this premature deaths. The PYLL is based upon the statement “the more premature is death (the younger a person dies), more significant will be the loss of human potential” (OPAS, 2003).

This potential loss can be understood as privatizing the society from creativity, productiveness, economic and intellectual potential of this share of people that died prematurely (REICHENHEIM; WERNECK, 2007; LAURENTI et al., 2005; OPAS, 2003).

The PYLL indicator has being used to measure the effect of mortality in the socioeconomic conditions of a population and evaluate specific social investments

that may result in a lower waste of human life potential contributing to prioritize the investments in different groups of population (PEIXOTO; SOUZA, 1999). According to Reichenheim and Werneck (2007) the PYLL has being pointed as a good alternative to compare the differences on the life pattern of men and women. This way it helps to explain the difference in the social construction of the gender relationship and to attribute risks for each gender.

Based on the conception of the Indicator PYLL was possible to obtain a concept of productive years lost.

## 2.5 Average income.

The IBGE (Instituto Brasileiro de Geografia e Estatística) considers as the average monthly income the monetary value of the activity practiced by 10 years old people or older, during the week of reference, respectively, R\$ 1,175.00 for the men and R\$ 759.00 for the women. The amount of the average annual income, consequently , is the average monthly income multiplied by twelve months. To calculate the potential income lost was used the average monthly income suggested by the IBGE (2007) in the state of Paraná during 2006.

Due the IBGE standards, that consider as economically productive only people that have ten years or older, it was established as a “Potential Productive Year of Life Lost” (PPYLL) only the potential life loss when death occurred by the age of 10 or latter on, which means the first 9 years of life are not considered as economically representative.

The evaluation of the potential income lost was measured in a constant amount, without take into account the value of money over the time.

## 2.6 Calculation

It was calculated, for each gender, the basic cause of death and age bracket; the product of the number of death by the PPYLL. The result is the total of productive years lost for each cause of death and for each age bracket.

The potential income lost is the product of the PPYLL by the annual income amount. Therefore, we obtain this way the lost income for each cause of death, age bracket, and gender. The summatory of lost income is now composed by cause of death or by age bracket, separately for each gender.

## 3 RESULTS

In 2006, in the state of Paraná, occurred 35,607 masculine deaths and 24,970 feminine. This represented 557,244 Potential Productive Years of Life Lost – PPYLL on masculine case, and 356,612 on feminine case. When considering the life expectancy at the born, every masculine death represents 15.6 PPYLL, and every feminine death, 14.3 PPYLL. In numbers, of death the masculine mortality is higher than the feminine. The greatness of this superposition is noticed in the values obtained from the rate between the masculine and feminine, giving emphasis to the groups External causes (Violence) 4.9, Mental and behavioral disorders 4.1 and Diseases of the digestive system 1.8 (Table 1).

The distribution in percentage of masculine and feminine deaths by disease related to the Diseases of the circulatory system reaches 28.5% of the total number of masculine deaths, and 34.4% of the total feminine, representing the most important cause for both groups. The

second place takes part on Neoplasms for the women, 18.4%, while for men, the second place is with the External causes (Violence). It reaches 7,015 deaths and 19.7% of all deaths.

The Figure 1 shows the distribution of percentage by gender for each group of death causes. It is possible to give emphasis a masculine tendency to the causes related to violent death (Mental and behavioural disorders, alcoholism, External causes and others) and Diseases of the digestive system, probably generated as a anxiety symptom. For the women is noticed that the mortality begins with problems linked to Pregnancy, childbirth and the puerperium, followed by Diseases of the musculoskeletal system and connective tissue, this group includes among others disease the Osteoporosis. The masculine and feminine pattern tends to balance in around 50% when observing the deaths causes that does not suffer influence of the gender.

The difference between the masculine and the feminine mortality pattern is becomes more evident on the Potential Productive Years of Life Lost (Table 1). The masculine PPYLL, due to a lower life expectancy, shows to be low than the feminine, exception for Mental and behavioral disorder, where the rate M/F of PPYLL is 5.4; External causes (Violence) with the rate M/F of 5.1 and Diseases of the digestive system related disease with rate of 2.0. According to Laurenti, Mello Jorge and Gotlieb (2005), these deaths may be reflecting the violence in several ways, including alcohol consumption and other psychoactive substances, considerably related to men. Even the diseases related to the digestive system, gives emphasis on masculine insertion, for example

hepatic cirrhosis that is included on this group of death causes.

The violence, during 2006, (table 1) was the reason for the loss of 243,795 masculine PPYLL. Furthermore, this group of causes privates the society from a amount of 4,063 productive masculine lives, instead, this men could be contributing economically and socially until the age of 70.

The potential income lost due death (table 1) was of R\$ 7.9 billion for the males and R\$ 3.2 billion for the females. The external masculine external causes

represented the loss of R\$ 3.4 billion. This amount overcome the value lost by all the feminine deaths and, reaches a number 8 times bigger than the number given to the feminine deaths by the same group of causes.

Also the Diseases of the circulatory system and Neoplasms, generates significant potential income loss, respectively R\$ 913.2 million and R\$ 759.9 million for men, and R\$ 628.3 million and R\$ 633.6 million for women.



**FIGURE 1 – DISTRIBUTED PERCENTAGE OF DEATHS BY SEX FOR THE BASIC CAUSES OF DEATH GROUP, IN STATE OF PARANÁ, 2006.**

Some groups with a lower number of deaths also deserve some attention, like the 110 deaths occasioned by Pregnancy, childbirth and puerperium, all of which are part of the 5th millennium goal, suggested by the United Nation Organization - UN, and in this essay represented 5,299 PPYLL and R\$ 48.3 millions lost.

The potential income lost by deaths on masculine case, can be detailed according to the age when the fact occurred, observe the table 2. The state of Paraná has lost R\$ 1.0 billion or 12.7% of the total masculine loss with infantile mortality that occurred during the fifth year of life. At this same age bracket calls the attention the groups Certain conditions originating in the perinatal period and Congenital malformations,

deformations and chromosomal abnormalities, that might be reduced with the improvement the attention to the pregnant and to childbirth. This age bracket is important for the huge loss of potential productive lifetime and, therefore is appointed by the UN as the 4th millennium goal “the reduction of child mortality”. During this age there are deaths caused by Certain infectious and parasitic diseases; Diseases of the respiratory system; External causes and Symptoms, signs and abnormal clinical and laboratory findings, not elsewhere classified, all this causes are giving a sample of improper life conditions and bad medical support for this population. At the bracket of 15 to 29 year- olds the loss is of R\$ 645.3 million due to External causes, 87.2% of the value lost at this age bracket. The External causes reduces gradually its significance on the following ages, showing almost insignificant over the age of 60 year-olds.

For adults over 20 years old, until 50 years old, also takes part the group of deaths caused by Certain infectious and parasitic diseases, on which AIDS is included. This Group represents a loss of R\$ 215.6 million in this age bracket.

The Neoplasm are significant losses for adults above the age of 40 years old – emphasizing that is included on this number the deaths caused by tobacco consumption – cancer in lung, prostate, mouth, larynx and esophagus. The Diseases of the circulatory system also associated to tobacco and life style become more significant from 45 years old to 64 years old.

On the particularities according to age, on feminine deaths, table 3, is possible to see the infantile mortality – first year of life – an income loss of R\$ 594.7 million, otherwise, 18.3% of the feminine total

loss. This loss is explicit on the proposition of reduction, 4th millennium goal according to the UN.

For this age bracket follows the groups of death causes Congenital malformations, deformations and chromosomal abnormalities as indicated for the male gender, can be reduced with improvements on medical support during pregnancy and birth. Its also presented the deaths caused by Certain infectious and parasitic diseases, Diseases of the respiratory system, External causes and Symptoms, signs and abnormal clinical and laboratory findings, not elsewhere classified, which directly indicates inappropriate conditions of life for this population. Deaths included on the Neoplasms and Diseases of the circulatory system caused a loss of almost 50% of the amount of feminine potential income and found themselves mostly at ages over 35 years. The deaths by cancer generates a loss of income in a total of R\$ 675.4 million, where most part of this amount is lost until the age of 64. Evaluating the deaths by Diseases of the circulatory system, it was obtained the total amount of R\$ 669.7 million distributed along the ages until the age of 74. The biggest income loss related to age bracket in question, is represented by the infantile mortality, R\$ 594.7 million, and the second biggest occurs among women between 50 and 64 year-olds, R\$ 278.6 million. At ages of 15 to 24 year- olds the External causes produce almost 50% of the total amount for this age range. This group of causes decreases gradually its financial representation for the following ages, showing to be less significant at ages over 50 years. The group of deaths by Certain infectious and parasitic diseases, where is included AIDS, is shown from 30 to 44 year- olds.

While the participation on the lost income by death of men over 60 years is only 6%, on feminine total income the elder represents 18.46%.

For both groups studied the biggest lost income is occasioned by deaths that occurred before the first year of life, the second group is from 20 to 24 years on men case, and 50 to 54 years on women case.

The potential income lost gets more evidenced on Figure 2. The male death leads the loss of income by the society, specially on the group of External causes. Even for the causes that are very similar on absolute numbers, as the one originated Pregnancy, childbirth and the puerperium is evidenced the importance of the male monetary income lost.

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#### 4 DISCUSSION

According to the United Nation Organization one evidences of woman's discrimination is the difference of income obtained comparatively to men (PNUD, 2007). This difference aggravates the social scenario when superposes the unequal mortality profile, strongly predominant on men case.



The senses attributed to the conduct, behaviors, beliefs, values, ideologies, and human practices occurs inside a historical and social context where human being is introduced. The formation of people is socially established inside every single culture (MUSZKAT, 2006). The man passes through a process of physical and cognitive development that differs from the women by biological, behavioral and cultural factors. In our culture, the ideological idea to be achieved is being the male dominant and hegemonic (CONNEL, 1995). For Paschoalick, Lacerda and Centa (2006), the gender can be understood as the anatomic characteristics and the functioning of the reproductive organ, while gender is also compound a huge variety of other cultural meanings attributed to this biological differences. Maciel Junior. (2006) says that on the common sense perspective, masculinity is faced as a “natural” attribute of men and is associated to the competition characteristics, dominance, showing to be aggressive and repulsiveness from affections.

This way, in a attempt to achieve the ideological model socially expected, the man ends up living a oppressive situation and therefore harmful to his healthy (CONNELL, 1995; GIFFIN, 2005; SCHRAIBER; GOMES; COUTO, 2005; SOUZA, 2005; VILLAR, 2007).

The wish to be recognized as man and woman of value is a expectancy trough which people look up for to be socially appraised (MUSZKAT, 2006). This social ideal culminate on different ways of illness, consequently different mortality patterns.

It is hoped that women are delicate, passive, motherly, fragile and might be personally realized at home, while men are hoped to be more aggressive, active, objective and rational, and might be

realized on public places (FARIA et al. *apud* VILLAR, 2007). The public power, most of times attributed to the male figure, determinate the healthiness division and patterns of expenditures, as well as income and attribution of job.

Maciel Junior. (2006) says that the conception of gender was initially taken into account on feminist studies atmosphere, primarily understood on social relations of power, income and unfairness. Making a parallel of the observed characteristics on violent acts, with the characteristics associated to the identity of the gender expected from men by the society, it is possible to link the violent acts to the masculinity.

The manifestation of violence can be approved or not, licit or illicit, according to social rules lied by use and tradition naturalized, or, by legal means of society (BRASIL, 2005). The violence is seeing on authority conflicts, on the fight for power and wish for possession and annihilation of others and its belongings.

According to the World Healthy Organization *apud* Brasil (2005), the violence can be referred to as the use of physical strength or use of the power, real or as threaten, against himself, against other person, or against a group or a community, that may result or has any possibility of end up in a lesion, death, psychological damage, development deficiency or privation, making clear, on this context the results observed on Potential earning lost due External causes. Souza (2005) emphasizes that is from teenagers and during the beginning of adulthood that is observed the elevation on the violence indicators between youngsters from all social conditions, on which they take part not only as a victim but also as the infractor.

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**TABLE 1 – DEATHS, POTENTIAL YEARS OF LIFE LOST UNTIL THE LIMITS OF LIFE EXPECTANCY, POTENTIAL INCOME LOST (IN MILLIONS OF REAIS) BY GROUP OF DEATH CAUSES AND AGE BRACKET, MASCULINE GENDER, FEMININE GENDER AND THE RATE OF INCOME, ON THE STATE OF PARANÁ - 2006**

Death's cause	DEATHS					PYLL					POTENTIAL INCOME LOST			
	Male		Female		M/F	Male		Female		M/F	Male		Female	
	[qte]	[%]	[qte]	[%]		[qte]	[%]	[qte]	[%]		R\$ million	[%]	R\$ million	[%]
Mental and behavioural disorders	485	1.4	119	0.5	4.1	9,489	1.7	1,753	0.5	5.4	133.8	1.7	16.0	0.5
External causes of morbidity and mortality	7,015	19.7	1,433	5.7	4.9	243,795	43.8	48,186	13.5	5.1	3,437.5	43.8	438.9	13.5
Diseases of the digestive system	2,005	5.6	1,140	4.6	1.8	27,417	4.9	13,422	3.8	2.0	386.6	4.9	122.3	3.8
Sympt., signs and abnormal clinical and laboratory findings	1,711	4.8	1,277	5.1	1.3	20,776	3.7	13,067	3.7	1.6	292.9	3.7	119.0	3.7
Certain infectious and parasitic diseases	1,180	3.3	754	3.0	1.6	24,725	4.4	18,171	5.1	1.4	348.6	4.4	165.5	5.1
Diseases of the nervous system	568	1.6	600	2.4	0.9	11,932	2.1	9,513	2.7	1.3	168.2	2.1	86.6	2.7
Certain conditions originating in the perinatal period	680	1.9	534	2.1	1.3	41,229	7.4	35,685	10.0	1.2	581.3	7.4	325.0	10.0
Diseases of the circulatory system	10,141	28.5	8,601	34.4	1.2	64,766	11.6	68,982	19.3	0.9	913.2	11.6	628.3	19.3
Diseases of the ear and mastoid process	2	0.0	5	0.0	0.4	121	0.0	134	0.0	0.9	1.7	0.0	1.2	0.0
D. blood and blood-forming org. and certain dis. immune	104	0.3	94	0.4	1.1	1,506	0.3	1,674	0.5	0.9	21.2	0.3	15.2	0.5
Cong. malformations, defor. and chromosomal abnorm.	296	0.8	290	1.2	1.0	17,141	3.1	18,778	5.3	0.9	241.7	3.1	171.0	5.3
Diseases of the respiratory system	3,536	9.9	3,085	12.4	1.1	23,951	4.3	26,752	7.5	0.9	337.7	4.3	243.7	7.5
Neoplasms (tumors)	5,912	16.6	4,603	18.4	1.3	53,891	9.7	69,566	19.5	0.8	759.9	9.7	633.6	19.5
Endocrine, nutritional and metabolic diseases	1,401	3.9	1,712	6.9	0.8	11,723	2.1	16,396	4.6	0.7	165.3	2.1	149.3	4.6
Diseases of the skin and subcutaneous tissue	36	0.1	48	0.2	0.8	440	0.1	693	0.2	0.6	6.2	0.1	6.3	0.2
Diseases of the genitourinary system	447	1.3	423	1.7	1.1	3,179	0.6	5,177	1.5	0.6	44.8	0.6	47.2	1.5
Diseases of the eye and adnexa	1	0.0	1	0.0	1.0	13	0.0	45	0.0	0.3	0.2	0.0	0.4	0.0
Dis. of the musculoskeletal syst. and connective tis.	87	0.2	141	0.6	0.6	1,150	0.2	3,317	0.9	0.3	16.2	0.2	30.2	0.9
Pregnancy, childbirth and the puerperium	-	0.0	110	0.4	0.0	-	0.0	5,299	1.5	0.0	0.0	0.0	48.3	1.5
<b>TOTAL</b>	<b>35,607</b>	<b>100.0</b>	<b>24,970</b>	<b>100.0</b>	<b>1.4</b>	<b>557,244</b>	<b>100.0</b>	<b>356,612</b>	<b>100.0</b>	<b>1.6</b>	<b>7,857.1</b>	<b>100.0</b>	<b>3,248.0</b>	<b>100</b>

**TABLE 2 – POTENTIAL INCOME LOST (IN MILLIONS OF REAIS) BY GROUP OF DEATH CAUSES AND AGE BRACKET, MALE GENDER, STATE OF PARANÁ – 2006**

Cause \ Age	<1	1 - 4	5 - 9	10 - 14	15 - 19	20 - 24	25 -	30 - 34	35 - 39	40 - 44	45 - 49	50 - 54	55 - 59	60 - 64	65 - 69	70	TOTAL
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	29																
	year																
External causes	38.5	46.2	53.9	121.5	645.3	747.9	559.4	391.8	291.8	219.2	142.1	97.9	48.7	25.2	7.6	0.4	3,437.5
D. circulatory system	2.6	4.3	1.7	6.6	10.5	17.7	22.5	41.0	73.5	101.9	129.3	158.0	157.3	123.0	58.8	4.6	913.2
Neoplasms	5.1	21.4	16.3	18.1	21.0	22.4	26.8	36.6	40.8	76.0	112.6	126.9	114.6	83.7	35.0	2.5	759.9
Certain cond. perinat. Per.	580.5	0.9	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	581.3
D. digestive system	6.8	1.7	2.6	1.6	1.5	6.1	19.5	31.3	50.6	76.4	67.1	52.9	35.0	24.2	8.6	0.5	386.6
Cert. Infec. parasitic dis.	39.4	17.1	11.1	4.1	4.5	12.9	21.9	41.5	47.3	51.3	40.6	26.5	16.6	9.4	4.1	0.3	348.6
D. respiratory system	49.7	24.8	5.1	1.6	9.0	16.3	19.5	17.8	24.8	24.7	31.4	30.8	31.1	31.4	18.1	1.5	337.7
Symp, signs and abn. Find.	38.5	13.7	5.1	6.6	12.0	10.9	17.1	22.1	24.4	31.4	33.4	31.3	23.5	15.4	7.1	0.5	292.9
Cong. malformations, def.	202.9	19.7	2.6	1.6	5.3	3.4	1.8	1.6	0.5	0.8	0.3	0.5	0.6	0.1	0.0	0.0	241.7
D. nervous system	18.0	23.1	18.8	14.0	23.3	8.2	9.8	5.4	11.7	8.8	11.5	7.5	3.9	3.2	1.1	0.2	168.2
Endocrine, nutrit. Metabol.	12.0	4.3	6.0	4.9	2.3	6.1	6.1	8.6	8.0	14.7	17.7	23.1	26.1	17.3	7.5	0.6	165.3
Mental and behavioural d..	0.0	0.0	0.9	0.0	1.5	3.4	6.7	17.2	23.4	24.7	24.2	17.7	8.8	3.8	1.4	0.0	133.8
D. genitourinary system	1.7	1.7	0.0	1.6	1.5	3.4	3.0	1.1	4.2	4.0	5.6	6.2	6.2	2.9	1.5	0.2	44.8
D.blood and blood-forming	3.4	1.7	2.6	0.8	0.8	1.4	1.8	2.2	0.9	0.8	0.7	1.8	1.1	0.9	0.4	0.0	21.2
D. musculoskel. syst.	0.0	0.0	1.7	0.8	0.8	1.4	1.2	1.1	1.4	2.0	1.0	1.8	1.9	1.0	0.2	0.0	16.2
D. skin and subcutane. Tis.	0.0	0.0	0.0	0.0	0.8	0.7	0.6	0.5	1.4	0.8	0.0	0.5	0.4	0.3	0.2	0.0	6.2
D.ear mastoid process	0.0	1.7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.7
D. eye and adnexa	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.0	0.0	0.0	0.2
Pregn, childbirth ad puerp.	na	na	na	na	na	Na	Na	Na	na	na	na	na	na	na	na	0.0	-
TOTAL	999.1	182.4	128.4	183.9	739.9	862.1	717.9	619.7	604.7	637.4	617.5	583.4	475.9	341.9	151.5	11.4	7,857.1

D. = Disease

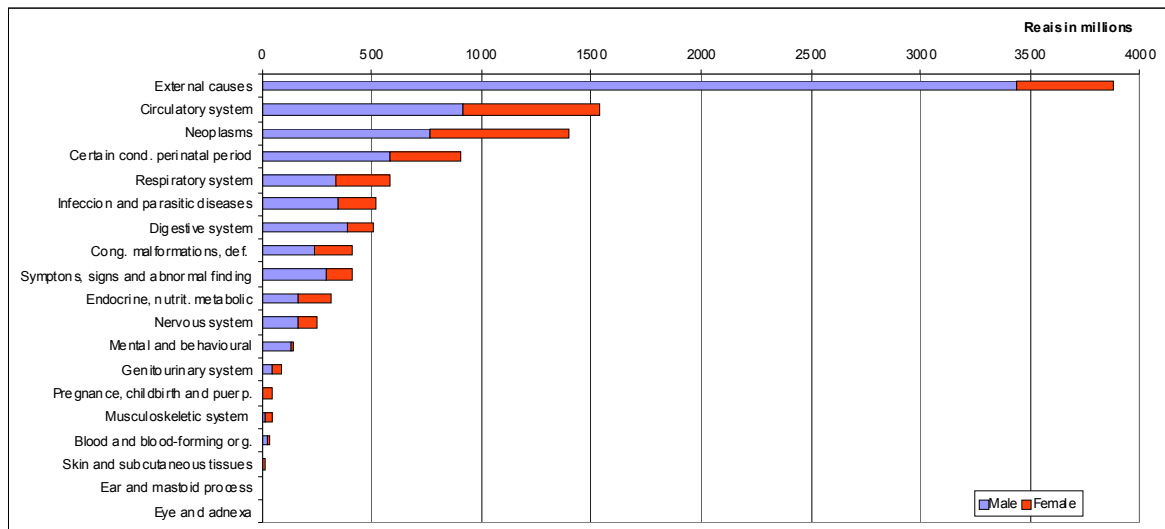
THE ACCOUNTANCY OF THE POTENTIAL INCOME LOST DUE PREMATURE  
DEATH: DIFFERENCES DETERMINED BY GENDER

Olga Maria Panhoca da Silva  
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**TABLE 3 – POTENTIAL INCOME LOST (IN MILLIONS OF REAIS) BY GROUP OF DEATH CAUSES AND AGE BRACKET, FEMININE GENDER, STATE OF PARANÁ - 2006**

Cause \ Age	<1 year	1 - 4	5 - 9	10 - 14	15 - 19	20 - 24	25 - 29	30 - 34	35 - 39	40 - 44	45 - 49	50 - 54	55 - 59	60 - 64	65 - 69	70 74	until 77	TOTAL
Neoplasms	2.4	14.7	9.8	17.0	14.1	15.9	23.5	33.7	54.7	67.3	76.4	85.8	80.1	65.7	45.7	24.1	2.6	633.6
D. circulatory system	6.7	3.7	1.8	1.8	6.5	7.5	19.0	15.0	36.7	59.1	75.1	88.7	82.6	91.0	78.5	47.8	6.8	628.3
External causes	28.1	17.7	22.6	35.9	66.2	68.6	45.6	37.3	38.5	24.2	18.3	12.1	9.8	6.1	5.0	2.6	0.4	438.9
Certain cond. perinatal perio	324.2	0.0	0.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.0	0.0	0.0	0.0	325.0
D. respiratory system	26.9	18.3	3.7	6.5	8.7	5.0	6.3	4.1	8.6	10.7	16.4	22.1	29.5	30.9	27.5	16.3	2.2	243.7
Cong. malformations, def.	139.2	17.1	3.7	2.9	1.6	2.5	0.0	1.6	1.1	0.6	0.0	0.2	0.2	0.3	0.0	0.0	0.0	171.0
Cert. Infec. parasitic diseas.	17.1	12.8	4.9	1.8	4.3	7.9	14.0	20.7	19.4	17.6	10.0	12.3	7.8	7.3	5.0	2.2	0.3	165.5
Endocrine, nutrit. metabolic	7.9	6.1	2.4	1.2	0.0	2.0	6.8	2.8	8.6	12.3	11.8	17.7	17.4	22.0	17.9	11.1	1.3	149.3
D. digestive system	1.2	3.1	1.2	2.9	2.7	3.5	5.9	4.5	7.2	13.8	16.7	15.4	14.8	13.4	9.6	5.7	0.8	122.3
Symp., signs and abn. Find.	25.6	7.3	3.1	2.9	2.2	3.5	2.3	4.5	6.1	7.9	10.5	10.5	9.4	9.7	8.6	4.3	0.7	119.0
D. nervous system	11.0	6.7	7.3	7.6	9.2	7.5	5.9	3.2	5.8	4.7	4.3	3.1	2.3	2.8	2.8	1.9	0.5	86.6
Pregn., childbirth and puerp.	0.0	0.0	0.0	0.6	8.1	10.9	8.6	11.0	7.2	1.9	0.0	0.0	0.0	0.0	0.0	0.0	0.0	48.3
D. genitourinary system	1.8	1.2	0.0	0.0	1.6	1.0	2.3	2.0	5.0	4.4	5.7	6.9	5.2	4.6	3.3	1.8	0.3	47.2
D. musculoskel. syst.	0.0	0.0	0.0	4.1	3.8	3.0	2.7	2.0	2.5	2.5	3.0	1.3	2.1	1.7	0.9	0.5	0.1	30.2
Mental and behavioural dis.	0.0	0.0	0.0	0.0	0.0	0.0	1.4	2.8	2.2	2.5	2.7	1.8	0.5	1.1	0.8	0.2	0.0	16.0
D.blood and blood-forming	1.2	1.8	0.6	1.2	1.1	1.5	0.0	0.0	0.7	1.9	1.6	0.9	0.9	0.9	0.3	0.5	0.1	15.2
D. skin subcutaneous tis.	1.2	0.0	0.6	0.0	0.0	0.5	0.9	0.0	0.4	0.6	0.3	0.7	0.0	0.8	0.1	0.2	0.0	6.3
D.ear and mastoid process	0.0	0.0	0.0	0.6	0.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	1.2
D. eye and adnexa	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.4
<b>TOTAL</b>	<b>594.7</b>	<b>110.5</b>	<b>62.3</b>	<b>87.0</b>	<b>130.7</b>	<b>140.6</b>	<b>144.8</b>	<b>145.6</b>	<b>204.9</b>	<b>232.2</b>	<b>252.6</b>	<b>279.6</b>	<b>262.9</b>	<b>258.1</b>	<b>206.0</b>	<b>119.5</b>	<b>15.9</b>	<b>3,248.0</b>

D. = Disease



**FIGURE 2 - POTENTIAL INCOME LOST IN REAIS (MILLION) ACCORDING TO THE BASIC CAUSE OF DEATH FOR MEN AND WOMEN, STATE OF PARANÁ, DURING THE YEAR OF 2006.**

Studies shows that several disease affect mostly men, being expressed by higher mortality for this gender (LAURENTI; MELLO JORGE; GOTLIEB, 2005), not only associated directly to the actions of violence, but also, the disease that are related to harmful habits (GIFFIN, 2005; PASCHOALICK; LACERDA; CENTA, 2006).

To Diniz *apud* Villar (2007) high infantile mortality can be influenced by inequity of gender. The women, as well as children, are kept away from power instances. The task of take care of children, is seeing by the society as a typical feminine task, and should be very natural that the mother gives her child her caring. Once caring is out of the male universe, therefore, out of his decisions and financial sharing. The financial resources destined to the child are considered as an award to assist the women.

The biggest potential income lost observed were the ones due death occurred before first year but can be reduced through incorporation of technology and proper training to the health team.

Not only on the assistance to the pregnant but also during birth and after-birth its necessary investments , that certainly would be much lower than the amount of income lost by this cause in study. According with Simões (2002), the premature deaths amplifies the number of years of life lost, consequently reducing the life expectancy when born.

The UN recommends a reduction on infantile mortality by 2/3 during the period from 2000 to 2015, according to the 4th millennium goal, and says that a large number of deaths can be avoided by simple actions such as incentive natural birth, and humanized birth programs.

Socially speaking, it's up to the women to follow children, teenagers, and old people on the healthy assistance site, and during certain period of life, to realize the previous to birth exams, making her excited about this kind of program and it's utilization. This search for support changes the development of disease and death by Circulatory system complications and Neoplasms, reaching women latter on, and leads to an income loss more premature fore the male gender.

## 5 FINAL CONSIDERATIONS

In 2006 the PPYLL was R\$ 11.1 billion. The 35,970 masculine deaths has lead to a loss of R\$ 7.8 billion and the 24,970

feminine death lead to a loss of R\$ 3.4 billion. This difference occurred due to the superposition of a high infantile mortality, big quantity of deaths caused by violence on men, since teenager to adulthood, and overestimation of masculine labor over feminine.

For the violent causes, the loss was eight times bigger for men comparing to women, respectively R\$ 3.4 billion and R\$ 439 million. The loss of potential income by deaths related to Disease circulatory system complications was R\$ 913 million for men and R\$ 628 million for women, and by Neoplasms was R\$ 759.9 million for men and R\$ 633.6 million for women, considering that the male average income is 60% higher than feminine. These facts strengthen the recommendations for the achievement of the millennium goals.

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