MEASURING MODERN

SLAVE LABOUR

IN THE STATE OF MARANHÃO

Final Report

Measuring Modern-Day Slave Labour in the State of Maranhão – 2017

Technical Data

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Preface

Before presenting the results of the survey conducted in the state of Maranhão on the prevalence of forced labour and slave labour, we wish to publicly acknowledge the institutions and people that supported this study in each of its stages.

Brazil is going through a difficult time. For many families, unemployment is a reality that has already hit home. According to the IBGE, today there are more than 13 million unemployed workers in the country, not to mention people who unable to find any kind of job or who are having a hard time to secure their livelihood in rural areas as well as in forests and cities.

Inequality has increased in the country and violence in rural areas has escalated: the number of homicides in those areas rose by more than 40 percent between 2014 and 2015.[1] These are very difficult times; times of political, economic and social crisis.

The world, too, is experiencing tribulations. According to the ILO, there are more than 197 million people without a job. It is almost as if the entire Brazilian population were unemployed. Still according to the ILO, another 1.5 billion people are in vulnerable employment, that is, employed in the informal sector with no work arrangements or contracts.

In this context of hardships, it is impossible for the immense majority of Brazilian society to even imagine what it is like to live in a condition analogous to slavery in the second decade of the twenty-first century. Facing extreme degrading conditions; living literally like animals; being subjected to constant armed surveillance and physical, sexual and psychological violence. All this, coupled with debts to employers, lack of water and food and truly indecent working conditions, tells us that we should start by thanking all rescued workers, the victims of slave labour who are, above all, role models for the entire Brazilian population, especially for their courage. These workers deserve our special acknowledgement: thank you for the daily inspiration that stimulates all social actors committed to the eradication of this scourge.

Despite all its problems, Brazil is still one of the largest countries in the world in population, wealth and area. It has a vibrant, participating civil society fully committed to human rights and to the fight against modern slavery. In this regard, special thanks are due to the Land Pastoral Commission, the Centre for Appreciation of Life in Açailândia, and the Human Rights Centre of Santa Luzia, which are all symbols of a brave civil society committed to the eradication of slave labour in Brazil and especially in the state of Maranhão.

The UN has officially recognized that Brazil's law on slavery is one of the best in the world. The organization also recognizes the excellence of the inspection work carried out by the Inspection Division for the Eradication of Slave Labour (DETRAE) of the Ministry of Labour's Labour Inspection Secretariat (SIT); the key role of the Human Rights Secretariat's National Commission for the Eradication of Slave Labour (CONATRAE) and the strategic importance of

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[1]   CANUTO, Antônio; LUZ, Cássia Regina da Silva; ANDRADE, Thiago Valentim Pinto (Coord.). **Conflitos no Campo - Brasil 2015**. Goiânia: CPT Nacional, 2015. 240p. Available at: <https://www.cptnacional.org.br/index.php/component/jdownloads/send/41-conflitos-no-campo-brasil-publicacao/14019-conflitos-no-campo-brasil-2015>. Access on 27 July 2017.

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the Blacklist and of private sector participation in this fight. Finally, Brazil's policy on modern slavery is considered a world reference that is already being adopted in other countries such as Peru.

This policy is often implemented locally. States and municipalities play a key role in reducing poverty and inequality, with a direct effect on the vulnerability that facilitates enticement and slavery as well as the work of the so-called "gato" (recruiter) and of the enslaver.

But this takes courage, as shown by the government of State of Maranhão in the persons of Governor Flávio Dino, of the Secretary for Human Rights and Popular Participation Francisco Gonçalves, and of Labour Secretary Julião Amim Castro. In Maranhão, this courage is also seen in the specific structure of the Secretariat for Human Rights and Popular Participation, which is also responsible for the popular participation policy and for coordinating relevant executive programs such as the More HDI. Courage to lead, to take risks and to innovate. Our sincere thanks go to the government of Maranhão.

Eradicating slavery requires courage, as shown by the government of Maranhão; it requires knowledge, as shown by the federal government; and it requires commitment to human rights, as shown by civil society. The combination of these factors led to the commitment necessary for conducting this survey, which was signed during the Meeting of Rescued Workers in Pindaré-Mirim. The outcome provides a complete picture of slavery in Maranhão, which is an essential source of information for the design of public policies and social technologies structured around the fight against slavery.

This survey benefited from the contribution of several institutions, organizations and individuals. However, it is important to emphatically point out, once again, the commitment to eradicating slave labour in Brazil symbolized by the courage shown by the Ministry of Labour (MT) through SIT; by the Ministry of Human Rights through CONATRAE; and by the state government of Maranhão. These are the institutions that have signed a Memorandum of Understanding with the International Labour Organization (ILO) in Brazil to adapt the "Hard to see, harder to count" methodology.

In addition to this public acknowledgement, special mention should be made of the important participation of other institutions and individuals.

In this regard, we will start by thanking all members of COETRAE/MA.

We are especially grateful to the Carmen Bascarán Centre for the Defence of Life and Human Rights in Açailândia, represented by Brígida Rocha and Fabrícia Carvalho.

Our thanks also to the Land Pastoral Commission in Maranhão and the Group for Research on Modern-Day Slave Labour (GPTEC) for their support.

We would also like to thank the entire team of the Media, Labour and Human Rights Research Group at the Federal University of Maranhão (UFMA), especially Prof. Flávia Moura as well as Osmilde Miranda, Jeyciane Sá Santos, Euzimar Jesus da Silva Rosa, and Dannielle Weba.

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Arthur Ramos/UFMA

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Introduction

Slavery still exists in Brazil. This fact was first acknowledged by the Brazilian government before Brazilian society and the international community in 1995.[2] Since then, many initiatives have been taken in an attempt to eradicate this crime that spanned the whole 20th century and is still a reality in rural and urban areas virtually all over the country. Modern-day slave labour in Brazil connects the present to a past that is ingrained in national memory. Albeit different from those of the past, the present forms of slave labour reveal a high level of impunity and a certain degree of social tolerance in Brazil towards this crime that has historical roots in classical slavery.

From 1995 to 2016, more than 52,000 workers were rescued from a condition analogous to slavery in Brazil. Many studies were conducted and many institutions dedicated to fighting and exposing this form of labour were created. Initiatives against slave labour were a response to recurrent protest and international mobilization campaigns. The cases exposed by the Pastoral Land Commission (CPT), the complaints lodged with the Inter-American Court of Human Rights and the ILO, and the actions of many governmental and non-governmental organizations were certainly determining factors of the fight against modern slavery.

Any attempt to measure this problem runs against issues typical of clandestine and criminal activities. However, all rescue statistics available have shown that despite the efficiency of multiple fronts in the fight against slave labour, especially in rural areas, the problem persists and has spread to urban areas. In the absence of official data, NGOs try to fill the information gap with data based on the number of rescued workers, the flow of migrant workers to higher incidence areas, and reports received by NGOs, the Labour Public Prosecution Service (MPT), and the Ministry of Labour's Labour Inspection Secretariat (SIT).

However, according to the Pastoral Land Commission, the failed attempts to repress slave labour certainly implies that the slavery phenomenon is highly under-represented in official statistics and in estimates constructed from these numbers (Gonçalves, 2000). Because of the context of extreme violence, fear, intimidation, threats, aggressions, and even deaths in places where slave labour still exists (as found during the sessions with the focus group of this survey), a more accurate measurement of this phenomenon is still a challenge with deleterious effects on the eradication of slave labour in the country.

This report presents data from the survey *"Measuring Contemporary Slave Labour in the State of Maranhão - 2017,"* as an attempt to better understand the phenomenon of slavery in that state, where about a quarter of the workers rescued from slave labour in Brazil have historically come from. The survey sought to analyse - both quantitatively and qualitatively - the multiple dimensions involved in the phenomenon of modern slavery, whether of a structural nature - such as extreme poverty and lack of jobs and basic livelihood resources - or in the form

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[2] On June 27, 1995 the then president Fernando Henrique Cardoso announced the creation of an executive slave labour repression group and provided a lengthy explanation on the subject in the radio programme "Palavra do Presidente" (A Word from the President).

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of individual and collective actions of resistance to subjugation by criminal groups through coercion and unequal power relations. The survey also sought to understand the local micro-relations and plots involved in the recruitment process: although difficult to generalize, these are aspects that need to be understood for the design of public policies aimed at preventing and eradicating modern-day slave labour.

Therefore, from a sample base the survey population was defined as individuals living in permanent private households in the state of Maranhão, 18 years of age or older, who were working at the time of the survey or had worked in the last three years, located in urban and rural census tracts in several municipalities.

Based on focus groups with rescued workers and public officials involved in the fight against slave labour and on bibliographical survey and seminars with researchers, the "Hard to see, harder to count" methodology developed and used by the ILO in other contexts was adapted to the local context. The questionnaire, descriptors and indicators used were extensively discussed and tested before the beginning of the survey. The topics addressed in the questionnaires cover several dimensions experienced by the officials involved in the fight against modern-day slave labour (TEC).

With respect to workers who were subjected to a condition of slavery, the survey sought to understand several aspects of this condition such as main types of work performed, how they were rescued, recidivism, forms of recruitment, the role of intermediaries ("gatos"), promises, indebtedness, etc. The survey also aimed to understand the migratory movements involved in modern-day slave labour, forms of travelling, routes travelled, issues associated with food, and possible indebtedness linked to recruitment and transportation.

With respect to individuals characterized as exploited by slave labour, the survey sought to understand, in a broader dimension, their living and working conditions and the main forms of conflict, coercion and resistance as well as their future aspirations. The collected data also provided crucial information for the implementation of public policies and enabled identifying the main challenges in the fight against this crime, such as seasonality and migration routes, possible virtuous repression and prevention mechanisms, challenges in enforcing legislation, forms of recruitment, causes of impunity, and the impacts of some existing institutional initiatives. Above all, the survey tried to produce a robust estimate of the number of people in situations of modern-day slave labour in the state of Maranhão.

The report consists of eight chapters besides this Introduction. Chapter 1 presents a brief historical overview of actions, laws, and public policies to eradicate slave labour in Brazil, highlighting the development and consolidation of public policies and actions to prevent and repress slave labour. In this regard, Chapter 2 also addresses the broader political context shaped by the two National Plans for the Eradication of Slave Labour, as well as the creation of an environment conducive to the implementation and consolidation of public policies to eradicate slave labour in Brazil and in Maranhão.

Chapter 2 reviews the legal definitions of forced labour and slave labour based on the international experience gathered by the International Labour Organization at the global level (from Convention No. 29 on the suppression of forced or compulsory labour to Convention No. 105 on the use of forced labour as a means of political coercion or education, as an economic method, as a means of punishment or discipline, or as a tool of social discrimination) and on Brazilian legislation (from the law of 13 May 1888 abolishing slavery to Law No. 10,803 that amended Article 149 of the Brazilian Penal Code by specifying labour in conditions analogous to slavery as subjection to forced labour, exhausting working hours, degrading conditions and debt bondage).

Chapter 2 then highlights the operational definitions of forced labour and slave labour used in this survey, the two dimensions of forced labour used by the ILO: involuntariness and coercion (including penalty or menace of penalty) and the four modalities of slave labour in Brazil: forced labour, exhausting working hours, debt bondage, and degrading conditions. The structure of

the analysis that enabled producing robust estimates according to the adaptation of the ILO methodology is also presented.

Chapter 3 discusses the different methodologies used in the survey. It also addresses the characteristics of the target audience, the sampling plan - including details on primary (municipality), secondary (census tract) and tertiary (household) sample units - and the observation unit, that is, the respondent living in the household, aged 18 years or older and who was working or had worked in the three years prior to the survey. Chapter 3 also presents the main results and discussions of the focus groups held as a way to contextualize the problem of modern slavery in Maranhão and support the design of the data collection instrument (questionnaire). Finally, the chapter presents a brief discussion about the limitations of the survey and future challenges.

Chapter 4 examines the socioeconomic profile of those individuals identified as victims of forced or slave labour (sex, age, marital status, religion, formal education, reason for dropping out of school, civil registry) as well as rural-urban migration patterns and migratory flows within the state of Maranhão, to other states in the region and to other regions in the country. The chapter also looks at recruitment conditions, employment contracts, working conditions, safety and health at work, and the living conditions of this specific cohort.

In an unprecedented and pioneering effort in Brazil, Chapter 5 provides estimates of forced labour and slave labour in the state of Maranhão. The prevalence of forced labour is broken down into the involuntariness and coercion dimensions (work under duress), and into its modalities of coercive or unfree recruitment, work and life under duress and impossibility of leaving the employer. The prevalence of slave labour is broken down into the categories proposed by Brazilian law: forced labour, debt bondage, degrading conditions, and exhaustive working hours.

Chapter 6 proposes an explanatory model of multiple logistic regression analysis of the main socioeconomic and demographic determinants of the prevalence of forced labour and slave labour in the state of Maranhão. Chapter 7 discusses the limitations of the study, as well as the methodological strategies adopted to reduce these constraints and enable greater gain in the identification of cases of forced labour and slave labour.

Chapter 8 presents the areas recommended for study based on the results of the survey. This recommendation is based on the relevance of the data (pre-existing or collected) for producing diagnoses as well as for planning and evaluating public policies to eradicate modern-day slave labour in Brazil, in both rural and urban environments. Based on the results of the survey, areas for future analysis are recommended, such as: a) analysis of the consistency of data and information production systems on slave and forced labour at municipal, state and national levels; b) analysis of the procedural flow (time elapsed from investigation to charges to prosecution to sentencing), including identification of systemic problems in the procedural flow and in the outcome of lawsuits in the country's federative units with the highest number of rescued workers.

The quantitative data collection instruments used in the survey are presented as an Appendix.

Annex 1 describes the definition and operationalization criteria used to construct the indicators of forced labour and slave labour in each of their dimensions, including their categories. It also provides a detailed description of each of the questions used for the construction of these indicators. Annex 2 describes the main sources of information used as a basis for complementary consultation in the development of this study. Finally, Annex 3 provides the list of municipalities and respective census tracts sampled in the survey..

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Genealogy of actions, laws and public policies in the fight against slave labour in Brazil

The fundamental condition for defining a public problem is the existence of an attitude of ownership that succeeds in garnering a response from the State, mainly through legal definitions and institutional provisions (Gusfield, 1981). There is a symbolic (and eminently moral) dimension that involves any issue addressed as a public problem. It is, above all, something that must be transformed; something that someone has an obligation to do something about.

This attribution of responsibility is a historical, cultural, economic, and political process where the State is in a privileged position. Its presence is felt in the realms of symbolic production and reproduction as the holder of the official view of the problems (Bourdieu, 1996). Public policies have been created as a response from the State to the demands that emerge from and within society and which are expressed through a set of permanent and comprehensive principles, guidelines, objectives and rules that guide government actions in a given area.

In the last three decades since the consolidation of democracy, various civil society sectors and NGOs have exposed human rights violations triggered by modern-day slave labour in the country as well as the need for integrated prevention and repression public policies. Modern-day slave labour implies the violation of the most fundamental human rights through abusive actions such as forced confinement; degrading nutrition, housing, health and hygiene conditions; deprivation of rest and sleep; disregard for labour laws; and physical, psychological and moral violence. The exposure of these violations has led to the emergence of political entities and forces that represent the fight for the guarantee of human rights and the eradication of modern-day slave labour in Brazil.

The construction of legal definitions and institutional provisions in the fight against modern-day slave labour is a historical-political-ideological-economic process marked by advances and achievements but also by setbacks. A brief genealogy[3] of events, laws, institutional provisions and public policies illustrates the course of the fight against modern-day slave labour in Brazil.

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[3] ESCRAVO, NEM PENSAR! (SLAVERY, NO WAY!) PROGRAMME. **Trabalho escravo contemporâneo: 20 anos de combate (1995 – 2015).** [S.I.]: Programa Escravo, nem pensar! / Sinait, 2015.
Available at: <https://reporterbrasil.org.br/wp-content/uploads/2015/02/folder20anos_versaoWEB.pdf>.
Access on 16 July 2018.

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QUADRO 1

Genealogia das ações, leis e políticas públicas no enfrentamento do trabalho escravo no Brasil

1888

Lei Áurea (Golden Law): End of one person's ownership of another. Slavery becomes illegal.

1926

League of Nations Convention on Slavery.

1930

ILO Convention No. 29: Commitment to "suppress the use of forced or compulsory labour".

1940

Article 149 – Brazilian Penal Code: Provides for the crime of reducing someone to a condition analogous to slavery. Freedom is the one and only protected legal interest.

1948

Universal Declaration of Human Rights: Establishes the universal protection of human rights and prohibits slavery (Art. 4), torture or cruel, inhuman or degrading treatment or punishment (Art. 5).

1956

United Nations Supplementary Convention on the Abolition of Slavery, Slave Trade, and Institutions and Practices Similar to Slavery.

1957

ILO Convention No. 105: Complements ILO Convention No. 29 and reinforces the illegality of exploiting forced labour in several forms: as a means of political coercion or education, as a method of using labour for economic purposes, as a means or punishment of discipline, or as a tool of social discrimination.

Brazil ratifies Convention No. 29.

1963

Promulgation of the Rural Workers' Statute (Law 4,124)

1965

Brazil ratifies ILO Convention No. 105

1971

Publication of the Pastoral Letter *"Uma Igreja na Amazônia em conflito com o Latifúndio e a Marginalização Social"* (A Church in the Amazon in conflict with Latifundia and Social Marginalization), the first public exposure of slave labour in Brazil by Dom Pedro Casaldáliga, in São Félix do Araguaia (MT).

1973

Law 5, 889 replaces the Rural Workers' Statute.

1975

Creation of the Land Pastoral Commission (CPT).

1978

Land Pastoral Commission (CPT) exposes farms belonging to multinationals found to be employing slave labour in the State of Pará.

1985

Cases of slavery begin to be reported to the International Labour Organization (ILO).

1988

Promulgation of the Federal Constitution of Brazil: Rural workers are ensured the same labour rights as urban workers.

The concept of Social Function of the property is introduced.

1992

Programme on the Eradication of Forced Labour and Enticement of Workers (PERFOR).[4]

1994

CPT files a petition with the Inter-American Commission on Human Rights, Organization of American States (IACHR/OAS) regarding the 1989 case of worker José Pereira.[5]

Publication of the first Normative Instruction (IN No. 24) with rules for labour inspection in rural areas.

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[4] The objective of the programme was to eradicate from the national territory all forms of labour that could be considered forced labour or labour analogous to slavery, as well as the enticement of workers for the purpose of taking them to other locations. Actions were planned to improve rural and urban working conditions, the inspection and punishment process and legal mechanisms to repress forced labour and the enticement of workers. PERFOR, however, never took off and proved to be more a formal response to national pressures than an effective action to address the problem with more substantial results.

[5] In 1989, 17-year old José Pereira attempted to escape from a farm in southern Pará, where he was entrapped in slave labour, but was captured and shot by farm workers. Pretending to be dead, he managed to survive. Neglected by the Brazilian authorities, the case was taken to the OAS. To avoid punishment, in 2003 the Brazilian Government signed an amicable settlement agreement with the worker and made a series of commitments to the international community to eradicate slave labour.

1995

Brazil formally and politically acknowledges before the United Nations the existence of slave labour in the country.

Creation of the Special Mobile Inspection Group (GEFM) linked to SITE (Labour Inspection Secretariat).[6]

Creation of the Executive Group for the Repression of Forced Labour (GERTRAF).[7]

1998

Adoption of the ILO Declaration on Fundamental Principles and Rights at Work and its Follow-up.

Law 9,777 amends Articles 132, 203 and 207 of the Penal Code to create the "Basket of Crimes" related to slave labour.

First final judgment and criminal conviction for the crime of slave labour (Alvorada Farm, Água Azul do Norte, Pará).

2001

Establishment of Unemployment Insurance for Rescued Workers: workers rescued from slave labour are entitled to 3 months of Unemployment Insurance salary.

2002

Resolution No. 5 establishes the Special Commission within the Council for the Defence of Human Rights (CDDPH) in the Ministry of Justice.

Ordinance No. 231 establishes the National Commission for the Eradication of Slave Labour (CONAETE) within the Public Labour Prosecution Service.

2003

First National Plan for the Eradication of Slave Labour (I PNETE).[8]

Creation of the National Commission for the Eradication of Slave Labour (CONATRAE) within the National Secretariat of Human Rights (SDH).[9]

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[6] Created by Ordinances No. 549 and No. 550 of 14 June 1995. Its teams are coordinated by the Ministry of Labour's Labour Inspection Secretariat (SIT/MTE) and composed of labour inspectors from the Ministry of Labour; Federal Police commissioners and agents; prosecutors of the Public Labour Prosecution Service, and in some cases members of the Attorney General's Office, the Brazilian Institute of the Environment and Natural Renewable Resources (IBAMA), and INCRA.

[7] Presidential Decree No. 1538 of 27 June 27 1995. GERTRAF is responsible for designing, implementing and supervising an integrated forced labour repression programme; coordinating the activities of competent agencies in this effort; liaising with the ILO and Federal and State Public Prosecution Services in order to enforce the law.

[8] Launched on 11 March 2003, the plan is part of the National Programme for the Eradication of Slave Labour and meets the determinations of the National Human Rights Plan.

[9] Decree of 31 July 2003. Its responsibilities include coordinating and assessing the implementation of activities provided for in the First PNETE and monitoring bills and proposing research on the subject in Brazil. CONATRAE drafted and approved the II National Plan, which is considered the milestone and expression of a space of discussion and concertation between the actors concerned. It is an actor that participates in both the policy drafting and implementation processes.

Brazil signs a friendly settlement agreement regarding the José Pereira case at the Inter-American Court of Human Rights.

Ordinance No. 1,234 of the Ministry of Labour and Employment (MTE) creates the Blacklist, prohibiting companies that employ slave labour from receiving loans and funding.

Law No. 10,803 amends Article 149 of the Penal Code to specify labour analogous to slavery as:

I) subjection to forced labour;

II) subjection to exhausting working hours,

III) subjection to degrading working conditions; and

IV) restriction on freedom of movement due to debts contracted with the employer, i.e., debt bondage.

2004

Brazil acknowledges before the UN the existence of at least **25,000 people**[10] trapped in slave labour each year.

Slaughter of Unaí, four TEM officials were murdered when investigating a report of slave labour.

Launch of the programme "Escravo, Nem Pensar!" ("Slavery, No Way!"), a partnership between SDH and Repórter Brasil.

Repórter Brasil conducts a survey of the production chain using slave labour, in partnership with the ILO.

2005

Creation of the National Pact for the Eradication of Slave Labour.

About 400 national and multinational companies pledge not to buy raw material from suppliers that employ slave labour in their production processes.

2006

The Federal Supreme Court rules that the crime of slave labour is to be tried by the federal court.

2007

The State Commission for the Eradication of Slave Labour is established in the State of Maranhão (COETRAE/MA) by Decree No. 22996/2007.

First State Plan for the Eradication of Slave Labour in Maranhão.

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[10] *"This number is not based on any scientific assumption. It results from interactions between the annual numbers of persons found by inspectors, from observation of the flow of migrant workers in the cities of the North region, and from the estimate ratified by the Brazilian Ministry of Labour and Employment that for each person rescued another three would be in captivity. In 2003, about 5,000 workers were rescued, based on a minimum estimate of 15,000 per year. In 2004, the estimate rose to 25,000, according to the federal government (as mentioned in the introduction of the National Plan for the Eradication of Slave Labour) and the ILO. The goal was to alert society to a figure that would indicate the numerical relevance of the problem without falling into a scientifically unsustainable exaggeration."* (Remark by Xavier Plassat, member of the National Coordination of the Campaign against Slave Labour, Pastoral Land Commission. In: SAKAMOTO, Leonardo (Coord.). **Trabalho escravo no Brasil do século XXI**. [Brasília]: International Labour Organization, 2007, p. 23.

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2008

CONATRAE launches the Second National Plan for the Eradication of Slave Labour.[11]

First expropriation of a property in Brazil (Cabaceiras Farm in Marabá/PA) for employing slave labour.

2009

First expropriation of a property in Brazil (Cabaceiras Farm in Marabá/PA) for employing slave labour. (28 January).

Qualification Project - Integrated Action in the MT; first experience in the country in the professional training of workers rescued from slavery.

2010

First National Meeting for the Eradication of Slave Labour.

2011

ILO publishes a qualitative research on the Profile of slave workers in Brazil.

2012

National Conference on Decent Work.

2013

The number of workers rescued from labour analogous to slavery in urban activities (construction and textile sectors) is higher than that of workers rescued in rural areas.

State Law 14,946 cancels the registration of companies involved in slave labour in the state of São Paulo.

2014

Congress passes Constitutional Amendment 81 providing for the expropriation - for either agrarian reform or housing programmes - of rural and urban properties that are found employing slave labour.

Unanimous adoption of the Protocol and Recommendation (No. 203) complementing ILO Convention No. 29 with effective measures to eliminate all forms of forced labour, protect victims and to ensure them access to justice and compensation.

Senate passes PEC 57-A amending the wording of Article 243 of the Brazilian Federal Constitution.

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[11] After five years of experience with the first plan, the Second National Plan for the Eradication of Slave Labour was drafted on April 17, 2008, for the purpose of updating eradication actions.

2016

The National Justice Council (CNJ) establishes the National Forum of the Judicial Branch for Monitoring Demands Related to Labour Exploitation and Human Trafficking (FONTET).[12]

2017

The Public Labour Prosecution Service (MPT) and the International Labour Organization (ILO) launch the Digital Observatory of Slave Labour in Brazil. The initiative, which is unprecedented in the country, organizes, integrates and systematizes in a digital platform several databases and government reports on the subject (https://observatorioescravo.mpt.mp.br). Based on an intuitive interface and cross-referencing of socioeconomic information, the platform contextualizes modern-day slavery with a view to contributing to the action of public managers, civil society, researchers, and journalists, especially in the design of public policies that strengthen the fight against the phenomenon at local level. The observatory was created by the Decent Work SmartLab, a partnership between the MPT and the ILO.[13]

On 13/10/2017, ORDINANCE MTE No. 1,153 changes the definition of slave labour to include labour analogous to slavery, conditional on the person being subjected to work exacted involuntarily and under the menace of penalty and coercion.

Ordinance 1293/2017 replaces Ordinance 1129/2017, which hindered the rescue of people in this situation. The ordinance repeals amendments and reinforces the provisions of the law.

In Brazilian history, laws, institutional actions and public policies aimed at eradicating slave labour have only recently been implemented by the State, more precisely since 1995, with the enactment of Law. 10,803 amending Article 149 of the Penal Code to specify labour analogous to slavery as:

I) subjection to forced labour;

II) subjection to exhausting working hours;

III) subjection to degrading working conditions and

IV) restriction on freedom of movement due to debts contracted with the employer, i.e., debt bondage.

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[12] "Art. 2. FONTET duties include: I – promoting the survey of statistical data (where possible disaggregated by gender, age, ethnicity, skin colour, occupation, and social and cultural level), relating to number, processing, imposed sanctions and other relevant data on investigations and lawsuits involving the exploitation of workers in conditions analogous to slavery and trafficking in persons; II – monitoring the progress and resolution of lawsuits by Judges or Courts; III – proposing concrete measures and rules to improve procedures and enhance the effectiveness of lawsuits, including the establishment and modernization of routines, the organization, specialization and structuring of the competent agencies of the Judicial Branch; IV – organizing national and regional meetings and seminars of members of the Judiciary, with the participation of other public authorities, civil society, communities and other stakeholders to discuss topics related to the Forum's activities; V – coordinating and carrying out the study and proposal of other measures deemed appropriate for meeting the National Forum's objective; VI – maintaining exchange, within the limits of its purpose, with legal, academic and social organizations involved in the said topic, both in the country and abroad; VII – formulating and enforcing the Forum's bylaws and work programme(s); VIII – stimulating the establishment of and supporting the operation of State Committees to Fight the Exploitation of Labour Analogous to Slavery and Trafficking in Persons; IX – holding periodic regular or special meetings, whenever necessary, to carry out the Forum's activities; X – promoting legal cooperation with the Courts and other institutions, both nationally and internationally; XI – recommending actions to National and State Committees, proposing concrete actions of national, interstate, state or local interest; XII – participating in events promoted by public or private entities on topics related to the Forum's objectives." (BRAZIL. The National Justice Council establishes FONTET, a national forum tasked with monitoring the effectiveness of legal actions related to the exploitation of labour analogous to slavery and human trafficking, with the aim to develop studies and propose measures to improve the judicial system as regards the matter. Resolution No. 212 of 15 December 2015. Brasília: CNJ, 2015. Available at: <http://www.cnj.jus.br/busca-atos-adm?documento=3053>. Access on 16 July 2018.)

[13] See also: SMARTLAB; LABOUR PUBLIC PROSECUTION SERVICE; INTERNATIONAL LABOUR ORGANIZATION. **Observatório Digital do Trabalho Escravo no Brasil** – Version 1.0 (31/05/2017). Smartlab Technical Note No. 1/2017 – Main Findings. [S.I.] [s.d.] Available at: <http://www.ilo.org/wcmsp5/groups/public/---americas/---ro-lima/---ilo-brasilia/documents/genericdocument/wcms_555892.pdf>. Access on 1 August 2018.

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By providing a more specific definition for labour analogous to slavery - which goes far beyond than just the suppression of the worker's freedom - this legal amendment has given greater effectiveness to the action of repression organizations (Federal Court, Federal Public Prosecution Service, Labour Public Prosecution Service, Federal Police, Ministry of Labour). Since 2003, the administrative records and official statistics[14] collected by organizations within the network of fight against slave labour in Brazil have shown an increase in the number of inspection operations (from 30 in 2002 to 299 in 2013); of compensations paid (from R$2,084,406.41 in 2002 to R$8,236,288.02 in 2013); of facilities inspected (from 85 in 2002 to 300 in 2013); of workers rescued - from an average of 737 between 1995 and 2002 to 3,379 after 2003 (the highest number was recorded in 2007, when 5,999 were rescued); of procedures initiated (from 80 in 2010 to 700 in 2013); of police investigations initiated (from 40 in 2002 to 195 in 2013); and of infringement notices issued (from 621 in 2002 to 4,327 in 2013).

Another milestone was Resolution No. 05 of 28 January 2003 approving the First National Plan for the Eradication of Slave Labour (PNETE), with an integrated approach that included preventive actions, assistance to rescued workers and repression of the crime of slave labour.

In light of international precepts,[15] the First National Plan began to regulate the parameters of action and human rights guarantee relating to the fight against slave labour in Brazil.

Innovations to the First National Plan include the coordinated approach to the structural and contextual problems that have enabled - and still enable - the existence of slavery relations in the country (land concentration; socioeconomic vulnerability; difficult access of workers to formal and vocational education; physical and psychological violence and threat against workers; predatory action by companies and employers in rural and urban areas through the overexploitation of workers; and criminal impunity).

The cross-cutting and coordinated approach of the First National Plan contains 76 actions grouped into six major areas:

1) General Actions – This area can be summarized in measures aimed to integrate operational action strategies with preventive and repressive actions; legislative and legal measures; systematization and exchange of data and information; and creation of working groups' coordination units. What draws attention to this group of actions is the number of actors involved and listed as responsible for the measures – a total of 34 entities including the State, international organizations and civil society - distributed according to the nature of the actions. In some cases, there are as many as 24 actors responsible for one measure.

2) Improvement of the Administrative Structure of the Mobile Inspection Group – Includes measures that can be grouped into: increasing the number of teams; establishing a technological, material and communication infrastructure; setting goals and defining preventive and repressive actions; boosting support victims; and training inspectors.

3) Improvement in the Administrative Structure of Police Action – Proposals to increase and specialize the police force in the states with the highest number of enslaved workers; increase budgetary and financial resources for inspections; strengthen training and integration between the Federal Police and Highway Police; and inspect the enticement and transportation of workers.

4) Improvement in the Administrative Structure of the Federal Public Prosecution Service and the Public Labour Prosecution Service – Actions to strengthen the physical and personnel structure in states where the problem is more serious and increase financial resources for inspections; promote the inland expansion and mobility of the MPF and the MPT; and train and specialize prosecutors.

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[14] REPÓRTER BRASIL. **Dados sobre trabalho escravo no Brasil.** Available at: < http://reporterbrasil.org.br/dados/trabalhoescravo/>. Access on 16 July 2017.

[15] P029 - Protocolo de 2014 relativo al Convenio sobre el trabajo forzoso (In force since 9 November 2016), R203 – ILO Recommendation No. 203 of 2014, complementing Convention No. 29.

5) Specific Actions to Promote Citizenship and Fight Impunity – Provides for the implementation of reintegration policies such as providing rescued workers with civil documentation, including them on in government social programmes and training programmes, and fostering the inland expansion and mobility of Labour and Federal Courts and the Public Defender's Office.

6) Specific Awareness, Training and Outreach Actions - Incentive to the production and publication of literature on the issue and dissemination of the topic in local and national media.

It can be said that this Plan was a milestone in the consolidation of human rights in Brazil and shaped actions (prevention, assistance, repression and accountability) designed to eradicate the crime of slave labour in Brazil, although the cultural, social, economic and political factors that these institutional provisions intend to regulate are extremely diverse and complex.

One of the most relevant developments of the First PNTE occurred at the state level, with the establishment of the State Commissions for the Eradication of Slave Labour (COETRAES)[16] and the State Plans[17] for the Eradication of Slave Labour. An example of this pioneer and fundamental action is the creation of the State Commission for the Eradication of Slave Labour in the state of Maranhão (COETRAE/MA).[18]

A comprehensive update was completed in 2008 with the launch of the Second National Plan for the Eradication of Slave Labour. The plan was designed and developed by the National Commission for the Eradication of Slave Labour (CONATRAE), which is linked to the Special Secretariat for Human Rights (SEDH). The Second PNETE introduced changes and new fronts of fight against this brutal form of human rights violation and is based on five key areas:

1) General Actions divided into: Integration of operational strategies with preventive and repressive actions; legislative and judicial measures; support for and incentive to state plans for the eradication of slave labour; systematization and exchange of information and data; and production of diagnoses and construction of performance indicators.

2) Prevention and Repression Actions: Proposals to increase the number of teams and improve personnel infrastructure and ensure resources for conducting inspections and training and qualifying teams, strengthening the integration of police action, enhancing inspection in the transport and enticement of workers, promoting the inland expansion of government institutions, and implementing legislative measures.

3) Reintegration and Prevention Actions: Encourages specific actions for employment and income generation, agrarian reform, professionalization, education, and reintegration of workers, with their inclusion in government programmes, and the regulation of labour intermediation.

4) Information and Training Actions: Proposals to promote awareness, training and outreach on the issue; incentive to the production and publication of specific literature; and dissemination

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[16] COETRAES in the North-Northeast Regions: Tocantins, Bahia, Maranhão, Pará, Piauí, Ceará. The South, Southeast and Central-West Regions: Mato Grosso, Mato Grosso do Sul, Goiás, São Paulo, Rio de Janeiro, Espírito Santo, and Rio Grande do Sul.

[17] State Plan for the Eradication of Slave Labour in Pará (PEETE/PA); State Plan for the Eradication of Enticement and Prevention and Fight Against Slave Labour in Piauí; State Plan for the Eradication of Slave Labour in Rio de Janeiro; First State Plan for the Eradication of Slave Labour in Rio Grande do Sul; Plan of Actions for the Eradication of Slave Labour in the State of Mato Grosso; State Plan to Fight Slave Labour in the State of Bahia; Law No. 14,946 of 28 January 2013, São Paulo.

[18] Created by State Decree No. 22,996 of 20 March 2007, COETRAE/MA is linked to the Secretariat of Human Rights and Popular Participation (SEDIHPOP) and aims to propose mechanisms for the prevention and eradication of slave labour in each municipality in the state. It is made up of representatives of the State Secretariats of Fisheries and Aquaculture, Labour and Solidarity Economy, Public Security, Education, Family Agriculture, Racial Equality, Social Development and Youth, as well as of the following organs and entities: advisory office to the governor; Federal University of Maranhão (UFMA), Public Labour Prosecution Service, Office of the State Public Defender; Pastoral Land Commission; Regional Labour Court; Federation of Agriculture Workers of the State of Maranhão (FETAEMA); and Carmen Bascarán Centre for the Defence of Life and Human Rights.

of the issue on local and national media.

5) Specific Economic Repression Actions: Legislative, administrative and regulatory measures and periodic monitoring of production chains found to be employing slave labour.

Once consolidated, the actions aimed to prevent and repress slave labour in the country also define it, according to both the political and symbolic conceptions of their enforcers and the resources mobilized (human, economic, logistic and informational). This definition involves the design of laws, institutional provisions and public policies (by mobilizing international organizations, federal, state and municipal governments, civil society, and nongovernmental organizations at different levels in the areas of justice and public safety, work and income, health, social assistance, education, prevention, and assistance).

In the first and second plans, the involvement of government actors - including at local, state and federal levels - as well as of civil society, non-governmental organizations and international organizations, without formal hierarchical relations can be seen in all areas. Both plans prioritized the establishment of networks aimed to integrate the actions of multiple actors with diverse interests that create a scenario of competition and convergence around demands presented to public authorities. In line with the Federal Constitution of 1988, the plans decentralize action, which becomes the responsibility not only of the Central Government but of state and municipal governments as well, and recommend its coordinated implementation by governmental and non-governmental organizations.

As an alliance between different institutional actors, the network forms a block of action that is both political and operational. As a mechanism of democratic management, the network shares the decision-making power among these actors based on the exchange of information, transparency of proposals, legitimized coordination, shared action, and collective evaluation. The focus of networking is not an immediate, isolated problem, but rather the liaison of individuals/actors/forces to generate power, resources, mechanisms of action, self-organization, and collective self-reflection.

This brief overview of the genealogy of actions, laws and public policies in the fight against slave labour in Brazil sought to highlight the development and consolidation of public policies and actions to prevent and repress modern-day slave labour in Brazil and in Maranhão. The political context shaped by the First and Second National Plans for the Eradication of Slave Labour created an environment conducive to the implementation of public policies to eradicate slave labour in the country.

CHAPTER 2
Conceptual and analytical framework

This chapter seeks to describe, from a conceptual and methodological point of view, how the legal concepts of Forced Labour under ILO Convention No. 29 of 1930 and of Labour Analogous to Slavery pursuant to Article 149 of the Brazilian Penal Code are translated into operational concepts and indicators that enable estimating the incidence and prevalence of forced labour and slave labour in the state of Maranhão, according to the ILO's "Hard to See, Harder to Count" methodology.

Some of the limitations of a study such as this need to be pointed out. Initially, the methodology proposed by the ILO does not replace the specialized work of labour inspectors. The rescue of workers from situations analogous to slavery is based essentially on Article 149 of the Brazilian Penal Code, which defines slave labour from a strictly legal perspective and serves as a parameter for legislators, jurists and justice system professionals as a whole to enforce the law and, consequently, place individuals or legal entities in a criminal category. In other words, from a legal perspective it is the labour inspector who has the discretionary power to initiate the legal proceedings capable of legally defining whether the workers rescued were in fact found in a situation analogous to slavery.

In this sense, when used as official statistics to account for occurrences of the crime of exploitation of labour analogous to slavery, all official rescue records, investigations or legal proceedings in which the criminal case is related to crimes provided for in Article 149 of the Penal Code reflect, to a certain extent, only those cases in which the State acted either by rescuing workers or through the operation of the Brazilian justice system. Therefore, these records show only part of the problem. Because for various reasons a significant number of workers trapped in slave labour were not rescued, these records show only part of the problem. Therefore, official statistics are but "the tip of the iceberg". In turn, operational indicators enable measuring values closer to the whole, that is, of what is submerged and hidden.

A possible way of learning a little more about the size of this problem besides official rescue records is to translate the legal concepts of Forced Labour and Labour Analogous to Slavery into operational concepts. These concepts can be developed through the specific combination of operational indicators of forced labour or slave labour, which aim to capture the existence of descriptors that depict these situations through household surveys. These descriptors, in turn, are defined in conjunction with legal actors, mostly law professionals, service providers, and labour inspectors. Based on their empirical experience, these actors help to translate the intricacies of the law into everyday work situations that correlate with the presence or absence of extreme labour exploitation through either forced labour or slave labour.

In methodological terms, as will be discussed below, the study considered the regulations of the International Labour Organization in the case of Forced Labour and of Brazilian legislation regarding the concept of Slave Labour. As a result, and because these two regulations are different although both seek to address similar phenomena, the study sought to operationalize constructs (indicators) that captured, as close as possible to reality, characteristics of the

work performed and of the workplace that enabled identifying situations of Forced Labour and Slave Labour.

In this regard, it should be pointed out that the terminologies related to the dimensions, modalities and categories that characterize forced labour or slave labour are specific, according to their legal definition. In this case, since forced labour is a modality of slave labour pursuant to Article 149, the same nomenclature and respective operational definition were maintained both for the production of estimates of forced labour as a whole according to the ILO and for the forced labour modality that makes up slave labour, in the case of article 149. That is, the concept of Forced Labour as an indicator internationally recognized by the ILO is, at the same time, a modality that will make up the operational indicator of Slave Labour under article 149 of the Penal Code, together with Degrading Conditions, Exhausting Working Hours and Debt Bondage.

Despite the risk of mistaking the ILO concept of forced labour as a founding element of Convention 29, for the Brazilian concept of forced labour as a slave labour modality under Brazilian legislation, this survey provides estimates of both forced labour and slave labour. First, it should be noted that the methodological procedures used to produce estimates in both cases are complementary. It is therefore clear that the phenomena that are being measured are different in their specificities although similar in more general terms. Second, and more importantly, the option to produce simultaneous estimates of forced labour and slave labour is explained by the functionality that each of these estimates can have in relation to the production of knowledge about this subject.

In the case of forced labour, the estimate is in line with other estimates produced by the ILO in other countries, which enables comparing the Brazilian context to what happens in other countries that have conducted similar studies. Furthermore, the indicator is more robust in terms of temporality and can be used in different periods of time to assess how the prevalence of forced labour has evolved, since it is a concept historically enshrined in international law.

In the case of slave labour, although a harmonized comparison with other countries is not possible, the estimate has been adapted to the Brazilian context thus capturing, in detail, operational elements that enable identifying victims and survivors. This indicator can also provide inputs to the Brazilian policy to eradicate slave labour, which is recognized as the best in the world, thus influencing the implementation of actions ranging from prevention and repression of the crime to emergency assistance to victims and survivors.

2.1 Legal definitions

Forced Labour

The ILO Forced Labour Convention, known as Convention No. 29, of 1930, defines forced and compulsory labour as *"all work or service which is exacted from any person under the menace of any penalty and for which the said person has not offered himself voluntarily"* (Article 2.1).[19]

There are also other conventions on the subject, which encompass situations such as slavery, labour practices similar to slavery and debt bondage or serfdom[20] that are also defined in other international instruments such as the League of Nations Slavery Convention (1926) and the UN Supplementary Convention on the Abolition of Slavery, Slave Trade and Institutions and Practices Similar to Slavery (1956).

[19] This Convention provides for certain exceptions, in particular as regards compulsory work of a purely military character, normal civil obligations, work exacted from any person as a consequence of a conviction in a court of law carried out under the supervision and control of a public authority, work exacted in cases of emergency, such as wars or other calamities and, finally, minor communal services (Article 2.2).

[20] Similar to "cambão", which was a very common practice in twentieth-century Brazil and under which farm tenants were forced to provide services to the employer without being paid for the work.

In addition, the ILO Forced Labour Convention is referred to in other ILO Conventions without modifying the above definition, namely, the Abolition of Forced Labour Convention of 1957 (No. 105), which specifies that forced labour shall never be used for purposes of economic development or as a means of political education, discrimination, labour discipline or punishment of workers for having participated in strikes. The Worst Forms of Child Labour Convention, 1999 (No. 182), in turn, states that *"worst forms of child labour"* shall include *"all forms of slavery or practices similar to slavery, such as the sale and trafficking of children, debt bondage and serfdom and forced or compulsory labour, including forced or compulsory recruitment of children for use in armed conflict"*.

Labour Analogous to Slavery

In addition to international legislation on forced labour, in Brazil the concept was expanded to labour analogous to slavery under Article 149 of the Brazilian Penal Code, which defines slave labour as "reducing someone to a condition analogous to slavery by subjecting him/her to forced labour or exhausting working hours, either by subjecting workers to degrading conditions of by restricting their freedom of movement due to debts contracted with the employer or the employer's representative". In its paragraph 1, Article 149 also defines as slave labour situations in which the employer or the employer's representative "*prevents workers from using any means of transportation to retain them in the workplace*", or when the employer or the employer's representative "*keeps workers under constant surveillance or confiscates their personal documents or property, in order to prevent them from leaving".* (Wording provided by Law No. 10,803 of 11 December 2003).

In the legislative sphere, the enactment of Law No. 10,803 of 11 December 2003 was considered an important historical milestone in the fight against modern-day slavery by amending Article 149 of the Brazilian Penal Code and specifying cases of work in conditions analogous to slavery. As a result, Brazil has become a role model in the fight against modern-day slave labour.

2.2 Operational definitions

Forced Labour

For the purposes of adopting the Hard to See, harder to count survey in Brazil, forced labour of adults is defined as all work which is exacted from any person for which the said person has not offered himself voluntarily and which is performed under the menace of any penalty applied by an employer or a third party to the worker. The two dimensions used by the ILO in the operational definition of forced labour are therefore highlighted: involuntariness and coercion (penalty or menace of penalty).

Involuntariness and coercion can take place throughout the work process. For example: in the case of coercion, to force the worker to accept the job; once the person is working, to force him/her to do tasks which were not part of what was agreed at the time of recruitment or which he/she was not willing to do; and upon termination of the contract to prevent the worker from leaving the job.

In this sense, the production of robust estimates of the incidence and prevalence of forced labour in a given territory implies verifying the simultaneous existence of these two dimensions: the first concerns involuntariness and the second assesses the existence of a situation of coercion.

Within the scope of the Hard to see, harder to count survey conducted in Maranhão, the operationalization of the Forced Labour (TF) Indicator also considered three modalities, according to the methodology developed by the ILO:

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(1) Unfree or forced recruitment;

(2) Work and life under duress; and

(3) Impossibility of leaving the employer.

For each of these modalities, two dimensions were analysed: involuntariness and coercion. Involuntariness is related to work for which the person has not offered him or herself voluntarily. The second dimension is associated with the use of penalty or menace of penalty applied by the perpetrator against the worker to force him/her to:

(a) accept the job;

(b) work or live under conditions with which they do not agree;

(c) prevent them from leaving the employer or changing jobs.

The simultaneity of involuntariness and coercion indicators (understood as penalty or menace of penalty) is used to identify the modalities that characterize a situation of forced labour, as shown in the figure below.

Figure 1 – Algorithm for the operational definition of Forced Labour

The criteria used to define and operationalise the construction of Forced Labour modalities in each of its dimensions, including categories and sub-categories are presented below. It should be noted that each modality comprises two dimensions and each dimension is based on a set of categories – and in some cases sub-categories – of analysis.[21]

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[21] In addition, Annex I presents the detailed description of each of the questions used in the construction of these indicators.

Forced Labour – Operational definition

MODALITY

Unfree recruitment

Involuntariness (categories and sub-categories of analysis)

DIMENSIONS

- Forced recruitment
- Deceptive recruitment

Deception about:
- ‣ living conditions
- ‣ nature of the job
- ‣ location of the job
- ‣ agreed wage
- ‣ working hours
- ‣ leisure and free time
- ‣ working conditions

Penalty or Menace of Penalty

- Physical violence
- Confiscation of personal documents
- Penalty for refusing the recruitment offer

MODALITY

Work and life under Duress

Involuntariness (categories and sub-categories of analysis)

DIMENSIONS

- Forced engagement in illicit activities
- Induced use of alcohol and drugs
- Work without protection
- Work beyond what was agreed
- Work under poor health conditions
- Provide sexual services

Penalty or Menace of Penalty

- Physical Violence
- Sexual violence
- Threats against family members
- Confinement and isolation as punishment
- Withholding of wages, property or benefits promised
- Confiscation of personal documents

MODALITY

Impossibility of leaving an employer

Involuntariness (categories and sub-categories of analysis)

DIMENSIONS

- Withholding of wages
- Debt bondage

Penalty or Menace of Penalty

- Exclusion from future employment
- Physical Violence
- Violence against family members
- Loss of benefits

Labour Analogous to Slavery

For the purpose of adapting the Hard to see, harder to count survey in Brazil, adult labour analogous to slavery is defined as the work for which a person has not offered himself voluntarily, according to the categories provided for by law. The two dimensions used by the ILO in the operational definition of forced labour – involuntariness and coercion – do not apply to slave labour. This is because in the case of the modalities that make up the slave labour indicator, Brazilian legislation does not provide for the criminal type related to penalty or menace of penalty as a defining element of slave labour. From the operational point of view, however, the exception is the methodology adopted for operationalizing the forced labour indicator, which is in line with the ILO concept of forced labour, with few adaptations to avoid double counting. That is, specifically in the case of the Forced Labour modality, in order to maintain the same indicator construction pattern provided for in ILO Convention No. 29, the dimensions of coercion and involuntariness were considered in the definition of slave labour.

Thus, in the context of the Hard to see, harder to count survey conducted in Maranhão, four modalities were considered for operationalizing the Indicator of Modern-day Slave Labour (TEC):

(1) Forced labour according to the operational definition of the ILO;

(2) Exhausting working hours;

(3) Debt Bondage; and

(4) Degrading conditions.

For each of these modalities, the survey sought to identify categories and sub-categories of analysis that referred to the specific situation to which the worker could be subjected. In this case, the survey used basically the elements and classifications contained in Article 149 of the Brazilian Penal Code.

Figure 2 - Algorithm for the operational definition of Slave Labour
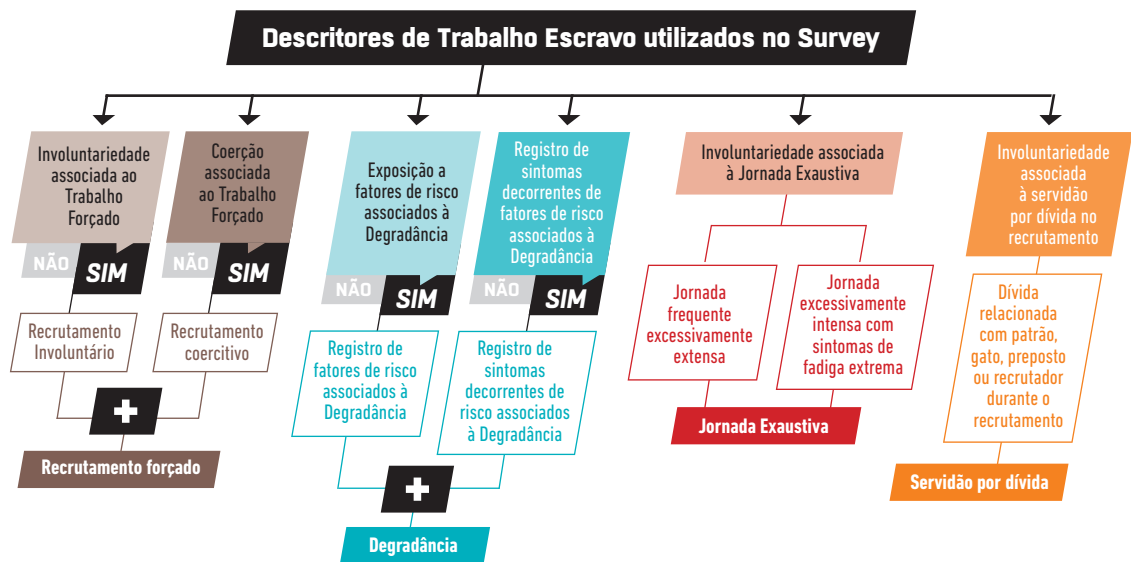
Annex 1 of this report also presents a detailed description of the criteria used to define and operationalize the construction of Slave Labour modalities, including its categories and sub-categories.

The chart below presents the modalities, categories and sub-categories of slave labour analysis according to the operational indicators of Slave Labour constructed for this survey.

Modern-day Slave Labour – Operational definition

Modality
Forced Labour

Categories of Analysis
- Unfree recruitment

Subcategories of Analysis
- Unfree recruitment
- Deceptive recruitment

Categories of Analysis
- Work and life under duress

Subcategories of Analysis
- Forced engagement in illicit activities
- Induced use of alcohol and drugs
- Work without adequate protection
- Work beyond what was agreed
- Work under poor health conditions
- Forced provision of sexual services

- Impossibility of leaving the employer

- Withholding of wages

Modality
Debt Bondage

Categories of Analysis
- Recruitment-related debt

Modality
Exhausting Working Hours

Categories of Analysis
- Length
- Intensity

Modality
Degrading conditions

Categories of Analysis
- Precarious housing

Subcategories of Analysis
- Unsafe accommodations
- Precarious accommodations

Categories of Analysis
- Inadequate access to and deprivation of water, food and sleep

Subcategories of Analysis
- Food and water improperly stored
- Water shared with animals
- Deprivation of food, water and sleep

- Inadequate occupational health and safety conditions when associated with self-reported symptoms related to the job

- Unhealthy working conditions:
  - Exposures to the sun and related diseases
  - Exposure to fire, gasoline and flames
  - Exposure to extreme air temperatures
  - Exposure to toxic elements
  - Exposure to chemicals
- Inadequate transportation
- Poor health conditions

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CHAPTER 3
Field survey methodology

3.1 Target audience of the survey and sampling

The target population were all persons aged 18 years or older who were working or had worked in the last 3 years, living in permanent private households located in both urban and rural areas in the State of Maranhão. The size of the sample was calculated from data provided by the Ministry of Labour and Employment (MT) on the number of unemployment insurance beneficiaries in the period 2010 - 2015 by municipality of birth of rescued workers entitled to the benefit.

The sampling method chosen was the complex sampling plan involving three-stage stratification and clustering[22] (municipality, census tract and household). The rate of native workers rescued (TTNR) per group of 100,000 people aged 18 years and older between 2010 and 2015 was calculated for each municipality i in the state of Maranhão, according to the following equation:

$$TTNR_i = C_i / N_i \times 100.000$$

where C_i is the total number of native workers rescued in the period 2010-2015 in municipality i; N_i is the total number of persons aged 18 years or older living in municipality i in the period 2010 -2015.

The stratification was defined based on the distribution of this rate in the municipalities of Maranhão. However, unlike other surveys that are restricted to places where there were official records of slave labour, this study also considered, among the sampling strata, municipalities with no official records of native workers rescued from slave labour between 2010 and 2015, that is, none of the workers rescued in the period 2010-2015 who were entitled to unemployment insurance were born in the municipalities of this group.

For the other municipalities with native workers rescued from slave labour, the median of the rate of native workers rescued between 2010 and 2015 per group of 100,000 people aged 18 years and older was calculated. Based on this median, two strata were defined: municipalities with a rate of native workers rescued from slave labour below the median and municipalities with a rate of native workers rescued from slave labour above the median.

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[22] Stratification is a sampling process that divides the population into groups that are internally homogeneous and heterogeneous with respect to one another. In this case, all groups must be part of the sample for it to be representative, and they are called strata. Clustering is a sampling process that divides the population into groups that are internally heterogeneous and homogeneous with respect to one another. In this case, not all groups need to be part of the sample for it to be representative, and they are called clusters.

In short, the sampling performed at the municipal stage had, therefore, three strata (sub-populations):

a) Stratum 1 - municipalities with no records of native workers rescued from slave labour;

b) Stratum 2 - municipalities with a rate of native workers rescued from slave labour below the median; and

c) Stratum 3 - municipalities with a rate of native workers rescued from slave labour above the median.[23]

Because of its importance and population size, the municipality of São Luís, state capital of Maranhão, was deemed self-representative within stratum 2, as it was randomly selected as one of the municipalities for data collection (probability equal to 1).

Respondents were selected after completion of the three following steps:

1 In step 1, the municipalities in each stratum were selected by sampling with probability proportional to the number of census tracts

2 In step 2, the census tracts in each municipality selected in stage 1 were selected by sampling with probability proportional to the number of permanent private households (with and without income)

3 In step 3, the households in each tract selected in stage 2 were selected by systematic sampling

Thus, the primary, secondary and tertiary sample units were the municipality, the census tract and the household, respectively. The observation unit, in turn, was the first respondent who answered the door to the interviewer at the selected household, provided that he or she was a member of the household, was 18 years or older at the time, and was working or had worked in the last three years. Based on the 2010 Census, the universe of persons 18 years or older living in permanent private households in Maranhão is formed as shown in Table 1.

Table 1 – Population sizes for the number of municipalities, census tracts and households by stratum.

Stratum	Municipalities	Census Tracts	Households
No records of slave labour (stratum 1)	59	1,195	182,578
Records of slave labour below the median (stratum 2)	79	4,415	883,540
Records of slave labour above the median (stratum 3)	79	3,192	587,583
Total	**217**	**8,802**	**1,653,701**

Source: Survey Measuring Modern-Day Slave Labour in the State of Maranhão - 2017 (CRISP/UFMG).

Map 1 shows the spatial distribution of the rate of native workers rescued from slave labour in the municipalities of Maranhão.

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[23] The median used to create strata 2 and 3 is equal to 30.39 per 100,000 population.

Map 1 – Spatial distribution by quintile for the rate of native workers rescued from slave labour by group of 100,000 people 18 years or older, MA, 2010 - 2015.
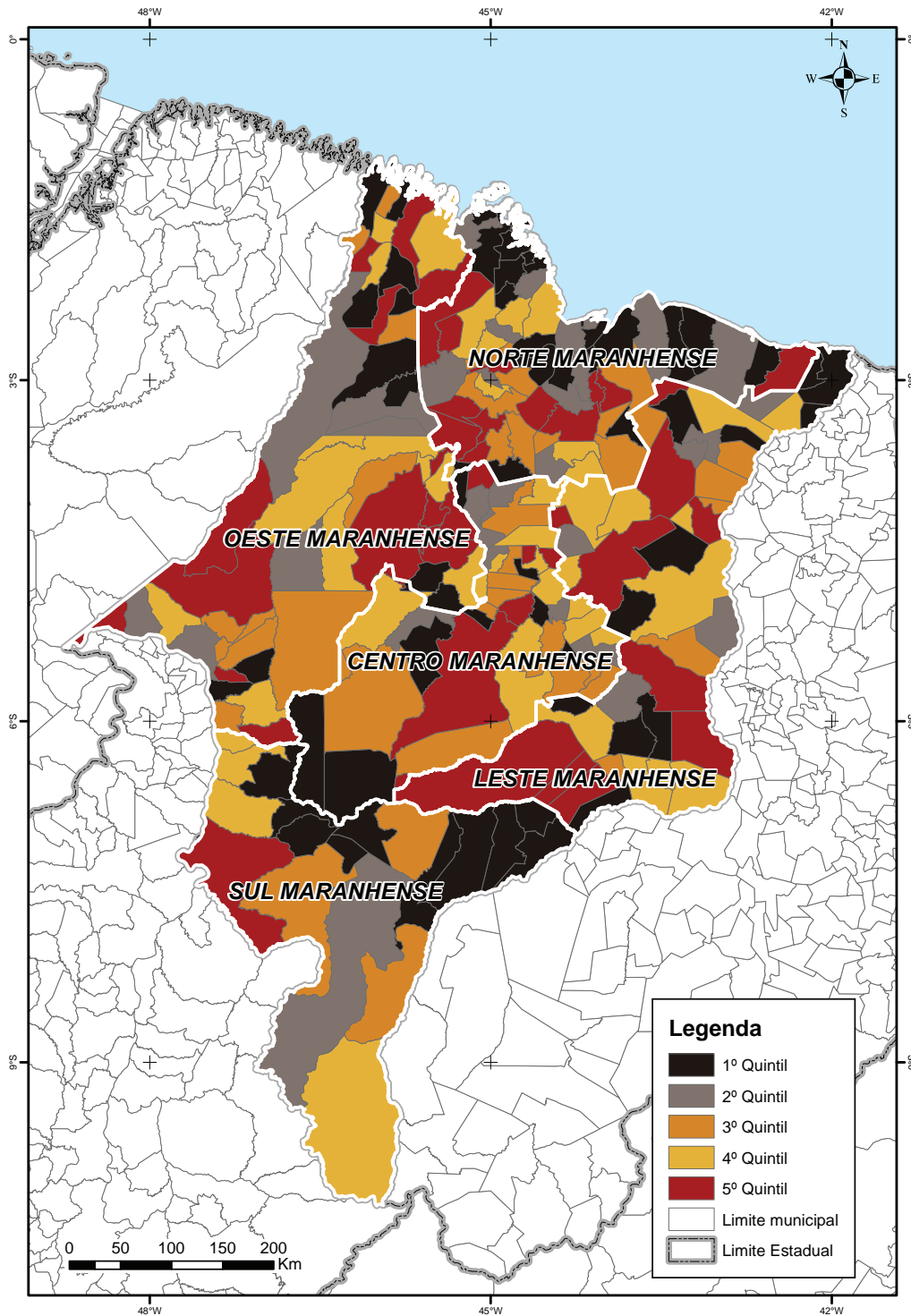
Legenda

- 1º Quintil
- 2º Quintil
- 3º Quintil
- 4º Quintil
- 5º Quintil
- Limite municipal
- Limite Estadual

Source: Survey Measuring Modern-Day Slave Labour in the State of Maranhão - 2017 (CRISP/UFMG).

3.1.1 Population parameters

The main issues of interest in this study are related to the production of robust estimates of forced labour and slave labour, as well as to investigations of the victimization profile of persons subjected to these conditions. The survey emphasizes the attempt to better understand the characteristics of this phenomenon and its victims, including its determinants and geographical distribution in the state of Maranhão. As regards the latter aspect, the survey sought to measure the proportion of permanent private households in which the respondent can be characterized as a victim of forced labour or slave labour in each stratum analysed.

3.2 Selection and training of field researchers

This section describes the procedures used to conduct the pre-test, train the field team and collect data as well as the procedures used to control and check the data collected.

3.2.1 Pre-test

Two field interviewers were trained to validate the questionnaire. These interviewers conducted 30 interviews in areas with a low human development index in the Metropolitan Region of Belo Horizonte, in order to mirror the behaviour of respondents who would be interviewed in Maranhão. The pre-test enabled adjusting some questions, evaluating alternatives for questions that could lead to dubious answers and including two auxiliary questions that allowed the interview process to flow more smoothly.

3.2.2 Training

Following the pre-test stage, the team of interviewers who would collect the data were trained in three phases:

- Phase 1. The selected interviewers were trained in an eight-hour session, which included exposure of the survey areas, presentation of the objectives and technical training for handling the equipment and the system used. This phase also included reading and a simulated application of the questionnaire, a discussion of the rules of conduct of the survey, as well as procedures for the quality and control of the interviews. The interviewers completed the control sheets for the registration of ineligible domiciles, refusals and other events, as well as the household registration form, in order to keep the registration of survey sites organized. Although the interviewers had vast experience in field survey, including in the state of Maranhão, field safety guidelines were extensively debated in order to avoid any problems in this regard.

- Phase 2. On-site application of the questionnaire to test, improve and review doubts (minimum of three questionnaires per interviewer). The tests were carried out in the Metropolitan Region of Belo Horizonte, close to the homes of the interviewers. A meeting was held to validate the questionnaire and to clear possible doubts. In this sense, the feedback of respondents was positive, with no complaints about the difficulty regarding the interpretation or fluidity of the data collection instrument.

- Phase 3. Delivery of materials, definition of logistics and description of the selected census tracts.

3.2.3 Data collection

The teams were formed by two to three interviewers per survey route (a defined set of three to five municipalities). In rural tracts the survey was conducted by teams of two interviewers, in order to optimize the collection and avoid long stays in the tracts. On the other hand, in urban tracts the interviewers worked individually.

3.2.4 Quality control

Several control procedures were established to guarantee the quality of the data collected, according to the following list:

1. All interviews were recorded in audio format.
2. The geo-positioning of the interviews and the route travelled by the interviewers were captured, in order to ensure that the interviews would occur within the defined area. This measure also served to check the sampling interval and ensure that the route defined in the sampling plan was actually followed.
3. Photographic recording of households where authorized by residents.
4. Checking of the audio recording of interviews (random selection of 20 percent of the sample).
5. Analysis of database consistency and information retrieval (in addition to the random 20 percent check, all interviews showing data inconsistency or discrepancy were checked to verify the validity of the answers or correct any information possibly misunderstood by the interviewer. Approximately 12 percent of the interviews were checked, totalling 32 percent.

Map 3 – Geopositioning of interviews by census tract – Morros - Maranhão

Source: Survey Measuring Modern-day Slave Labour in the State of Maranhão - 2017 (CRISP/UFMG).

The above map provides an example of georeferenced data collected simultaneously with the interviews. In the case in question, the georeferencing rate was 91 percent.

3.3 Focus group discussions and interviews with key informants

Based on the assumption that reality is both a subjective and objective construction and therefore complex, the qualitative approach is founded on the interaction between interviewers and interviewees, with the aim to investigate the perception by the parties involved of the degrading working and living conditions experienced by respondents.

The focus group and the observations resulting therefrom enable expanding the collection of information on the social group under investigation, based on interactive processes in which the respondent's point of view can be grasped, understood and included in its broader social context. The use of qualitative methods was defined from the perspective that qualitative information can be interpreted in conjunction with the data derived from a quantitative approach, thus allowing for a better understanding of the forced labour and slave labour phenomenon in that state.

The focus group methodology is a survey technique that provides qualitative information, that is, information produced from a comprehensive perspective. The focus group is a discussion group, usually consisting of four to ten people, who are invited to discuss a particular topic with the help of a moderator.

The main objective of the focus group is to identify the participants' perceptions, feelings, attitudes and ideas in relation to a particular topic, phenomenon or activity. The moderator suggests a natural progression of the discussions, from more general topics to the specific focus of the survey. Focus group discussions should take place in a pleasant and informal atmosphere, so that participants can feel comfortable enough to express their experiences, feelings, needs and opinions.

The group requires the presence of a moderator, who guides and coordinates the debate by promoting the participation of all and trying to prevent the discussion from veering off the topic and some participants from monopolizing the discussion. The moderator should guide the discussion to get the participants' accounts and narratives of their experiences, feelings and perceptions.

Participants are selected based on homogenous socioeconomic, demographic and professional characteristics, since too much discrepancy between them can interfere in the way each person participates by, for example, making them feel uncomfortable to express their ideas to the other participants. Therefore, the group should be homogeneous enough to make the discussion possible. On the other hand, some degree of heterogeneity is desirable, just enough to ensure the possibility of making comparisons as well as for evidencing differences in the attitudes, perceptions and feelings of members within each group and between groups.

Therefore, two focus groups were held with workers rescued from a situation of labour analogous to slavery in the state of Maranhão. The aim was to better understand the meaning attributed to the concept of degrading conditions, based on various experiences reported by participants on the relations established with the actors. The third focus group included representatives of government organizations and civil society responsible for the prevention and repression of modern-day slave labour in the state of Maranhão as well as for aiding victims. The focus of this group was the professionals' perception of the magnitude of the phenomenon in the state and of the actions implemented to prevent and repress it.

In this regard, the focus groups were used as characterized by Gondim (2003), that is, as a preliminary exploratory study aimed to broaden the understanding of the phenomenon studied and focused on contributing not only to the survey but also to the construction of the algorithms that were subsequently applied and analysed..
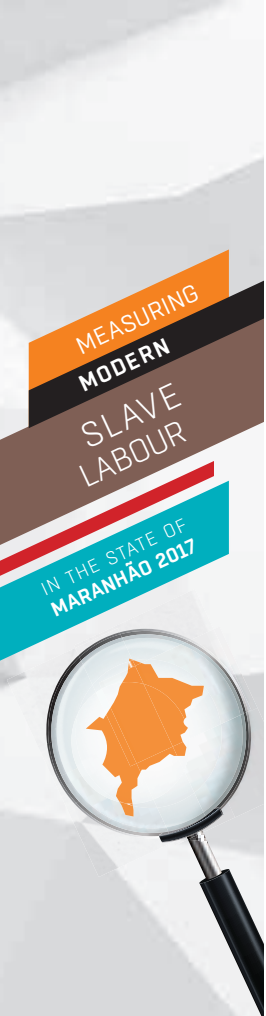
3.3.1 Selection of participants and composition of focus groups

In the present survey, the focus groups with rescued workers sought to understand their perceptions of their current work experience, their work experience in situations analogous to slavery as well as of migratory movements (travels and routes), living and working conditions in situations analogous to slavery, conflicts, forms of coercion and violence, resistance to slave labour, and future aspirations, perspectives and projects.

The international literature on the focus group methodology shows that participants reap interesting personal and professional gains when they participate actively and are significantly engaged in addressing the issues raised and when interactions flow in a cooperative manner, despite diverging views and conflicts. The focus group methodology creates the opportunity to broaden perspectives on the subject in question, by putting participants in contact with people who do not belong to a close circle of friends and stimulating them to engage in decision-making processes, thus also favouring the construction of trust and collaboration processes that enable not only identifying solutions to common problems but also sharing information and interacting with researchers and academics.

In turn, the aim of the focus group with representatives of government and civil society organizations responsible for assisting victims and preventing and repressing modern-day slave labour in the state of Maranhão was to understand their perceptions of the following topics: actions and challenges in the fight against modern-day slave labour (estimated number of persons in a situation of modern-day slave labour, seasonality and migration routes, what works and what does not work in the prevention and repression of modern-day slave labour); challenges in enforcing legislation; main forms of recruitment and main causes of impunity; networking by government and civil society organizations; and assessment of the impacts of the *Ação Integrada* (Integrated Action), *Marco Zero* (Ground Zero) and *Caravanas da Liberdade* (Caravans of Freedom) programmes.

Focus Group 1	Focus Group 2	Focus Group 3
Workers rescued from situations analogous to slavery in the state of Maranhão	Workers rescued from situations analogous to slavery in the state of Maranhão	Representatives of government and civil society organizations responsible for the prevention and repression of modern-day slave labour in the state of Maranhão
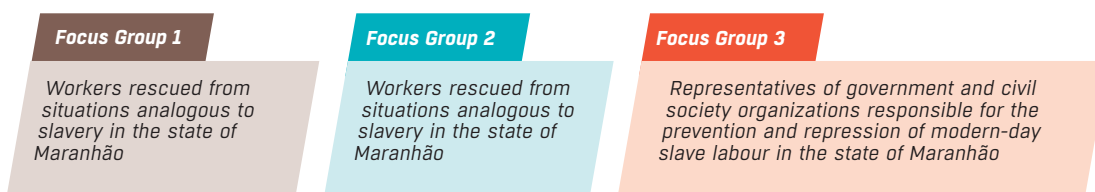
The focus groups with rescued workers were held at the Carmen Bascarán Centre for the Defence of Life and Human Rights (CDVDH/CB) in Açailândia (MA). The first focus group was held on 19/11/2016 with four men between 30 and 45 years of age. The second focus group was held on the same day with five men in the same age group as focus group 1. The third focus group was held on 22/11/2016 at the headquarters of the Regional Labour Court (TRT) in São Luís, with eight representatives of government and civil society organizations responsible for the prevention and repression of modern-day slave labour and for assisting victims.

Local partners were in charge of inviting workers rescued from situations analogous to slavery and representatives of government and civil society organizations to participate in the focus groups. The debates had the active involvement of participants, who were motivated to discuss the subject in the focus groups, given their experience with modern-day slave labour.

One of the contributions promoted by the focus group methodology is the opportunity to discuss and analyse experiences and practices. In fact, representatives of the network of assistance to victims, combat, prevention and repression of modern-day slave labour (government and civil society organizations) are afforded the opportunity to discuss recent experiences and practices and to assess what works and what does not work in the repression and prevention of modern-day slave labour.

All discussions were recorded in audio format with the express, free and informed consent of all participants, who received all the necessary clarifications about the survey. The survey coordinator informed all participants that due to methodological determination, participation in focus group is strictly confidential, thus ensuring that they would neither be identified nor

have their identity linked to any opinion expressed during the discussions. The groups were moderated by researchers with vast experience in the area.

The physical conditions for the focus groups were adequate, since they were held in a suitable private and comfortable room, with chairs arranged in a circle and central digital recorders available to record the talks, so as to stimulate the dialogue. The work with the groups was of the structured type, with the discussions guided by a semi-structured script.

3.3.2 Topics and issues discussed

The script that guided the focus group discussions and which was approved by the partners,[24] was divided into ten modules:

- Perception of current work experiences;

- Work experiences in situations analogous to slavery, from which they were rescued: type of work, recidivism, choices, promises, presence of intermediaries, and length of exploitation;

- Geographical dimension of the work in situations analogous to slavery: migratory movements, travels, routes, promises made to attract workers, nutrition, and transport-related debt;

- Living conditions in situations analogous to slavery;

- Working conditions in situations analogous to slavery;

- Conflict, coercion and violence in situations analogous to slavery;

- Resistance to situations analogous to slavery;

- Aspirations, perspectives and future projects;

- Actions and challenges in the fight against labour analogous to slavery (estimated number of persons in situations analogous to slavery, seasonality and migration routes, what works and what does not work in the repression and prevention of modern-day slave labour, challenges in enforcing legislation, forms of recruitment, and main causes of impunity related to modern-day slave labour);

- Networking (coordination among institutions, assessment of the impacts of the *Ação Integrada* (Integrated Action), *Marco Zero* (Ground Zero) and *Caravanas da Liberdade* (Caravans of Freedom) programmes.

The different dynamics of modern-day slave labour were problematized based on the experiences and perceptions of members of the three groups, so that this information could be discussed, critiqued and validated.

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[24] ILO, Federal University of Maranhão, Team of the Federal University of Maranhão, DETRAE/ SIT/TEM, GPTEC/ UFRJ, Labour Prosecution Service of Maranhão, Secretariat for Human Rights and Citizenship of Maranhão/ Slave Labour Division, COETRAE/Slavery, No Way!, SETRES, CPT/Açailândia, Carmen Bascarán Centre for the Defence of Life and Human Rights (CDVDH/CB) in Açailândia.

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CHAPTER 4
Descriptive statistics

T his chapter presents the results of the descriptive statistics of the survey conducted with a sample of 2,135 respondents in the state of Maranhão between 8 March and 3 April 2017. The quantitative data that supported this report were collected using the household survey methodology. The main objective was to produce robust estimates of the population exposed to conditions that characterize slave labour and forced labour in the State of Maranhão, based on probabilistic sampling. This survey, therefore, sought to outline the workers' profile and living conditions, understand the modus operandi of the enticers who exploit this type of labour, point out seasonality and immigration profiles (origin and destination) and, finally, discuss the process of exploitation and degrading circumstances that involves social and economic issues closely linked to slave labour and forced labour.

To this end, section 4.1 provides information about the general characteristics of all workers interviewed. Section 4.2 seeks to describe the work migration patterns of all respondents, including patterns of geographical movements between states and regions of the country, in addition to describing how their recruitment, working, health, living, and safety conditions were established.

4.1   General characteristics of the sample

This section presents the characteristics of all respondents with information covering socioeconomic questions raised throughout the survey. In addition to their attributes, the section also provides an overview of the geographical distribution of the activities carried out by these people as well of their living and working conditions.

4.1.1   Sex and age

The proportion of respondents in this survey is distributed almost equally between sexes, totalling 51 percent of male respondents and 49 percent of female respondents.

Table 3 – Sex of respondents (n= 2,135)

Sex	#	%
Male	1089	51.0
Female	1046	49.0
Total	2135	100.0%

Source: Survey Measuring Modern-day Slave Labour in the State of Maranhão - 2017 (CRISP / UFMG).

The ages of respondents ranged from 18 to 85 years. The majority of male respondents are in age groups 21 to 30 (31.8 percent) and 31 to 40 (21.3 percent). Likewise, women are found primarily in age groups 21 to 30 (33.5 percent) and 31 to 40 (22.7 percent). It is important to point out the participation of 6.2 percent of workers over 61 years of age who are still engaged in some type of labour activity, as a requirement to understand the population sampled in this survey. In this case, this group is formed by 7.3 percent of men and 5 percent of women.

Table 4 – Age of respondents (n=2,135)

Age	M	F	Total	% Total
18 - 20 years	92 (8.4%)	83 (7.9%)	175	8.2
21 - 30 years	346 (31.8%)	350 (33.5%)	696	32.6
31 - 40 years	232 (21.3%)	237 (22.7%)	469	22.0
41 - 50 years	192 (17.6%)	174 (16.6%)	366	17.1
51 - 60 years	148 (13.6%)	150 (14.3%)	298	14.0
61 - 70 years	63 (5.8%)	41 (3.9%)	104	4.9
71 years and older	16 (1.5%)	11 (1.1%)	27	1.3

Source: Survey Measuring Modern-day Slave Labour in the State of Maranhão – 2017 (CRISP / UFMG).

4.1.2 Geographical distribution of interviews

All 2,135 interviews were conducted in the state of Maranhão. The map below shows the distribution of interviews in their respective municipalities.

Map 4 – Geographical distribution of interviews in the state of Maranhão (n=2,135)
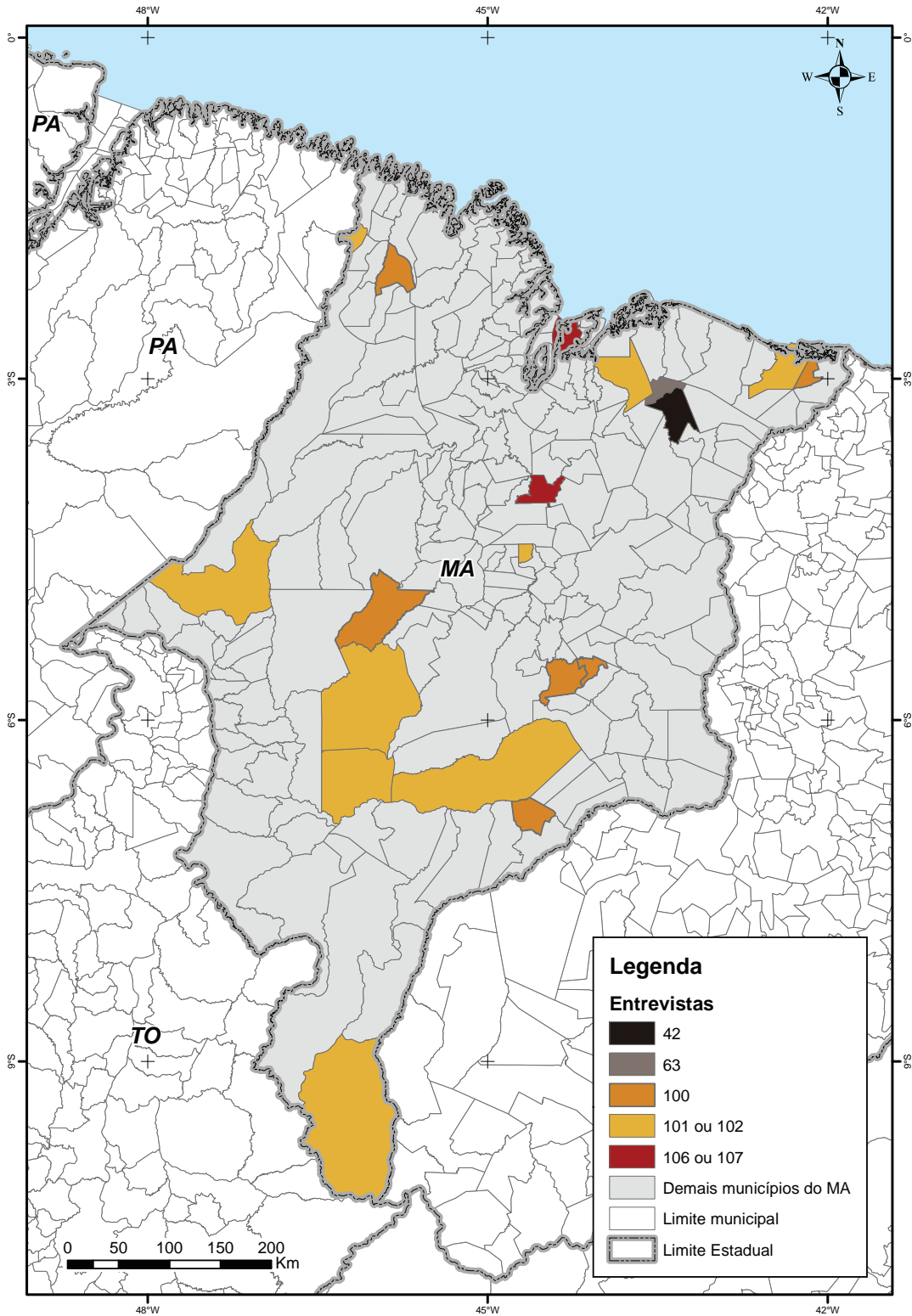
Legenda

Entrevistas

- 42
- 63
- 100
- 101 ou 102
- 106 ou 107
- Demais municípios do MA
- Limite municipal
- Limite Estadual

Source: Survey Measuring Modern-day Slave Labour in the State of Maranhão - 2017 (CRISP / UFMG).

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The above map and the table below show that the interviews were distributed in a relatively homogeneous manner between the cities participating in the survey, with an average of 100 to 107 interviews. The bulk of the interviews were conducted in São Luiz, São Matheus do Maranhão and Codó while Urbano Santos and Belágua had the lowest number of interviews.

Table 5 – Distribution in absolute numbers of interviews conducted in the state of Maranhão (n=2,135)

Name of Municipality	IBGE code for the municipality	Number of interviews
AÇAILÂNDIA	2100055	101
ÁGUA DOCE DO MARANHÃO	2100154	100
ALTO PARNAÍBA	2100501	101
ARAME	2100956	100
BELÁGUA	2101731	63
BOA VISTA DO GURUPI	2101970	102
CODÓ	2103307	103
FORMOSA DA SERRA NEGRA	2104099	101
GOVERNADOR LUIZ ROCHA	2104628	100
GOVERNADOR NUNES FREIRE	2104677	100
GRAJAÚ	2104800	102
JENIPAPO DOS VIEIRAS	2105476	102
MARAJÁ DO SENA	2106359	100
MIRADOR	2106706	101
MORROS	2107100	101
SÃO DOMINGOS DO AZEITÃO	2110658	100
SÃO FRANCISCO DO MARANHÃO	2110906	100
SÃO LUÍS	2111300	107
SÃO MATEUS DO MARANHÃO	2111508	106
TRIZIDELA DO VALE	2112233	102
TUTÓIA	2112506	101
URBAN SANTOS *	2112605	42
MARANHÃO	**21**	**2135**

Source: Survey Measuring Modern-day Slave Labour in the State of Maranhão – 2017 (CRISP / UFMG).

4.1.3 Socioeconomic characteristics

The first thematic module in the data collection instrument consisted of questions about the family composition of and personal information on respondents. This enabled outlining the participants' profiles, with the aim to understand their personal experiences that could be associated with their life and work trajectory.

Information on the family context and on the quality of life of the persons living in the same household were recorded. In all sampled households, respondents were 18 years or older and the average number of members over 18 years was 2.67. Just over 71 percent of respondents live in households with minors. On average, respondents were from households with 2.07 members under the age of 18.

Family income in 31.9 percent of the cases is between half and one minimum wage (up to R$937.00 - US$299)[25,] followed by 28.4 percent of respondents with income of 1 to 2 minimum wages (up to R$1,874.00 - US$599). Households with reported family income below half minimum wage (less than R$468.50 - US$149.87) make up 22.6 percent of the families sampled, depicting, in general, a situation of poverty and social vulnerability.

In addition, the dwellings of 81.3 percent of respondents are fully paid for, and 8.1 percent live in houses lent by their families. The house sewage system is very precarious, since only 3.2 percent have a general sewage system. In most cases (76.2 percent), the houses have a septic/rudimentary tank, with 8.5 percent with sewage ditches and 1.5 percent without toilet. Most of the water supplied to the houses comes from the general supply network (47.6 percent) and the community well (28.1 percent). With respect to lighting, 99 percent of homes have electricity, probably as a result of the Federal Government's Light for All Programme.

The characteristics of the respondents' profile can be seen below. As seen in Table 6, which shows the marital status of respondents, 34.3 percent are in a stable relationship without marriage, followed by 32.2 percent of legally married couples and 26.7 percent of single individuals.

Table 6 – Marital status of respondents (n=2,135)

Marital Status	#	%
Stable relationship without marriage	732	34.3
Married	688	32.2
Single	571	26.7
Widow(er)	57	2.7
Separated	44	2.1
Legally separated	43	2.0
Total	2135	100.0%

Source: Survey Measuring Modern-day Slave Labour in the State of Maranhão – 2017 (CRISP / UFMG).

With respect to religion, most respondents are self-declared Catholics (71.7 percent). Pentecostal and non-Pentecostal Evangelicals total 21 percent; and 6.2 percent said they have no religion. This calls for a critical reflection on the religious syncretism that characterizes the Brazilian population, especially in the case of Maranhão, where there is a high prevalence of individuals clearly linked to traditional African religions. This prevalence did not appear in the respondents' answers. It is worth noting that due to the prejudice and structural racism that are typical of Brazilian society, respondents do not always admit to professing a traditional African religion.

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[25]   The minimum wage mentioned here was established by Decree No. 8,948 of 29 December 2016. The real to dollar exchange rates were based on the Brazilian Central Bank's selling prices at the closing exchange rate on 1 August 2017.

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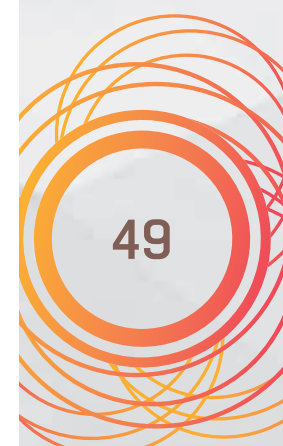
Table 7 – Religion of respondents (n=2,135)

Religion	#	%
Catholic	1531	71.7
Pentecostal Evangelicalism	374	17.5
No religion	133	6.2
Non-Pentecostal Evangelicalism	74	3.5
Other(s)	15	0.7
Kardecist Spiritism, spiritualism	6	0.3
Judaism	2	0.1
Total	**2135**	**100.0%**

Source: Survey Measuring Modern-day Slave Labour in the State of Maranhão - 2017 (CRISP / UFMG).

The information on the educational level of respondents reflects a population with a low level of schooling. As seen in Graph 1 below, 13.6 percent of respondents have no formal education at all and just over 30 percent have incomplete elementary education. In turn, 37.3 percent have complete or incomplete secondary education, 7 percent have complete or incomplete higher education, and 2.3 percent have postgraduate education.

Graph 1 – Educational level of respondents (n=2,135)
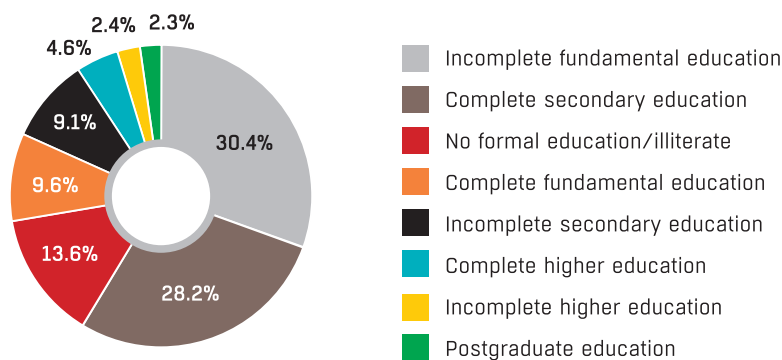
Source: Survey Measuring Modern-day Slave Labour in the State of Maranhão - 2017 (CRISP / UFMG).

Among all respondents, and following a global trend, women have a higher level of education - most of them (31.5 percent) with complete secondary education - while the majority of men have incomplete elementary education (33.1 percent). Among respondents with higher education, 7.5 percent of women hold a university degree against 1.9 percent of men.

When asked about the reason for not continuing their education, as shown in Table 8 more than 38 percent alleged financial reasons, either because they did not have the resources to pay for their education (6.4 percent) or because they needed to work to help provide for their families (31.7 percent). In addition, 10.9 percent of the cases refer to people who did not like the school in their region (alleging lack of enthusiasm or "patience" to study) and therefore preferred to "occupy their minds with work-related tasks". It is also interesting to note that in the case of women and from a gender perspective, 9.7 percent of female respondents had to drop out of school because of pregnancy, since they had no one to leave their children with if they were attending school.

Table 8 – Reason for dropping out of school (n=2,135)

Reason for dropping out of school	#	%
Provide income for family	556	31.7
Did not like the school	190	10.9
Personal or family problem	173	9.9
Pregnancy	170	9.7
Others	141	8.0
Lack of financial resources	112	6.4
Got married	111	6.3
Higher levels of education were not available in the municipality	110	6.3
Difficulty to commute	49	2.8
Health problems	42	2.4
Moved to another place	36	2.1
Repeated a grade	25	1.4
Did not feel welcome in school	21	1.2
Moved to another place and the new school did not accept the previous school certificate	11	0.6
Total	**1747**	**100.0%**

Source: Survey Measuring Modern-day Slave Labour in the State of Maranhão - 2017 (CRISP / UFMG).

4.1.4 Civil Registry

The section on identification was included in the questionnaire based on the assumption that a considerable number of people did not have personal identification documents. However, it was observed that 94.3 percent of respondents have a birth certificate and 98.5 percent have an identity card.

4.1.5 Workplace and geographical distribution

All 2,135 respondents were asked about their work activities over the past three years and when the data were collected. At the time of the survey, 42.3 percent of respondents were unemployed and therefore answered the questions based on their latest job, provided that it had been in the last three years. Of all respondents that were active in the labour market, 57.7 percent answered the questions according to their activity at the time of the survey.

Most of the jobs mentioned were in the Northeast region, more precisely in the state of Maranhão. Activities carried out in other regions of the country show the existence of migratory movements, including people who moved to another city in search of new opportunities. This aspect will be discussed in the next section.

The majority of respondents were engaged in rural activities (23.9 percent), followed by 16.3 percent employed in the tertiary sector, such retail sales, restaurants and hotels. Twelve percent of respondents had education-related jobs in schools of the region and 8.5 percent worked in the homes of others, in activities such as domestic services.

Table 9 – Geographical distribution of workplaces (n=2,135)

	Workplace region					Total	
Workplace	North Region	Northeast Region	Southeast Region	Central-West Region	South region	#	%
Factory	1	32	9	7	1	50	2.3
Plantation/farm/garden	8	482	7	12	1	510	23.9
Construction site	14	84	18	13	2	131	6.1
Mine/quarry/other area involving the extraction of minerals from the earth	3	3	0	0	0	6	0.3
Shop/kiosk/restaurant/hotel (service sector)	5	312	13	16	1	347	16.3
Different locations (mobile workers)	2	160	3	0	0	165	7.7
Fixed place, street or market stall	1	77	0	0	1	79	3.7
Lake/pond/river	2	24	0	0	0	26	1.2
Industry	2	10	0	0	1	13	0.6
Transport	1	11	1	0	0	13	0.6
Home	0	143	1	0	0	144	6.7
School	1	256	0	0	0	257	12.0
Homes of others	0	176	0	5	0	181	8.5
Public Institutions	0	123	1	1	0	125	5.9
Others	2	80	2	4	0	88	4.1
Total	42	1973	55	58	7	2135	100.0%

Source: Survey Measuring Modern-day Slave Labour in the State of Maranhão - 2017 (CRISP / UFMG).

From the gender perspective, the interviews show that the majority of men worked in rural areas on plantations and farms (34.3 percent), followed by work in commercial establishments (16.2 percent) and construction sites (11.8 percent). Women prevailed in the service sector, with 19.2 percent working in schools, 16.3 percent in commercial establishments and 16.3 percent in the homes of others, with domestic work prevailing as a gender-based activity, since only 1.1 percent of men work as domestic servants.

4.2 Migration patterns among respondents

This section describes the migration patterns observed among the 2,135 respondents as well as migratory flows to other states/regions in the country.[26] One of the findings of this survey is that the migration patterns analysed are closely linked to the search of job opportunities, thus establishing, above all, a potential situation of vulnerability to enticement into slave labour.

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[26]   BRAZILIAN INSTITUTE OF GEOGRAPHY AND STATISTICS - IBGE. Directorate of Geosciences. Coordination of Geography. Brazil's regional division into immediate geographic regions and intermediate geographic regions. Rio de Janeiro: IBGE, 2017. 82 p. Available at: <http://biblioteca.ibge.gov.br/visualizacao/livros/liv100600.pdf>. Access on 24 July 2017.

4.2.1 Geographical migration patterns

The migratory process between states or regions of the country was explored throughout the survey to help understand the work dynamics of respondents. In this case, to make the study of migration possible, a survey of the respondents' state of birth and state of work was conducted.

Most respondents remained in their places of birth or migrated to cities in their native states. As shown in Image 1 below, 394 respondents (18.4 percent) reported having migrated either to states within their regions or to states in other regions of the country.

In addition, it is possible to see that most respondents migrated to states outside their native regions. Specifically, this means that a total of 228 respondents (10.6 percent) migrated to states outside their native regions in search of work, while 166 migrated to other states within their regions of origin, also in search of work.

It is also noted that most of the respondents who migrated in some way were born in the states of Maranhão, Piauí, Pará and Ceará. Among these, respondents originally from the states of Maranhão and Pará make up the bulk of migrants to other regions of the country. On the other hand, most of the respondents who migrated to other states within their native region were originally from the states of Piauí and Ceará.

Image 1 – Distribution in absolute numbers of respondents who migrated to states within their region or to states in other regions of the country (n=394)

Migration for work-related reasons (n=394)		
		Place of origin
394 Respondents who migrated to states within or outside their region	**166** Respondents who migrated to states within their region	86 Piauí
		20 Maranhão
		34 Ceará
		12 Pernambuco
		05 Bahia
		05 Paraíba
		02 Rio Grande do Norte
		01 Goiás
		01 Alagoas
	228 Respondents who migrated to states in other regions of the country	140 Maranhão
		45 Pará
		10 Tocantins
		09 Piauí
		05 São Paulo
		03 Mato Grosso
		02 Amazonas
		02 Federal District
		01 Ceará
		01 Rio Grande do Sul
		01 Rio de Janeiro
		01 Minas Gerais
		01 Espírito Santo
		01 Amapá
		01 Acre
		01 Alagoas
		01 Goiano (GO)
		01 Alagoano (AL)

*Note * = Of the total of 2,135 respondents, only 394 provided sufficient information to determine migration trends at the state/regional level.*

Source: Research Measuring Modern-day Slave Labour in the State of Maranhão – 2017 (CRISP/UFMG).

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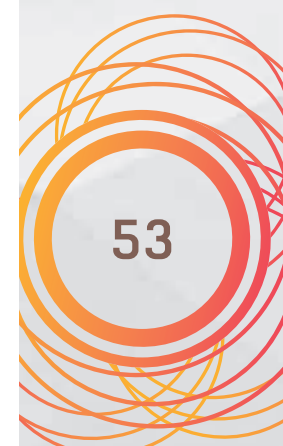
Another possible analysis is related to transitions between urban and rural areas. "Rural-urban" migration trends show us more clearly the migratory movements of respondents related to work and to the search for a better quality of life. The "work" factor was mentioned as the main reason for this movement of people within their own state or region and even to other regions of the country. The survey collected information on the birth city of respondents and sought to identify whether these cities were characterized as rural or urban based on sociodemographic criteria (income and population density) from IBGE data. Subsequently, the survey identified the cities where respondents worked and whether these territories were classified as rural or urban.

To better understand this migratory movement, three types of rural-urban migration patterns were defined. The first applies to the cases in which workers migrated to other rural or urban municipalities within their own state. The second refers to cases in which workers moved to other states within their region of origin. The third case is that of workers who left their native municipality to seek employment in other regions of the country. This effort to identify the "rural-urban" migration pattern helps us to understand how the labour availability process occurred in these three cases.

According to Table 10, most respondents were more likely to migrate to another rural area than to an urban area. Of the total of 1,722 respondents who were originally from rural areas, 814 migrated to another rural area within the same state, totalling 47.3 percent of cases. Another 85 respondents migrated to another rural area within the same region (4.9 percent) and finally, 70 respondents born in a rural area moved to another rural area in another region of the country (4.1 percent). In 31.9 percent of the cases there was no migration process and respondents remained in rural areas in their hometowns.

Likewise, 370 respondents from an urban area were more likely to migrate to a rural area than to another urban area. This pattern was observed among 108 respondents who migrated within a state (29.2 percent), 49 who migrated to other states in the same region (13.2 percent) and finally, 32 who migrated to states in other regions of the country (8.6 percent). In this case, an interesting phenomenon is observed, indicating that migrations of urban origin are more likely to follow interstate routes.

In sum, these figures show that in the case of respondents in this survey, the migratory movement tends to occur more strongly in the urban to rural direction in interstate migrations, and in the rural to rural direction when the migration occurs within the same state. In both cases, rural areas prevail as places of destination, contrary to what common sense suggests, i.e., that rural-urban migration is the dominant pattern.

Table 10 - Rural-Urban migration pattern (n=2,092)

Place of birth - Area	Rural-urban migration patterns							Total
	Respondents who migrated within a state		Respondents who migrated to other states within their native region		Respondents who migrated to other regions of the country		Respondents who remained in their native cities	
	Rural area	Urban area	Rural area	Urban area	Rural area	Urban area	No migration	
Rural	814 (47.3%)	94 (5.5%)	85 (4.9%)	18 (1%)	70 (4.1%)	91 (5.3%)	550 (31.9%)	1722 (100%)
Urban	108 (29.2%)	28 (7.6%)	49 (13.2%)	1 (0.3%)	32 (8.6%)	25 (6.8%)	127 (34.4%)	370 (100%)
Total	922 (44.1%)	122 (5.8%)	134 (6.4%)	19 (0.9%)	102 (4.9%)	116 (5.5%)	677 (32.4%)	2092 (100.0%)

*Note * = Of 2,135 respondents, only 2,092 provided sufficient information to determine rural-urban migration trends in the states/regions.*
Source: Research Measuring Modern-day Slave Labour in the State of Maranhão – 2017 (CRISP/UFMG).

4.2.2 Recruitment conditions

The 2,135 persons interviewed for this study were asked about the reasons why they started working and, in this case, were given more than one response option. Among the main reasons mentioned, most respondents claimed that they had decided to start working due to financial needs (38.8 percent). In other cases, 15.5 percent of respondents started working because they were interested in a specific job or skill; 12.2 percent had migrated due to the lack of job opportunities in the city where they used to live; and another 10 percent started working because they wanted to be financially independent.

Table 11 – Reason for starting to work (n=4,367 multiple answers)

Reason for starting to work	#	%
Needed money	1694	38.8
Interest in a specific job/skill	675	15.5
There was no job in the city where they used to live	532	12.2
Wanted to be independent	437	10.0
Accompany family members	278	6.4
Knew someone from the workplace	251	5.7
Others	171	3.9
Was not happy with the job at the time	129	3.0
Financial/economic crisis	115	2.6
Death of head of household	68	1.6
Subjected to domestic violence (physical or sexual)	5	0.1
Subjected to physical violence	3	0.1
Forced/convinced by false promises	3	0.1
Drug addiction	2	0
Religious or ethnical problems	2	0
Confiscation of documents	1	0
Was not welcome in the community	1	0
Total	**4367**	**100.0%**

*Note * = The table above shows multiple answers, since 2,135 respondents could choose more than one answers.*

Source: Research Measuring Modern-day Slave Labour in the State of Maranhão - 2017 (CRISP/UFMG)..

After stating the reason for starting to work, respondents were asked how they found out about their job. In most cases (76.1 percent), respondents had initially heard about the job from relatives, neighbours and close friends. Just over 7 percent of respondents said they found out about the job on their own, because they "went after" a job in their cities or in other municipalities. In 5 percent of the cases, respondents found out about the job from other people; 2.3 percent on social media; and 2.2 percent from employees of the company or the employer him/herself.

Table 12 – How respondent found out about the job (n=2,119)

How respondent found out about the job	#	%
Friends/Neighbours/Relatives	1624	76.1
On his/her own	154	7.2
Another person	106	5.0
Others	71	3.3
Social media	49	2.3
Employer (company owner or employee)	47	2.2
Political reasons	22	1.0
Radio and TV	20	0.9
Advertising on wheels/Church/Megaphone	14	0.7
Newspaper/Magazine/Brochure	10	0.5
Travel Agency	2	0.1
Total	**2119**	**100.0%**

*Note * = 2,119 respondents informed how they had found out about the job.*

Source: Research Measuring Modern-day Slave Labour in the State of Maranhão – 2017 (CRISP/UFMG).

Overall, 1,301 respondents reported that they had received some sort of help from someone else to get the job, while 38.8 percent had not received any type of support/help in getting the job. Among those who received help in recruitment, as shown in the figure below, in 47.7 percent of the cases respondents decided about the new job with the help of relatives, 37 percent with the support of their closest friends, and 6.2 percent with the aid of acquaintances. In only 3.6% of the cases the job was obtained through the employer.

Graph 2 - Actors that helped get the job (n=1,301)
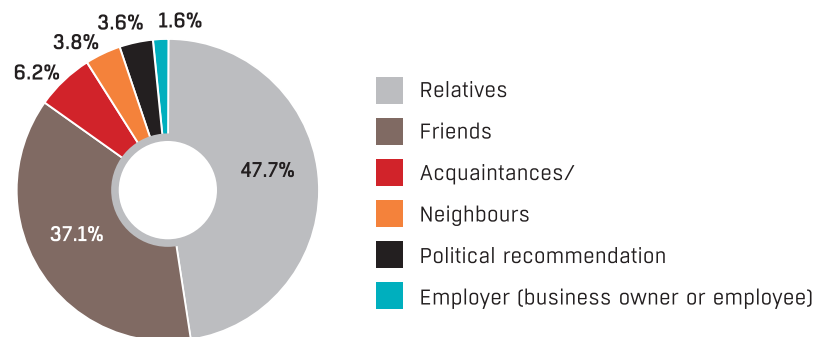
Source: Survey Measuring Modern-day Slave Labour in the State of Maranhão - 2017 (CRISP/UFMG).

Among all 2,135 respondents, only 1.1 percent paid a recruitment fee to get the job. Amounts of up to R$2,000.00 (US$634) were transferred or negotiated in agricultural activities in exchange for products or payment for land use. Even through this form of negotiation, only in very few cases workers contracted some sort of debt to secure the job: only five respondents reported having been this situation.

In the entire survey, 1.1 percent of respondents stated having received some type of financial aid, ranging from R$50.00 (US$15) to R$2,000.00 (US$634), in the form of meal vouchers or cash advance, and most of these funds were provided by their employers.

The qualitative data collected from the focus group survey helps to understand an important aspect of modern-day slavery that many times is not perceived by workers – debt bondage. As the survey shows, generally at the time of recruitment the worker (who is in a situation of high social and economic vulnerability) contracts a debt with the recruiters ("gatos") and employers. Thus, from the time they contract the debt, workers begin to see themselves as owing the employer and, therefore, "[...] *incapable of violating the moral principle that underpins their relationship with work.*" (Martins, 1999, p. 162). This can explain the low number of respondents who reported having received some type of salary advance within the scope of the quantitative survey. The statement of *Respondent F* below illustrates this situation:

The "gatos" came and told us that the job was very good, we could make money and so on. [And we asked:] - But what about the price there? [and the "gato" would answer:] - No man, when you see there, we will give you a price and we assure you that you'll be good.

So, these occasions were always the ones we sometimes needed because in our city there is no steady job, sometimes we work as bricklayers daily. And the daily job, one day you have it, the other you don't, and we have a family, so we need it every day, it is not enough for our needs. Then we would go out to the farms to work, and when we got there the next thing we knew we were owing money, because to go there, to help our wives we would always take some money in advance, without knowing how much we would make. We owed money and got there already in debt".

(Respondent F, Focus Group 2, CDVDHCB -Açailândia, Nov. 2016).

"Sometimes, when my bank balance was low, I asked the boss for 100 (reals) in advance, then I would go back to pay the debt. That is what life was like, that is how we worked. We always did it because we needed money. If you have a child, you worry if your child tells you, "Daddy, I'm hungry" and you say I don't have it. You may suffer but you want to see your children with a full belly. That's the biggest reason why we endure various forms of suffering, that's why. It's the time when you start to owe him, the "gato", the time he sees that your bank balance is good, then he starts to rush, that is the time of pressure.

(Respondent F, Focus Group 2, CDVDHCB - Açailândia, Nov. 2016).

4.2.3 Employment contract

In accordance with Article 443 of the Brazilian Labour Code, in Brazil a contract may be agreed verbally or in writing, for a specific or indeterminate period.[27] In this regard, most respondents (53.4 percent) stated that they had a verbal agreement with the employer regarding the nature of the job and working conditions. Another 27.3 percent (582 respondents) were given a written contract with information about the work to be done (Graph 3).

Among the 582 people who were given the document in writing, 434 said they understood the contract in its entirety and 51 indicated that they did not fully understand the terms of the contract either because they trusted the employer (19.6 percent) or because they could not read (18.1 percent). A total of 72 respondents did not read the document and finally, a small number of respondents (15 persons) read the contract but understood virtually nothing.

It is interesting to note that of the 2,135 respondents, nearly 12 percent were unable to answer the question, since they probably had not received any information at the time of recruitment. Finally, 7 percent of respondents received information about the job from another person in an informal way.

Graph 3 – Type of employment contract (n=2,135)

- Promise or verbal agreement
- Written contract
- Information provided by another person
- Did not know how to answer the question
- Did not want to answer the question

Source: Survey Measuring Modern-day Slave Labour in the State of Maranhão – 2017 (CRISP/UFMG).

The survey enables comparing the frequency at which different aspects of the respondents' living and working conditions were **met** as agreed at the time of recruitment, either by **verbal agreements** (53.4 percent) or **written contracts** (27.3 percent). Graph 4 enables analysing these two types of arrangements (verbal agreement or written contract) reported by respondents regarding compliance with what had been agreed. The data show that most of the conditions were met as promised or agreed at the time of recruitment, except for health benefits, in which less than 50 percent of what had been agreed was actually delivered, by either promise or verbal agreement (45 percent) or a written contract (44.7 percent).

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27 "Art. 443 - The individual employment contract may be tacitly or expressly agreed, orally or in writing, for a specific or indeterminate period." (BRAZIL. **Decree-Law No. 5452 of 1 May 1943**. Approves the Brazilian Labour Code. Art. 443. Available at: <https://www.jusbrasil.com.br/topicos/10714720/artigo-443-do-decreto-lei-n-5452-de-01-de-maio-de-1943>. Access on 27 July 2017).

Graph 4 – Compliance with conditions agreed in verbal agreements and written contracts at the time of recruitment (n=2,135)
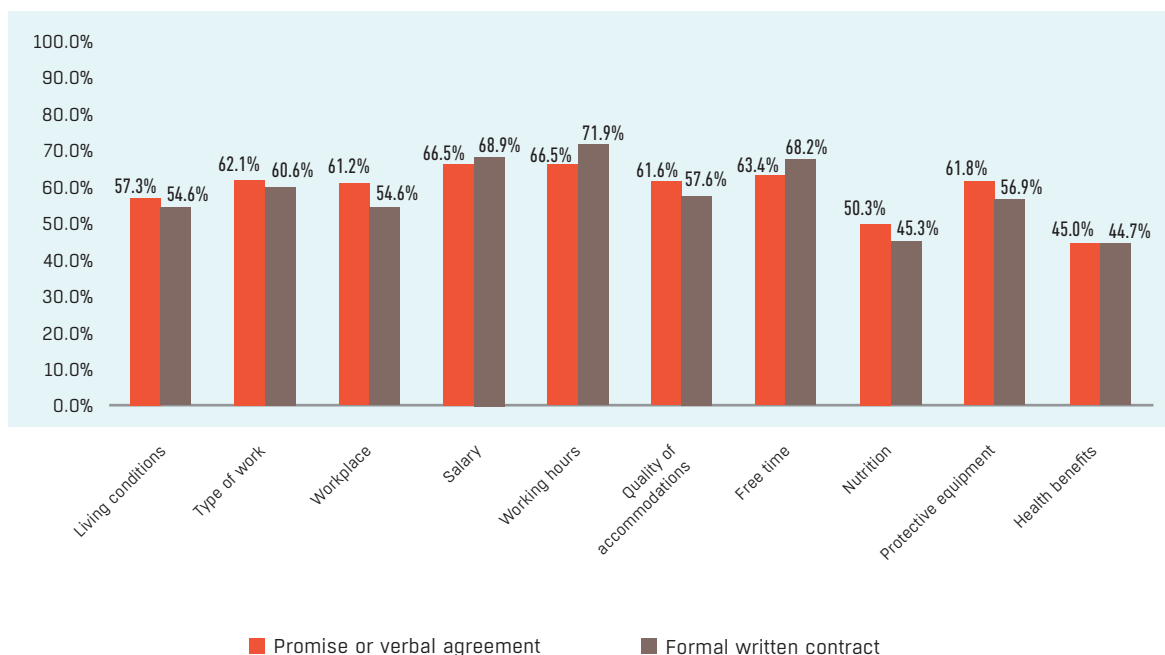
■ Promise or verbal agreement   ■ Formal written contract

Source: Survey Measuring Modern-day Slave Labour in the State of Maranhão – 2017 (CRISP/UFMG).

In addition to the two typologies related to the type of contract (promise or verbal agreement and formal written contract), Graph 5 below shows the respondents' perception of the conditions found in the workplace. In this case, a Likert Scale was used to assess the respondents' perception in a harmonized and comparative way.

From the tabulated information it is possible to identify a series of findings. In general, working conditions are met as agreed, according to respondents' evaluations. In addition, a significant number of respondents said that these items are never discussed at work, ranging from 17.7% for the question about wages to as high as 80.9% for health benefits. Although not very significant, among the conditions evaluated as "much worse" than what had been agreed, wages and living conditions stand out with 3.4% of the answers each.

Specifically, it appears that healthcare (health benefits) is the least discussed element at the time of recruitment as regards living and working conditions: only two in 10 respondents reported that this issue was negotiated at the time of recruitment. Even when this issue is negotiated, the percentage of respondents' satisfaction with health benefits is low ("somewhat better" for 3.6% and "much better" for 3.2%).

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Graph 5 – Perception of conditions found in the workplace in relation to what was agreed at the time of recruitment (n=2,135)
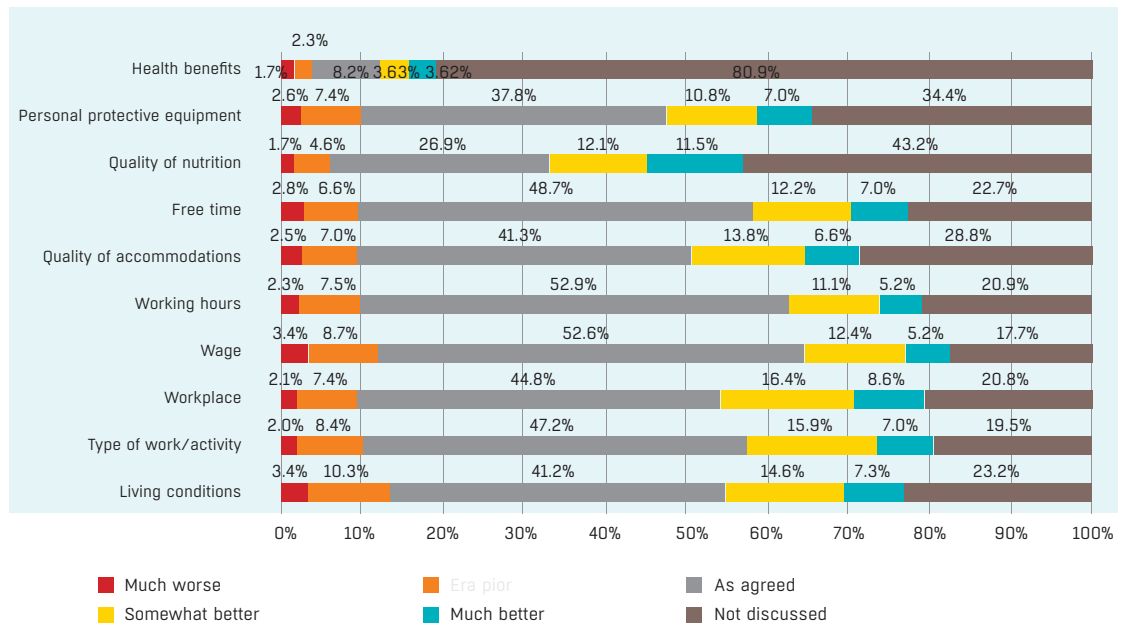
	Much worse	Era pior	As agreed	Somewhat better	Much better	Not discussed
Health benefits	1.7%	2.3%	8.2%	3.63%	3.62%	80.9%
Personal protective equipment	2.6%	7.4%	37.8%	10.8%	7.0%	34.4%
Quality of nutrition	1.7%	4.6%	26.9%	12.1%	11.5%	43.2%
Free time	2.8%	6.6%	48.7%	12.2%	7.0%	22.7%
Quality of accommodations	2.5%	7.0%	41.3%	13.8%	6.6%	28.8%
Working hours	2.3%	7.5%	52.9%	11.1%	5.2%	20.9%
Wage	3.4%	8.7%	52.6%	12.4%	5.2%	17.7%
Workplace	2.1%	7.4%	44.8%	16.4%	8.6%	20.8%
Type of work/activity	2.0%	8.4%	47.2%	15.9%	7.0%	19.5%
Living conditions	3.4%	10.3%	41.2%	14.6%	7.3%	23.2%

Source: Survey Measuring Modern-day Slave Labour in the State of Maranhão – 2017 (CRISP/UFMG).

The qualitative survey with focus groups illustrates how some workers are deceived by recruiters with false promises about working conditions. From a financial point of view, some respondents informed that this breach of agreement was reinforced and maintained through debts to which the workers were subjected or, in extreme cases, through death threats from the "gatos".

"The guy said me so, listen, this man, a "gato" telling me 'the owner here may not pay you R$30,00 to clear land' (which was what the guy was paying at that time). He said, 'he may not pay you R$30,00 but he is not sorry for paying someone R$30,000 to kill any of you who tries to report him'. And then it got to the point that I ended up here at the defence centre. I came because he threatened me and all, so I decided to hit him and he pulled out a gun to shoot me that day. He threatened me with the gun, but it did not stop me from leaving".

(Respondent E, Focal Group 2, CDVDHCB -Açailândia, Nov. 2016).

4.2.4 Living and working conditions

The questions about living and working conditions discussed in the previous section are related to the recruitment process. This section analyses the working conditions per se after recruitment, such as working hours, number of rest hours, structural working conditions, wages, and worker-employer relations.

In the interviews, workers were asked whether the wage agreed was based on productivity. In this regard, 757 respondents said they were paid based on their daily production. Of these respondents, 36.6 percent were rural workers employed on farms and plantations; 14.3 percent worked in the service sector (shops and restaurants); 10.3 percent were mobile workers (worked

in different places); 9.5 percent worked from home; 6.1 percent worked in construction sites; and 5.3 percent worked in the homes of others as for example domestic workers. Respondents with productivity-based wages received on average R$894.72 (US$286.86) per month.

Still in relation to this group of workers with productivity-based wages, most (60.5%) earned less than one minimum wage per month - between R$10 (US$3.20) and R$936 (US$300). Of these, 28.2% earned more than one minimum wage per month, with amounts ranging from R$940 (US$301) to R$1,800 (US$577).

The remaining respondents (N=1,378) reported working on a fixed-payment basis, with an average wage of R$846.30 (US$271.33). Of these, 53.1 percent earned less than the minimum wage; a little over 11 percent earned one minimum wage (R$937.00 or US$299); and 26.8 percent earned between one and two minimum wages (between R$938.00 and R$1,830.00 or US$300 and US$580). Finally, 5.9 percent earned more than two minimum wages, or R$1,874.00 (US$595.66). All these are monthly wages.

The analysis of the relationship between the informed income and sex[28] shows that among participants with productivity-based wages, women's income is lower than men's. In 28.8 percent of the cases, men with productivity-based wages earned more than one minimum wage while the proportion of women in the same situation was 16.5 percent. Productivity-based pay of less than one minimum wage was reported by 81.4 percent of women and 67.5 percent of men.

In the case of workers who reported having a fixed income, about 22.5 percent of women earn more than one minimum wage and 68.8 percent receive less that the minimum wage. With respect to men, 38.2 percent earn more than one minimum wage, against 53.2 percent who are paid less than one minimum wage.

In terms of pay frequency, 52.2 percent of respondents were paid monthly; 12.9 percent daily; 11.7 percent weekly; 6.8 percent upon the completion of certain tasks; and for 6.2 percent the pay frequency was undefined. Despite the low number of cases, 1.4 percent of respondents indicated that they were not paid for their work. In this case, the vast majority of workers were engaged in agricultural activities (83.3 percent).

Table 13 – Respondents' pay frequency (n=2,123)

Pay frequency	#	%
Monthly	1108	52.2
Daily	273	12.9
Weekly	249	11.7
Gradually or upon the completion of certain tasks	144	6.8
Undefined	132	6.2
Twice a month	79	3.7
Yearly	46	2.2
I don't get paid for the work	30	1.4
Another payment method	29	1.4
Twice a week	24	1.1
Twice a year	9	0.4
Total	**2123**	**100.0%**

*Note * = 2,123 respondents informed the pay/salary frequency*
Source: Survey Measuring Modern-day Slave Labour in the State of Maranhão – 2017 (CRISP/UFMG).

Of the total number of respondents, 39.2 percent usually worked five days a week, 26.5 percent six days a week and 13.4 percent every day of the week, as seen in Graph 6.

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28   Amounts refer to the total amount, regardless of pay schedule (daily, weekly, monthly or yearly).

Graph 6 – Number of working days per week (n=2,135)
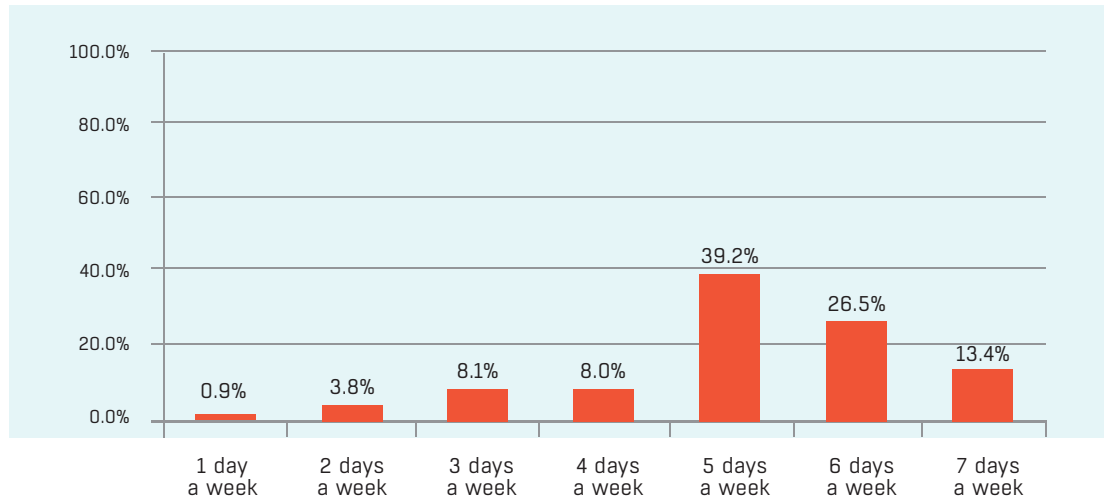
Source: Survey Measuring Modern-day Slave Labour in the State of Maranhão – 2017 (CRISP/UFMG).

As seen in the graph, the proportion of respondents working one, two, three or four days per week is higher among women. In turn, the percentage of men among respondents who work five, six or seven days per week is relatively higher. The most significant discrepancies were found among respondents who work six days per week, where there is a predominance of men (59.2 percent), and those who work one day per week, where the proportion of women is higher (88.9 percent).

Graph 7 – Number of working days by sex (n=2,135)
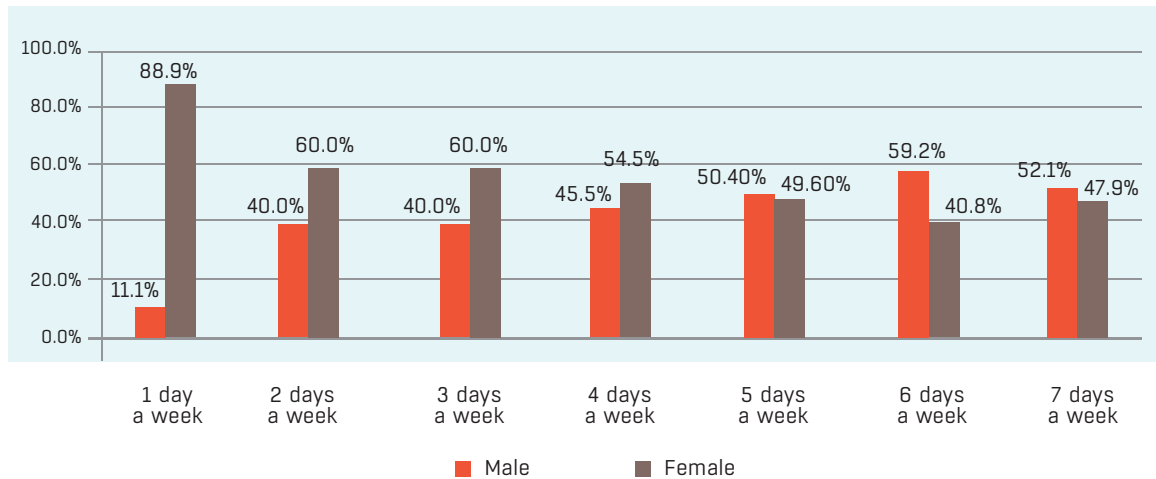
Source: Survey Measuring Modern-day Slave Labour in the State of Maranhão – 2017 (CRISP/UFMG).

A complementary analysis can be conducted in relation to the number of hours worked in a day. Most respondents (51%) work between 7 and 9 hours per day, while 26.6% work from 4 to 6 hours per day and 11.7% between 10 and 12 hours per day. In the comparison based on the respondents' sex, Graph 8 shows that the number of men is higher in workdays of more than 7 hours while the proportion of women is higher in workdays of less than seven hours. It is worth noting the high share of men in workdays of more than 15 hours and of women in workdays of less than one to three hours.

Graph 8 – Number of working hours by sex (n=2,135)
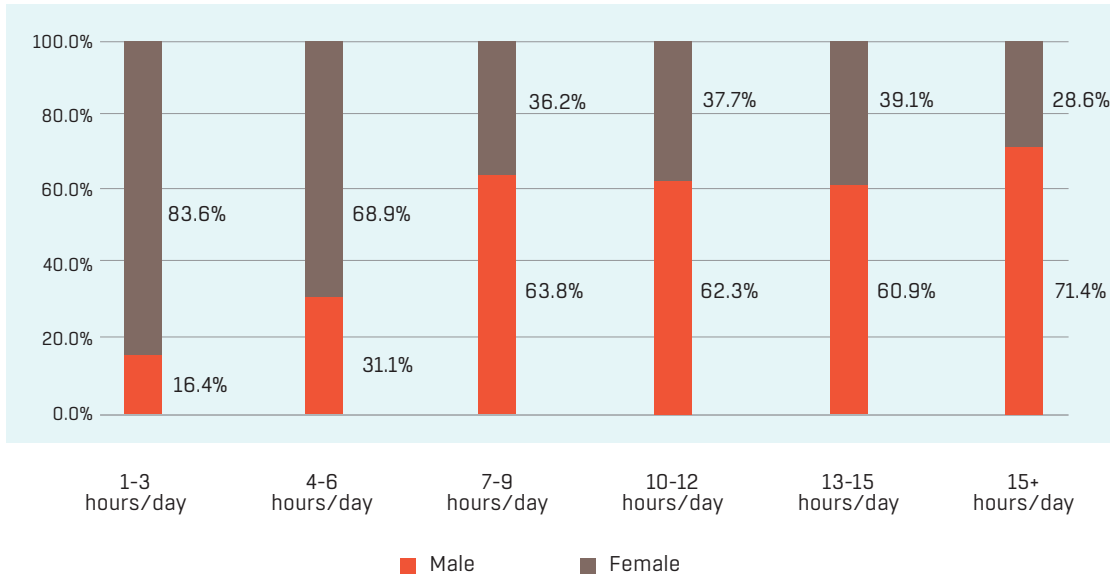
Source: Survey Measuring Modern-day Slave Labour in the State of Maranhão - 2017 (CRISP/UFMG).

A total of 28.9 percent of respondents indicated that they had a rest period of up to 2 hours per day. Respondents who had up to one hour of rest per day represent 27 percent of the cases while 13.7 percent said that they had neither rest nor lunch breaks. Finally, 79 percent of respondents said that they had some free time during the week to rest and do other activities besides work.

Of the 646 respondents who reported having worked longer hours than agreed (which was one of the aspects evaluated in the present survey), precisely 32 percent reported having been paid for overtime while 24.8 percent worked overtime without any compensation.   Of the 397 male respondents, 74.4 percent worked overtime and were paid for it. In turn, the proportion of women in the same situation was 25.6 percent (53 out of 249 women). Among respondents who reported having received non-monetary compensation for overtime (such days off or shorter workdays) 62.8 percent were men and 37.2 percent were women.

The qualitative study with focus groups revealed an important issue related to the long working hours to which several workers are subjected. According to workers, this was the type of job and working hours that they found to "escape poverty", that is, the context of hunger or high economic and social vulnerability in which they are trapped. In this scenario, low wages coupled with the debt contracted with the employer for the supply of basic necessities such as food and personal protective equipment, caused working hours to be often extended indefinitely. As a result, workers were forced to be away from home for months and work long hours each day to try to guarantee a relatively better pay, as reported by respondent G.

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"It was from 6 to 6, sometimes, [ ] in production and we would come back with everything. In production they would do like that, if you were, if you thought you could clear two lines[29] by noon, then you would try to clear 4 lines over the day giving all you had, because you were in production, so you worked up to 5 hours. Many times, when I got back from work the guys were already getting ready to change shifts because we were 'playing to win'. They knew that we had to send money home, they knew that our profits were small, we worked to the point of exhaustion to try to make more money".

(Focus Group 2, CDVDHCB - Açailândia, Nov. 2016).

In addition to issues related to overtime, other problems of the work dynamics such as possible situations of abuse of power that workers reported having been subjected to by their employers were explored, including:

(1)   physical violence;

(2)   sexual violence (rape or attempted rape);

(3)   physical injury to family members;

(4)   confinement in the workplace;

(5)   confinement in living quarters;

(6)   work under constant surveillance;

(7)   isolation from family or home;

(8)   withholding of wages;

(9)   retention of goods or property (personal belongings, clothing, mobile phones);

(10) retention of promised benefits (supply of food or other items);

(11) deprivation of food, water or sleep;

(12) retention of identity documents;

(13) work unprotected from the sun;

(14) inappropriate physical/sexual contact;

(15) insult and embarrassment regarding intelligence or physical appearance;

(16) shouts, insults or curses during work;

(17) embarrassing jokes about workers.

With regard to these aspects, 93 percent of respondents had never been subjected to any of the types of abuse mentioned above. In contrast, 3.3 percent had experienced at least one of these problems and 3 percent had seen some of them happen to co-workers. Less than 1 percent reported having been threatened.

Other work-related problems were also addressed in the survey, such as situations in which respondents felt pressured or constrained at work. Table 14 shows, in absolute and percentage numbers, that most workers reported never having been subjected to situations such as: do tasks that are not part of their contract or verbal agreement (81 percent); work for the employer's family or associates without the worker's consent (93.3 percent); take energy-giving drugs to endure the workload (89.3 percent); drink water improperly stored, such as in

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29   "Lines" in this case refers to a portion of the area to be cleared.

reusable containers (87.4 percent); commit acts that they think may be illegal (93 percent); work under the influence of alcohol or drugs (crack cocaine, marijuana, cocaine, etc.) (97.1 percent); and provide sexual services (have sex, intercourse) to the employer or associates (99 percent). On the other hand, the problems most frequently reported as having occurred "regularly" by respondents include: be available to work 24 hours a day (11.1 percent); work with symptoms of pain/exhaustion; consume water or food stored in improper places (4.9 percent); and do work that is not part of the contract (4.5 percent).

Table 14 – Work-related problems (n=2,135)

Work-related problems					
	Never	**Sometimes**	**Regularly**	**Did not want to answer**	**Total**
Do work that are not part of your contract or verbal agreement	1732 (81.1%)	275 (12.9%)	97 (4.5%)	31 (1.5%)	2135 (100%)
Work for the employer's family or associates without your consent	1993 (93.3%)	84 (3.9%)	33 (1.5%)	25 (1.2%)	2135 (100%)
Take energy-giving drugs to endure the workload	1918 (89.3%)	161 (7.5%)	40 (1.9%)	16 (0.7%)	2135 (100%)
Be available for work 24 hours a day, as requested by the employer	1387 (65%)	487 (22.8%)	237 (11.1%)	24 (1.1%)	2135 (100%)
Work with symptoms of pain/exhaustion, etc.	1372 (64.3%)	549 (25.7%)	199 (9.3%)	15 (0.7%)	2135 (100%)
Consume water or food improperly stored (e.g. reusable gallons)	1865 (87.4%)	147 (6.9%)	104 (4.9%)	19 (0.9%)	2135 (100%)
Commit acts that you think may be illegal	1986 (93%)	104 (4.9%)	25 (1.2%)	20 (0.9%)	2135 (100%)
Work under the influence of alcohol or drugs (crack cocaine, marijuana, cocaine, etc.)	2074 (97.1%)	40 (1.9%)	7 (0.3%)	14 (0.7%)	2135 (100%)
Provide sexual services (have sex, intercourse) to the employer or associates	2113 (99%)	4 (0.2%)	2 (0.2%)	16 (0.7%)	2135 (100%)

Source: Survey Measuring Modern-day Slave Labour in the State of Maranhão – 2017 (CRISP/UFMG).

4.2.5 Safety and health at work

This study produced relevant information on some important aspects of safety and health at work. Respondents provided information on personal protective equipment, nutrition, water, risks, and health problems related to the activity/work performed.

Initially, respondents were asked about the supply of personal protective equipment. According to the majority of respondents (56.7 percent), the employer did not supply any protective equipment, thus increasing their vulnerability to accidents. For 36.6 percent of workers the employer provided the equipment free of charge and finally, 3.2 percent of respondents reported that the employer supplied the equipment but they had to pay for it, which corroborates a situation of debt bondage, since any money owed by workers in relation to personal protection items was deducted from their wages.

This issue was described as something common by the workers interviewed in the qualitative survey with the focus groups. As exemplified below, various protection and safety items were purchased and paid by the workers themselves in the form of deduction from their wages.

RESPONDENT A.:	*"If you wanted to wear a pair of boots you had to by them. If you wanted to wear pants, you had to buy them and a long sleeve shirt".*
RESPONDENT B.:	*"And the sickle there cost 15 bucks".*
INTERVIEWER:	*"You had to pay for the sickle?"*
RESPONDENT A.:	*"For everything.*
INTERVIEWER:	*"The farm was his and you paid for the sickle? He did not give you the sickle?"*
RESPONDENT A:	*"No, we had to buy the sickle there [...] and the boots there [...]".*
INTERVIEWER:	*"He sold everything to you guys?"*
RESPONDENT A.:	*"He did [...]"*
INTERVIEWER:	*"Let me just do the math. How much were the boots?"*
RESPONDENT A.:	*"20 [reals]".*
INTERVIEWER:	*"And the pants?"*
RESPONDENT A.:	*"The pants we bought for 10, 15 [reals]".*
INTERVIEWER:	*"The shirt?"*
RESPONDENT B.:	*"Because with these clothes there is no bargaining."*
INTERVIEWER:	*"Oh, I see."*
RESPONDENT B.:	*"That one you would buy for 5 [reals], then, if you sold it in the shack, you would sell it for 10 [reals]."*
RESPONDENT A.:	*"For 10 or 15 [reals]."*
INTERVIEWER:	*"But you had to pay for the sickle?"*
RESPONDENT A.:	*"You pay for it".*

(Focus Group 1, CDVDHCB - Açailândia, Nov. 2016).

With respect to nutrition, according to 45.6 percent of respondents, the employer supplied food to the workers daily while a very similar percentage (45 percent) received no food from the employer. In 5.4 percent of the cases, workers had to pay for the food supplied by the employer. These numbers reveal a high degree of vulnerability, since more than half of respondents had their rights to food violated and had no food available in the workplace.

In addition to access to food, the survey also measured whether employers provided some proper facility for workers to store and conserve food. Of all respondents, 53.2 percent reported having a proper place to store their food, while in 43.1 percent of the cases the answer was negative – this percentage corresponds to a total of 921 respondents who were unable to properly store their food in the workplace.

Based on the information related to food conditions in the workplace, the present analysis also seeks to understand whether the issue had been addressed at the time of recruitment.

Regarding food storage, about 15% reported that the conditions were "somewhat better" than agreed at the time of recruitment and in 35% of the cases they were as promised in the contract. In turn, for 17 percent of respondents the conditions offered by the employer were

"much better" than agreed at the time of recruitment while for 1 percent they were "much worse" than initially agreed. Finally, in 28% of the cases the food issue was never discussed with the recruiter/employer..

Graph 9 – Food properly stored and quality of the food supplied in relation to what was agreed (n = 1,135)

- Much worse
- Worse
- As promised/agreed
- Somewhat better
- Much better
- Never discussed
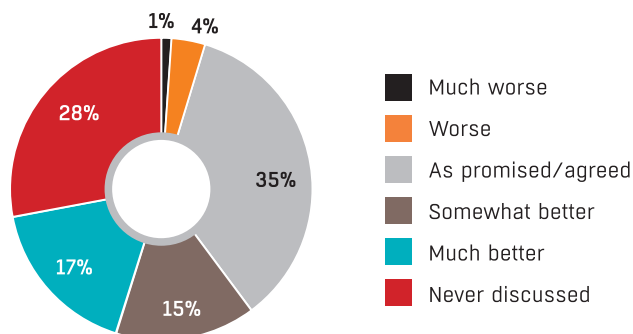
*Note * = Out of a total of 2,135 respondents, 1,135 provided sufficient information to cross reference the quality of food/nutrition at the time of recruitment and the food storage in the workplace.*

Source: Survey Measuring Modern-day Slave Labour in the State of Maranhão – 2017 (CRISP/UFMG).

The focus group gives us a dimension of the cases in which food supply was much worse than expected by the worker. According to *Respondent E:*

> *"He [the contractor] went there with a bowl of manioc flour and hand it to us at the window. He said 'bring the bag'. Then I said: man, this is too humiliating, flour is not enough for us to eat. There were no beans, meat, rice, nothing, nobody gets anything for free here. 'Bring me the bag'. There were several people in the bag queue [...]. And I had it worse because when it was time for me to bring the bag I said, 'man I'm not going' [...] Nothing came to me, because I ate nothing, not even a sardine, nothing. I went to work anyway and there I broke coconuts to suck the flour. It was a can of sardines for two because we used to work in pairs. He said 'bring the bag', then the person would go, half a litre of flour inside, right? Then the next one in line went and he put a sardine inside the bag. Then, man [...] I felt bad, because I saw everyone eating there and I didn't get my sardine and I would break coconut in the bushes to suck it. Then I had to let it go. I got angry because it was humiliating. Then, one day, me and this guy here was going to work [...] side by side and I said: I'm mad at that guy, that guy is too mean, he treats us badly with flour in the morning. In the morning it was only black coffee with flour."*

> (Focus Group 2, CDVDHCB - Açailândia, Nov. 2016)

Table 15 shows the percentage distribution of sources of drinking water. These data show that according to 37.1 percent of respondents the water came from a home filter; to 31.8 percent from a drinking fountain; to 8.4 percent from an artesian well; to 7 percent from a mineral water well; to 2.4 percent from a river/stream; and to 1.7 percent straight from the tap. Thirteen respondents (0.6 percent) reported sharing water from a dam with animals.

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Table 15 – Sources of drinking water (n=2,121)

Sources of drinking water	#	%
Home filter	786	37.1
Drinking fountain	675	31.8
Other	232	10.9
Artesian well	179	8.4
Mineral water well	149	7.0
River/stream	50	2.4
Tap	37	1.7
Dam shared with animals	13	0.6
Total	**2121**	**100.0%**

Note * = The sources of drinking water were informed by 2,121 respondents.

Source: Survey Measuring Modern-day Slave Labour in the State of Maranhão - 2017 (CRISP/UFMG).

Although most workers drank water from home filters and drinking fountains, 147 respondents (6.9 percent) reported that they sometimes drank improperly stored water and 104 (4.9 percent) stated that very often the water supplied for consumption was not properly stored.

Although the quantitative survey had already shown that a small number of respondents drink improperly stored water, the qualitative survey with the focus groups made it possible to understand what these cases are like in practical terms. Thus, the testimonial of *Respondent E* reveals a situation in which the water drunk by workers was improper for human consumption, since the source of the water was also used by domestic animals for bathing and drinking.

"The farmer, he knows that that place where we are is not a proper place, you know why? Because the water we drink is grotto water. I was skin and bones, that water that we drank was like it came from here and there, there is no cess-pool, there is nothing. You know that on the farm the toilet is outdoors, so when it rained you know that the water would fall in the grotto, it rained and of course that water would fall in that grotto where we got water to drink [ ]. The dog went inside also in the summer and then the dog drank the same water that we drank. You know what I mean? That made us angry."

(Focal Group 2, CDVDHCB - Açailândia, Nov. 2016).

In view of the working conditions most frequently reported in the focus group stage, this survey aimed to provide respondents with a list of situations or conditions considered unhealthy, in order to evaluate the frequency at which workers could have been exposed to them at work. It is important to point out that the universe may be even broader and more diverse; however, the effort within the scope of the instrument used for data collection consisted of listing the situations that had been reported - including in the descriptor identification stage - as the most common, given the context in which the survey was conducted.

As shown in Table 16, the conditions most frequently reported can actually be associated with less skilled work and rural areas: 14.9 percent of respondents informed having been exposed to dust and smoke; 13.6 percent to extremely hot or cold air temperature; 7.3 percent to loud noise or vibration; 6.8 percent to animal bites (e.g. snakes); and 6.1 percent to insufficient ventilation. Reports of other conditions hazardous to workers' health due to the lack of personal protective

equipment included exposure to fire, gasoline and flames (5.0 percent); exposure to extremely hot or cold materials (4.9 percent); exposure to chemicals (e.g. pesticides, glues, paints, etc.) - 4.5 percent; exposure to toxic smells (4.0 percent); work in confined spaces (3.6 percent); work at great heights (2.8 percent); work in water/lake/river (1.9 percent); contact with an electric charge (1.7 percent); very dark workplaces (1.4 percent) or other hazardous conditions; and finally, underground work (0.7 percent). On the other hand, 19.4 percent of respondents had never been exposed to any of the aforementioned elements. It should be pointed out that this information, coupled with other questions was used to make up the degrading conditions modality that structured the composition of the slave labour indicator.

Table 16 – Hazards in the workplace (n=4,945)

Type of exposure/Hazards	#	%
Dust, smoke	739	14.9
Extremely hot or cold air temperature	672	13.6
High noise or vibration	359	7.3
Animal bites (e.g. snakes)	336	6.8
Insufficient ventilation	303	6.1
Fire, gasoline, flames	248	5.0
Touch extremely hot or cold materials	240	4.9
Chemicals (pesticides, glues, paints, etc.)	223	4.5
Toxic smells	196	4.0
Work in confined spaces	176	3.6
Work at great heights	139	2.8
Work in water/lake/pond/river	93	1.9
Electrical charge	85	1.7
Very dark workplace	71	1.4
Other things, processes or conditions hazardous to health	70	1.4
Underground work	36	0.7
Was not exposed	959	19.4
Total	**4945**	**100.0%**

*Note * = The table above shows multiple answers since 2,135 respondents could choose more than one answer.*

Source: Survey Measuring Modern-day Slave Labour in the State of Maranhão - 2017 (CRISP/UFMG).

Table 17 shows the relationship between the types of substances to which workers were exposed and their main workplaces. In this sense, most respondents who were exposed to conditions such as dust/smoke; fire, gasoline, flames; noise or vibration; extremely hot or cold air temperature; toxic smells; working in water/lake/pond/river; chemicals (pesticides, glues, paints, etc.); and bites of venomous animals worked essentially in plantations/farms/gardens. Likewise, construction sites were the main workplace of most respondents exposed to underground work, great heights and very dark places. The majority of respondents exposed to an electric charge or working in confined spaces carried out their activities mainly in shop/kiosks/restaurant/hotel. Finally, the bulk of respondents exposed to activities and jobs with insufficient ventilation worked mainly in schools.
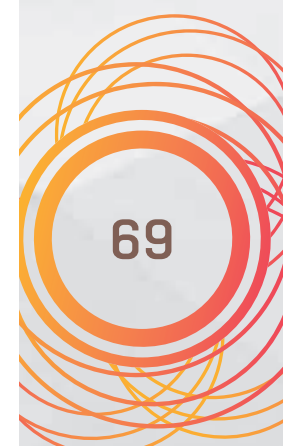
TTable 17 – Percentage distribution of the types of health hazards by workplace (n=2,135)

Health hazards	Main workplaces			
Dust, smoke	36% Plantation/farm/garden	12.7% Shop/kiosk/restaurant/hotel	9.2% Different locations (mobile)	8.5% Construction site
Fire, gasoline, flames	52% Plantation/farm/garden	11.7% Shop/kiosk/restaurant/hotel	6.0% Different locations (mobile)	4.4% Home
High noise or vibration	17.3% Plantation/farm/garden	16.7% Shop/kiosk/restaurant/hotel	13.1% Construction site	10.6% Different locations (mobile)
Extremely hot or cold air temperature	36.6% Plantation/farm/garden	14.9% Shop/kiosk/restaurant/hotel	8.8% Schools	8.8% Different locations (mobile)
Extremely hot or cold materials	30% Plantation/farm/garden	21.3% Shop/kiosk/restaurant/hotel	8.3% Different locations (mobile)	7.1% Construction site
Electrical charges	22.4% Shop/kiosk/restaurant/hotel	12.9% Plantation/farm/garden	11.8% Factory	10.6% Construction site
Toxic smells	28.6% Plantation/farm/garden	16.8% Shop/ kiosk/restaurant/hotel	10.7% Construction site	9.2% Different locations (mobile)
Underground work	30.6% Construction site	19.4% Plantation/farm/garden	13.9% Different locations (mobile)	11.1% Factory
Work at great heights	30.9% Construction site	14.4% Plantation/farm/garden	12.9% Different locations (mobile)	9.4% Factory
Work in water/lake/pond/river	43% Plantation/farm/garden	12.9% Lake/pond/river	9.7% Construction site	7.5% Different locations (mobile)
Very dark workplace	18.3% Construction site	14.1% Shop/kiosk/restaurant/hotel	14.1% Different locations (mobile)	11.3% Schools
Work in confined spaces	18.2% Shop/kiosk/restaurant/hotel	14.2% Plantation/farm/garden	14.2% Construction site	11.4% Schools
Insufficient ventilation	23.1% Schools	17.8% Shop/kiosk/restaurant/hotel	13.2% Plantation/farm/garden	8.3% Construction site
Chemicals (pesticides, glues, paints, etc.)	36.8% Plantation/farm/garden	15.2% Shop/kiosk/restaurant/hotel	7.6% Construction site	6.3% Different locations (mobile)
Animal bite (e.g. snakes)	72% Plantation/farm/garden	5.1% Different locations (mobile)	3.9% Construction site	3.3% Shop/kiosk/restaurant/hotel

Source: Survey Measuring Modern-day Slave Labour in the State of Maranhão - 2017 (CRISP/UFMG).

The present study also investigated whether workers had work-related injuries of health problems. In this case, having been subjected to working conditions such as those previously reported may be associated with numerous work-related health conditions. The survey found the following results: 12.9 percent of respondents reported having had superficial wounds or open wounds; 5.6 percent exhaustion; 4.2 percent fever; 3.6 percent a dislocated, twisted or strained member; 3.4 percent eye problems; 3.4 percent stomach problems/diarrhoea; 3.1 percent fractures; 2.9 percent burns from fire, chemicals, hot water or ice; 2.7 percent aggravated pre-existing health condition; 2.6 percent respiratory problems; 2.1 percent body swelling; 1.2 percent changes in the menstrual cycle of the women/girls; 0.9 percent skin diseases; and 3.3 percent other types of problems. Almost half of respondents said they had never been injured or had any other types of health problems (48.1 percent), as shown in Table 18.

Table 18 – Work-related Health Problems (n=3,001)

Health Problems	#	%
Superficial wounds or open wounds	388	12.9%
Exhaustion	168	5.6%
Fever	126	4.2%
Dislocation, twisted or strained member	107	3.6%
Stomach problems/diarrhoea	103	3.4%
Eye problems	102	3.4%
Other. Specify...	98	3.3%
Fractures	94	3.1%
Burns from fire, chemicals, hot water, ice	88	2.9%
Aggravated pre-existing condition	82	2.7%
Respiratory problems	78	2.6%
Body swelling. Specify...	62	2.1%
Changes in the menstrual cycle of the women/girls	35	1.2%
Skin diseases	26	0.9%
No health problem	1444	48.1%
Total	**3001**	**100,0%**

*Note * = The table above shows multiple answers since 2,135 respondents could choose more than one answer.*

Source: Survey Measuring Modern-day Slave Labour in the State of Maranhão - 2017 (CRISP/UFMG).

Finally, respondents were asked whether they could ask for sick leave if they were very ill or injured. The vast majority answered "yes, always" (87.4 percent); 7.6 percent answered "yes, but not always"; and for 5 percent the answer was "no".

Table 19 – Percentage distribution of sick leaves (n=2,113)

If you are very ill or injured, can you ask for sick leave?	#	%
Yes, always	1846	87.4
Yes, but not always	160	7.6
No	107	5.1
Total	**2113**	**100.0%**

*Note * = 2,113 provided information on sick leave.*

Source: Survey Measuring Modern-day Slave Labour in the State of Maranhão - 2017 (CRISP/UFMG).

4.2.6 Working conditions

The survey provides important information on some aspects of the workers' living conditions, by addressing issues such as bedroom/living quarters, commuting to work, possibility of leaving and contacting relatives outside the workplace and a general evaluation of working conditions.

Most respondents (81.5 percent) reported that they do not sleep or stay in the bedroom/living quarters. Of the 17.8 percent of respondents who sleep or stay in their living quarters, about 77 percent said they felt safe and protected and 83.2 percent said that no equipment, machines or agricultural supplies were stored in the room. A more delicate issue reveals that 11.3 percent had their living quarters under constant surveillance by the employer or some other

employee or associate. This did not include cases in which a security guard stood outside the room for safety/protection purposes.

Also, among respondents who slept in the bedroom/quarters, most reported sharing the bedroom with other workers. Of these, 55.8 percent shared the room with persons of the same sex and 13.2 percent with persons of both sexes. About a third of them reported staying in individual rooms. Among those who shared the room, the average is 5.4 persons and the median 3 persons per room.

As pointed out in Table 20, the survey found three main ways workers commute to their places of work: on foot (24.7 percent), transportation provided by the employer (24.5 percent), and own motor vehicles such as car, motorcycle, boat, motorboat, etc. (10.3 percent). However, most respondents (32.6 percent) did not need to commute from their living quarters to their place of work. Additionally, for 82.2 percent of respondents the transportation provided offered adequate safety conditions.

Table 20 – Commute from living quarters to the workplace (n=380)

Commuting from living quarters to the workplace	#	%
On foot	94	24.7
Transportation provided by the employer	93	24.5
Other own motor vehicles (car, motorcycle, boat, motorboat…)	39	10.3
Public transportation	14	3.7
Other own non-motorized vehicles (horse, bicycle, rowboat…)	7	1.8
No need to commute	124	32.6
Did not know how to answer the question	8	2.1
Did not want to answer the question	1	0.3
Total	**380**	**100.0%**

*Note * = 380 respondents informed how they commuted to work.*

Source: Survey Measuring Modern-day Slave Labour in the State of Maranhão – 2017 (CRISP/UFMG).

As for the possibility of contacting family and friends outside the workplace, 87.6 percent of respondents were free to leave their quarters at any time outside of their working hours. Most of them (85.6 percent) can contact family members by telephone. However, it is important to note that 0.6 percent of respondents (12 cases) can only do it "sometimes, but only with the employer's permission"; 0.8 percent (18 cases) "cannot do it because the employer does not allow it"; 0.1 percent (03 cases) "cannot do it for financial reasons"; 0.5 percent (11 cases) "cannot do it for reasons unrelated to the employer or to money"; and 12.1 percent "cannot do it because I have no access to a phone or because there is no mobile signal". Still in this regard, nearly all respondents (96.7 percent) informed that they can visit their families in their free time. However, it should be noted that in the case of 0.5 percent of respondents (10 cases) the employer does not allow it; for 0.3 percent (07 cases) the employer allows it only occasionally; and 2.4 percent cannot do it but for reasons unrelated to the employer.

In general, most respondents considered their working conditions to be appropriate. As Table 26 shows, approximately 67 percent of respondents rated them as good, 22.5 percent as bad but acceptable, and about 10 percent as bad or terrible.

Table 21 – General Evaluation of Working Conditions (n=2,124)

General Evaluation of Working Conditions	#	%
Terrible	110	5.2
Bad	109	5.1
Bad but acceptable	478	22.5
Good	1427	67.2
Total	2124	100.0%

*Note * = 2,124 respondents evaluated the working conditions*

Source: Survey Measuring Modern-day Slave Labour in the State of Maranhão – 2017 (CRISP-UFMG).

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Estimates of Forced Labour and Slave Labour

The difficulty to estimate the numbers of enslaved people in Brazil and across the world is widely known. Modern-day slave labour is a clandestine and criminal activity, often carried out in isolated places immersed in contexts of violence. Therefore, exposing it can be life-threatening, in addition to hindering the collection of official data that could reflect the real dimension of the problem. In the case of Brazil, the lack of integrated eradication plans and actions at state and federal levels also precludes the organization of official data and statistics.

In turn, NGOs and multilateral organizations try to fill these gaps with surveys of their own, through which they seek to problematize this situation. The International Labour Organization (ILO), for example, estimates that at least 25 million people are trapped in forced labour across the world, of which no less than 1.3 million are in Latin America.[30] Studies have already identified 122 products made with forced labour or child labour in 58 countries.[31] The ILO estimates that the total profits obtained from the use of forced labour worldwide amount to US$150 billion per year. Half of these profits are made in rich and industrialized countries.[32]

In Brazil, the Pastoral Land Commission (CPT), an entity linked to the National Conference of Brazilian Bishops (CNBB), is a pioneer in exposing cases of slave labour. It estimates that for every enslaved worker rescued from a situation analogous to slavery by the Brazilian government, there are another four or five workers in the same situation. The estimate is that there were between 25,000 and 30,000 people in situations analogous to slavery in Brazil in 2015. These data, constructed without scientific rigor, are obtained from the annual numbers of people found by inspection agencies and from the observation of the flow of migrant workers to the cities, especially to the North region. However, the data obtained from this perspective are probably underestimated, since according to the CPT itself, only 50 percent of the reports are investigated. Slave labour is found mainly – but not only - in the alcohol and sugar, meat, corn, soy, coffee, apparel, and construction production chains.[33]

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[30] INTERNATIONAL LABOUR OFFICE (ILO). **Global estimates of modern slavery**: Forced labour and forced marriage. Geneva: ILO, 2017. Available at: <http://www.ilo.org/wcmsp5/groups/public/@dgreports/@dcomm/documents/publication/wcms_575479.pdf>. Access on 20 February 2018.

[31] Ibid.

[32] Id., **Profits and poverty**: the economics of forced labour. Geneva: ILO, 2014. Available at: <http://www.ilo.org/wcmsp5/groups/public/---ed_norm/---declaration/documents/publication/wcms_243391.pdf>. Access on 20 February 2018.

[33] THE GLOBAL SLAVERY INDEX. **What is modern slavery?** Available at: <https://www.globalslaveryindex.org/> Access on 23 January 2017.

Based on the Ministry of Labour's records, CPT data also show that modern-day slavery is an urban problem. The construction sector comes first in number of rescued workers. In 2013, 866 workers were rescued in the sector, accounting for 40 percent of the total number of freed workers. In 2012, 29 percent of rescued workers were in urban centres; this number increased to 53 percent in 2014. In 2012, 2,208 workers were rescued in urban areas and 1,228 in rural areas.[34] From 1995 to 2017, the Ministry of Labour and Employment (MTE) carried out 4,303 inspections and rescued 52,396 workers, generating R$99,186,786 in compensations.[35]

This section analyses the prevalence of forced labour and slave labour in the state of Maranhão, Brazil, based on the results of the survey conducted in 2017. **The descriptive results presented below refer to the percentage of households in which respondents were subjected to forced labour or slave labour. According to the sample planning, only households whose respondents were 18 years of age or older and who were working or had worked in the past three years were selected for the survey.**

The entire questionnaire was designed to indirectly identify (latent variables) situations related to exploitation by slave labour or forced labour, in which respondents experienced extreme situations of vulnerability. These situations involve different phases, starting from recruitment, when workers may have subjected to one of these two labour modalities. Therefore, the combinations of these latent variables within this context are considered indicators of forced labour or slave labour.

Because these indicators are related to specific modalities as well as with their respective dimensions (involuntariness and coercion, as in the case of the forced labour indicator), their prevalence also shows important patterns of exploitation and abuse to which workers are subjected. Therefore, this section is divided into three parts. The first part explains the methodology used to calculate what the economic literature calls Flow and Stock in relation to the indicators of forced labour and slave labour. The other two sections describe the dimensions, modalities and categories used in the construction of the indicators of forced labour and slave labour. Each of these sections will present the analysis of occurrence rates related to the modalities that make up the indicators.

The prevalence percentages presented in sections 5.1 and 5.2 below should be interpreted in accordance with the criteria previously defined in the sampling plan, that is, **in terms of the percentage of households in which respondents were subjected to forced labour or slave labour among the households selected for the survey**. Therefore, the percentages presented in relation to the modalities, dimensions, categories and sub-categories of forced labour or slave labour describe the proportion of the sample of households surveyed, considering the calibration and normalization of the sampling correction.

5.1 – Stock and flow estimates

There are several ways through which an individual becomes a victim of forced labour or slave labour. Some may be trapped in modern slavery from a very early age to the end of their lives while others may be enslaved for only a few weeks. Nevertheless, the physical and psychological impact of these situations can create deep scars in individuals or family members. This situation highlights the variable character of modern slavery. As a result, for government agencies dealing with this phenomenon, it is essential to detect and free the

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[34] REIS, Thiago. Libertações por trabalho escravo na área urbana superam as do campo. **Portal G1**. São Paulo, 17 February 2014. Available at: <http://g1.globo.com/brasil/noticia/2014/02/libertacoes-por-trabalho-escravo-na-area-urbana-superam-do-campo.html>. Access on 25 February 2017.

[35] BRASIL. Ministry of Labour. Labour Inspection Secretariat. **Painel de Informações e Estatísticas da Inspeção do Trabalho no Brasil.** Trabalho Escravo. Available at: <https://enit.trabalho.gov.br/radar/>. Access on 25 February 2017.

victims as soon as a complaint or notification is received. Thus, the distinction between flow and stock of slave labour or forced labour enable taking adequate measures, over the years, to fight these problems in the short and medium term.

According to the ILO study on Global Estimates of Modern Slavery[36], for a proposal of estimates of the prevalence of forced labour or slave labour, the most complete picture of modern slavery is given by the average number of victims at any given moment (stock), together with the total number of victims during a particular reference period, regardless of the length of during which they stayed in that situation (flow). Stock and flow estimates are related to each other through the length of time - or duration - a victim is in slavery. For example, "*if four people are put in forced labour for three months, one after the other, those four people have been in forced labour over the year but on average there was only one person in forced labour during the year*" (ILO, 2017, p. 36).

In principle, all forms of forced labour or slave labour can be measured as both stock and flow. I this study, the *stock (E)* measure is the sum of the *flow (F)* of victims of forced labour or slave labour multiplied by the average duration of forced labour *(D)* or slave labour of person *i*, divided by the reference period of the study *(T)*. The flow was the measure related to the number of persons who were victims of forced labour or slave labour during the *reference period* of the survey *(T)*.

The calculation can be represented by the following expression:

$$E = \sum F \times D_i / T$$

The flow *F* is calculated from the number of victims of forced labour or slave labour in four different duration periods *D,* in months, and the reference period of the study is 36 months. The flow comprises the number of people who in the reference period (the three years prior to the survey) were at any given moment in forced labour or slave labour. Table 22 below shows the flow of respondents who were victims of forced labour and slave labour in the state of Maranhão, by employability situation in the three-year reference period.

Table 22 – Flow of victims by duration of forced/slave labour exploitation

Flow of victims by duration of exploitation				
Duration	Was working or had worked in the past three years		Was working at the time of the survey	
	Forced Labour	Slave Labour	Forced Labour	Slave Labour
	(n = 2135)		(n = 1232)	
How long have you been working or had worked at that place? Less than 1 year	29	76	9	27
1-2 years	24	47	3	9
2-3 years	19	48	5	18
More than 3 years	55	193	31	121
Total	127	364	48	175

Source: Survey Measuring Modern-day Slave Labour in the State of Maranhão – 2017 (CRISP-UFMG)

As previously described, for each of the three duration periods, the average was used in months, i.e., the 6 month-period was used for the first category – "Less than one year"; the 18-month period for the second category – "1-2 years"; the 30-month period for the third category - "2-3 years"; and no average value was used for the last category.

[36] INTERNATIONAL LABOUR OFFICE (ILO). **Methodology of the global estimates of modern slavery: Forced labour and forced marriage**. Geneva: ILO, 2017. Available at: <http://www.ilo.org/wcmsp5/groups/public/---ed_norm/---ipec/documents/publication/wcms_586127.pdf>. Access on 19 February 2018.

5.1.1 – Estimates of victims of Forced Labour

The estimated population of victims of forced labour in the state of Maranhão in the last three years is based on **household responses consisting only of those households in which respondents were 18 years of age or older and were working or had worked in the last 3 years**. In this survey, the estimated flow of victims of forced labour corresponds to 6.2 percent[37] of selected households with one member subjected to forced labour. More than 2/3 of these people (67.2 percent) are men.

Methodologically, this flow estimate, that is, the flow of people subjected to forced labour during the reference period, is used to calculate the average number of people at a given point in time - or the average stock, as it is referred to in this study. The average stock is relevant because it considers the duration of the labour exploitation, as shown in Table 22 above. Considering the totality of individuals who were working or had worked in the three years prior to the survey, it can be stated that at any given time in 2017, on average 4.11% of the households surveyed in Maranhão had at least one individual 18 years or older in forced labour.

5.1.2 – Estimates of victims of Slave Labour

The estimated population of victims of slave labour in the state of Maranhão in the three years prior to the survey is considerably higher than the number of victims of forced labour. This is because Forced Labour is a modality that makes up the Indicator of Slave Labour, together with Debt Bondage, Exhausting Working Hours and Degrading Conditions. This estimate, like that of Forced Labour, is based on the percentage of households in which respondents were subjected to slave labour in one of its four modalities, **among the households selected for the survey, that is, households in which respondents were 18 years of age or older and were working or had worked in the past three years**. Thus, the estimated flow in the case of slave labour was 16.2 percent[38] of the selected households with at least one individual in slave labour. Again, the vast majority of the victims (64.5 percent) are men.

This flow estimate was used to calculate the average stock of individuals in modern-day slave labour in Maranhão. This calculation resulted in an average estimate of 12.61 percent of households in Maranhão with at least one individual 18 years of age or older subjected to slave labour in 2017.

5.2 – Degrees of coercion

Many victims of forced labour or slave labour endure multiple forms of coercion at different stages of the process, from recruitment to when the person is working and the time of a possible termination of employment. Coercion is applied by various actors, such as the employer, the "gato" and the recruiter, and is manifested in the form of threats to the person or family members, psychological, sexual or physical violence, as well as financial debts imposed on the worker throughout the process.

This study considered 13 specific situations in which coercion may have occurred regardless of the respondent's victimization condition, that is, of whether the respondent is a victim of forced labour or slave labour or not. Thus, when considering the total sample of the survey, it can be seen that retention of benefits is the most recurrent form of coercion reported by respondents (11.7%). Threats by the employer and withholding of wages are also very frequent forms of coercion - 5 percent and 4.8 percent respectively. On the other hand, the less frequent forms of coercion according to respondents were confinement in the workplace (0.8%), confiscation of documents (0.7%) and isolation (0.7%).

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[37] Considering the corrected sample weight.

[38] Considering the corrected sample weight.

Table 23 – Coercive practices

Coercive practices		
	Absolute number	Percentage
Retention of benefits	250	11.7%
Threats from employer	106	5.0%
Withholding of wages	102	4.8%
Constant surveillance	68	3.2%
Physical violence	61	2.9%
Confinement to living quarters	50	2.3%
Food deprivation	50	2.3%
Family violence	27	1.3%
Sexual violence	25	1.2%
Confinement to the workplace	18	0.8%
Isolation	15	0.7%
Confiscation of documents	15	0.7%
Retention of property	0	0.0%

Source: Survey Measuring Modern-day Slave Labour in the State of Maranhão – 2017 (CRISP-UFMG)
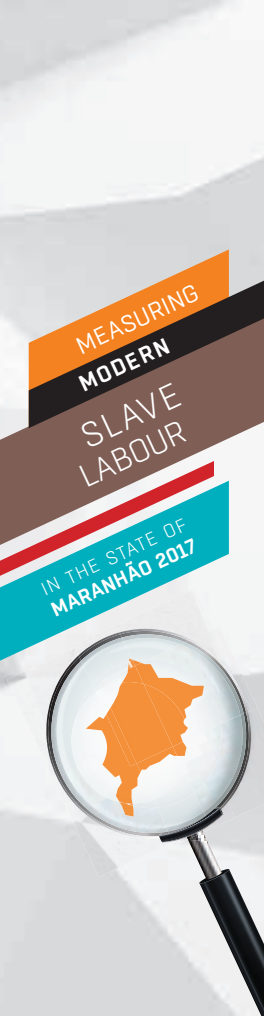
From the methodological point of view, this set of coercive practices can be processed as a gradient, or degree of coercion, used in the work context. This gives us a coercion scale ranging from 0 (no report) to 13, in case of simultaneous reports of all situations. As can be seen in Graph 10 below, the highest value obtained was 10, that is, of the 13 possibilities of coercive practices, the maximum reported simultaneously by an individual were 10 items. According to the vast majority of respondents, there was no coercion in their workplace (83.4%). One form of coercion was reported by at least 11.7% of respondents and nearly 1.5% of respondents reported 7 or more coercive practices in the work context.

Graph 10 – Degrees of coercion
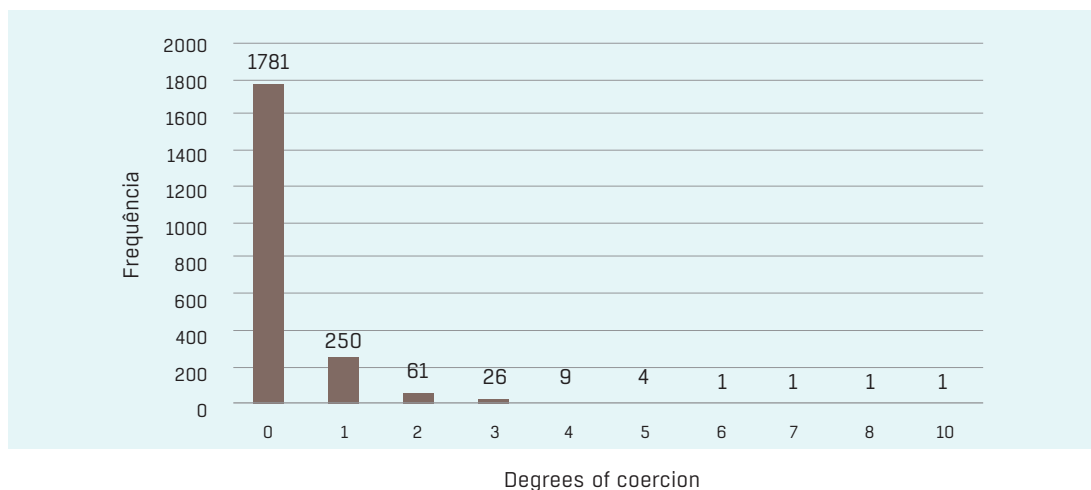
Source: Survey Measuring Modern-day Slave Labour in the State of Maranhão – 2017 (CRISP-UFMG)
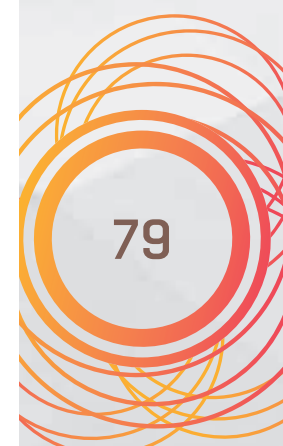
Considering the total population sampled, the average degree of coercion was 0.25 on this scale. For respondents considered as victims of forced labour (flow), the average level of coercion in the scale used was 1.95 and for those considered victims of slave labour (flow) the average value was 0.95. Considering non-enslaved respondents (non-victims of forced labour or slave labour), the average degree of coercion is 0.11. This result confirms that coercion is an element present in the process of human labour exploitation, in the form of either forced labour or slave labour.

Table 24 – Average level of coercion

Average coercion level	
Victims of Forced Labour	1.95
Victims of Slave Labour	0,95
Non-victims	0.11
Population sampled (average)	0.25
Minimum	0
Maximum	10

Source: Survey Measuring Modern-day Slave Labour in the State of Maranhão – 2017 (CRISP-UFMG)

5.3 – Prevalence of Forced Labour

In this study, prevalence refers to the proportion of cases (households with at least one individual) who is in a given situation at a given moment. Next, the study shows the prevalence of the modalities that make up the indicator of forced labour in its involuntariness and coercion dimensions for all respondents, that is, the sampled population. As described in Chapter 2, section 2.1, the indicator of Forced Labour used for analysis in this study comprises three elements: **unfree recruitment, work and life under duress** and **impossibility of leaving the employer.** For each of these modalities, workers have simultaneously experienced forms of involuntariness and coercion.

The prevalence of responses to each of the modalities that make up the indicator of   Forced Labour in its respective dimensions - involuntariness and coercion - is presented next. The chapter concludes with the description of the final values resulting from the operationalization used to construct the indicator of Forced Labour.

5.3.1 – Forms of involuntariness associated with recruitment

This modality covers both **unfree recruitment** and **deceptive recruitment**. Unfree recruitment refers to cases in which coercion is applied to force workers to work for a particular employer, even against their will. The coercion must be applied by a third party – e.g. the "gato" or the foreman - and should not be related exclusively to difficult personal circumstances such as socioeconomic vulnerability. Deceptive recruitment refers to situations in which a person is recruited using false promises or deception in relation to previously agreed conditions. These situations also represent involuntariness insofar as, had the worker been aware of the true working or other conditions, he or she would not have accepted the job.

As seen in Image 2, of the total of 2,135 respondents, 12.1 percent of the households surveyed had individuals who reported having been victims of **unfree recruitment**. In this context, it is important to note that there were few reports of forced recruitment (0.8 percent of the sample). On the other hand, 11.7 percent of respondents in the selected households reported having been

subjected to deceptive recruitment. Promises related to living conditions (4.6 percent) and wages (3.3 percent) were the most common arguments used in deceptive recruitment, followed by promises related to free and leisure time (2.8 percent), working conditions (2.7 percent), working hours (1.7 percent), location of the job (2.1 percent), and nature of the job (2.2 percent).

Image 2 – Unfree recruitment
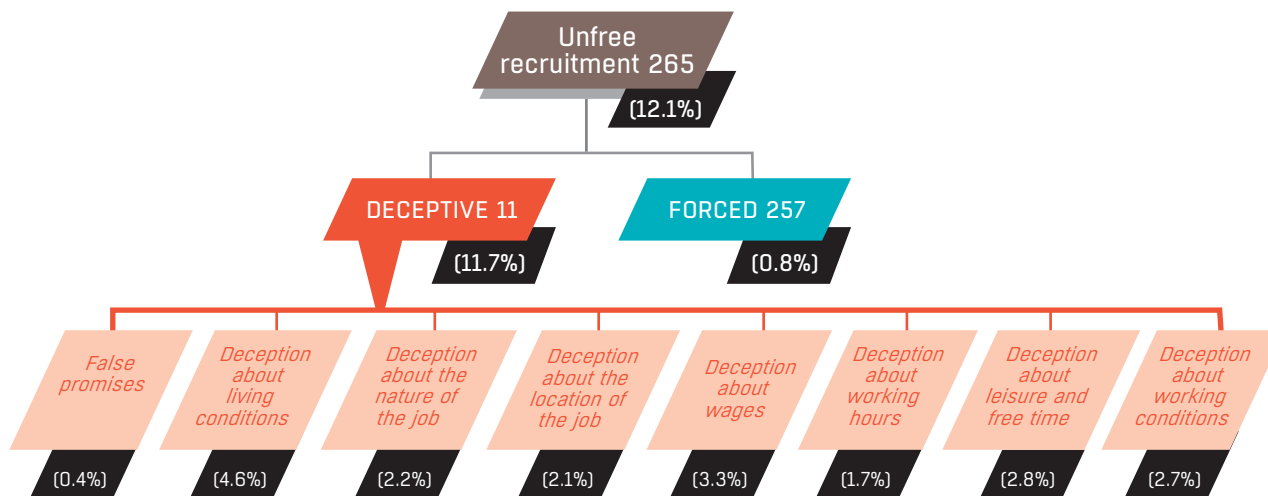
Unfree recruitment 265 (12.1%)

DECEPTIVE 11 (11.7%)

FORCED 257 (0.8%)

False promises (0.4%)

Deception about living conditions (4.6%)

Deception about the nature of the job (2.2%)

Deception about the location of the job (2.1%)

Deception about wages (3.3%)

Deception about working hours (1.7%)

Deception about leisure and free time (2.8%)

Deception about working conditions (2.7%)

Source: Survey Measuring Modern-day Slave Labour in the State of Maranhão – 2017 (CRISP-UFMG)

5.3.2 – Forms of coercion associated with recruitment

Coercion, in the form of penalty or menace of penalty, can occur during the worker's recruitment process to force him or her to accept the job; when the person is already employed, to force him or her to do tasks that were not part of what was agreed at the time of recruitment; and to prevent him or her from leaving the employer. The coercion dimension associated with recruitment has three categories through which penalty or menace of penalty is applied: physical violence, confiscation of documents or penalties associated with recruitment.

The survey shows that of the total number of respondents in the households, 1.0 percent reported having experienced coercive recruitment. Within this dimension (coercion associated with recruitment) "penalties" is the most frequently cited category: almost 1.0 percent. "Physical violence" and "confiscation of documents" were mentioned by 0.1 percent and 0.01 percent of respondents, respectively:

Image 3 – Coercive recruitment

Penalty associated with recruitment (1.0%)

Physical Violence (0.1%)

Confiscation of documents (0.0%)

Penalty for refusing recruitment (0.99%)

Source: Survey Measuring Modern-day Slave Labour in the State of Maranhão – 2017 (CRISP-UFMG)
* The number of cases found for Confiscation of Documents implied values below 0.09%.

5.3.3 – Forms of involuntariness associated with work and life under duress

Work and life under duress covers adverse working or living situations imposed on a person by the use of force, penalty or menace of penalty. In the involuntariness dimension, "work under duress" may entail, an excessive volume of work or tasks that are beyond what can reasonably be expected within the framework of national labour law. Work and life under duress also refers to situations where degrading living or working conditions are imposed on a worker by the employer.

Image 4 shows that 20.2 percent of respondents reported having been subjected to work under duress - considering the involuntariness dimension. In this context, unprotected work (12.1 percent) and work beyond the agreed limits (6.7 percent) were the most frequently reported conditions. In turn, induced use of alcohol and drugs (2.2 percent), work under poor health conditions (1.7 percent), forced engagement in illicit activities (1.0 percent), and forced provision of sexual services (0.3 percent) were reported less frequently.

Image 4 – Work and life under duress: dimension of involuntariness
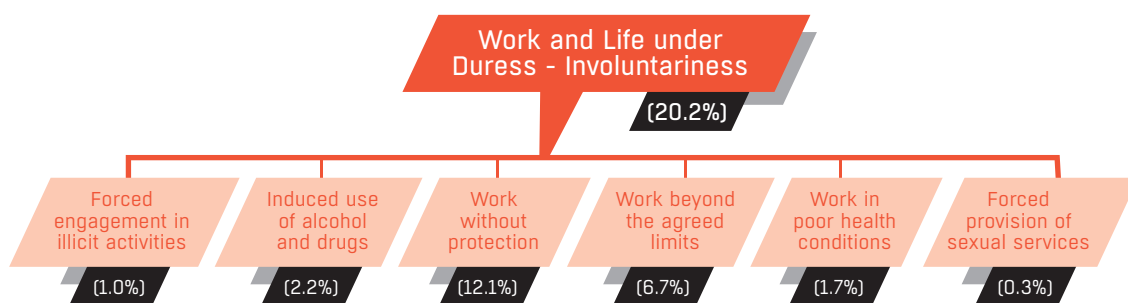
Source: Survey Measuring Modern-day Slave Labour in the State of Maranhão – 2017 (CRISP-UFMG)

5.3.4 – Forms of coercion associated with work and life under duress

Work and life under coercion covers all forms of penalty or menace of penalty, which put the worker in a position of subordination to the employer. Violence can be physical, sexual or psychological. Withholding of wages and confiscation of documents are included in this sub-category.

Considering the coercion dimension, a little more than 10 percent of workers reported having experienced situations of work under duress. Confinement and isolation as punishment (4.5 percent) and withholding of wages, property and benefits (4.4 percent) were the most common types of punishment or threat of punishment. However, although less frequently, other types of penalty or menace of penalty were also reported such as physical violence (3.1 percent), sexual violence (1.2 percent), confiscation of documents (0.7 percent), and threats to family members (0.6 percent).

Image 5 - Work and life under duress: coercion dimension
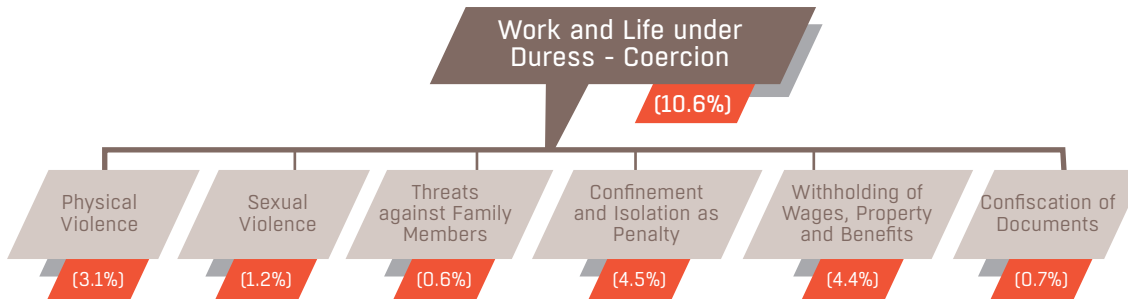
Work and Life under Duress - Coercion
(10.6%)

Physical Violence	Sexual Violence	Threats against Family Members	Confinement and Isolation as Penalty	Withholding of Wages, Property and Benefits	Confiscation of Documents
(3.1%)	(1.2%)	(0.6%)	(4.5%)	(4.4%)	(0.7%)

Source: Survey Measuring Modern-day Slave Labour in the State of Maranhão – 2017 (CRISP-UFMG)

5.3.5 – Forms of involuntariness associated with the impossibility of leaving the employer

These are cases in which leaving the employer would entail risk or punishment to the worker, such as intentional withholding of wages through mechanisms used by the employer to prevent the worker from leaving the job, despite their decision and willingness to do so. In this sense, Image 6 shows that 2.3 percent of workers mentioned the impossibility of leaving the employer. Withholding of wages and debt bondage account for 2.3 percent and 0.01 percent of cases respectively.

Image 6 – Impossibility of leaving the employer: involuntariness dimension
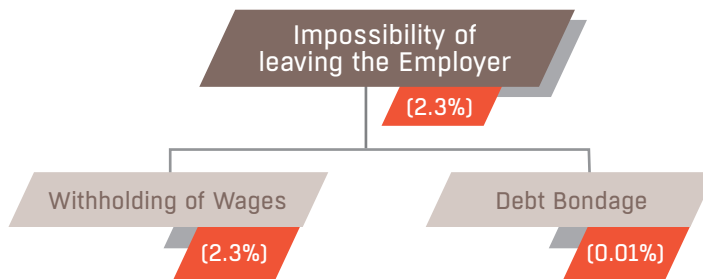
Impossibility of leaving the Employer
(2.3%)

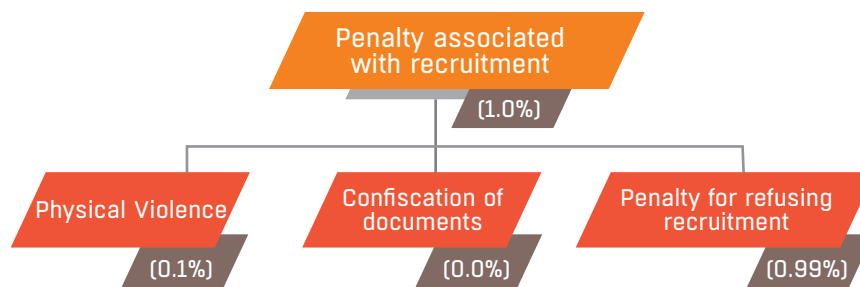| Withholding of Wages	Debt Bondage
(2.3%)	(0.01%)

Source: Survey Measuring Modern-day Slave Labour in the State of Maranhão – 2017 (CRISP-UFMG)

5.3.6 – Forms of coercion associated with the impossibility of leaving the employer

These are situations in which coercion is linked to the impossibility of leaving an employer. Considering the coercion dimension, 5.0 percent of respondents reported having been in this situation. The most common cases were loss of wages (2.7 percent) and exclusion from future employment opportunities (2.4 percent). On the other hand, cases of physical violence (0.4 percent) and violence against family members (0.2 percent) were relatively rare.

Image 7 – Impossibility of leaving the employer: coercion dimension
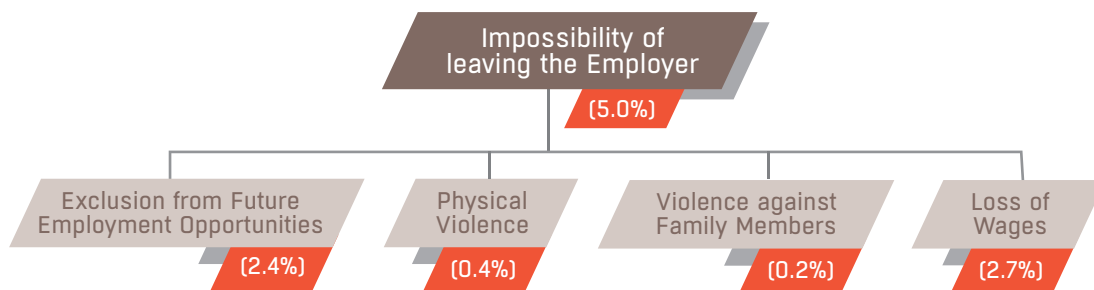
Impossibility of
leaving the Employer
(5.0%)

| Exclusion from Future Employment Opportunities (2.4%) | Physical Violence (0.4%) | Violence against Family Members (0.2%) | Loss of Wages (2.7%) |

Source: Survey Measuring Modern-day Slave Labour in the State of Maranhão – 2017 (CRISP-UFMG)

5.3.7 – Indicator of Forced Labour

The image below presents the prevalence of households with at least one individual in each of the modalities that make up the Indicator of Forced Labour. As can be observed, 6.2% of the selected households had an individual subjected to forced labour, according to the parameters adopted in this study. Considering that the sampling plan resulted in a margin of error of 2.87% for a 95% confidence interval, this value varies between 4.50% and 7.91%.

The indicator of work and life under duress, which is one of the three modalities considered in the composition of the Indicator of Forced Labour, was the strongest among respondents in the sample. Of a total of 2,135 respondents, in 5.4% of the households there was at least one worker who reported having experienced adverse working and living conditions and having been coerced by the employer or foreman. The other modalities had a considerably lower prevalence rate, as in the case of unfree recruitment, where only 0.6% reported having been forced to accept the job, or the modality indicating the impossibility of leaving the employer, which was reported by 0.5% of respondents.

Image 8 – Prevalence of Forced Labour in its modalities
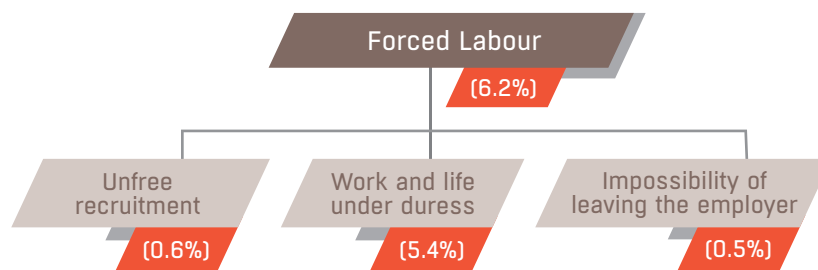
Forced Labour
(6.2%)

| Unfree recruitment (0.6%) | Work and life under duress (5.4%) | Impossibility of leaving the employer (0.5%) |

Source: Survey Measuring Modern-day Slave Labour in the State of Maranhão – 2017 (CRISP-UFMG)

5.4 – Prevalence of Modern-Day Slave Labour

Since 1995, specifically with the enactment of Law No. 10,803, which amended article 149 of the Brazilian Penal Code, labour in situations analogous to slavery was specified according to: I) subjection to forced labour; II) subjection to exhausting working hours; III) subjection to degrading working conditions; and IV) restriction of freedom of movement due to debts contracted with the employer, that is, debt bondage.

This amendment gave greater effectiveness to this type of criminal offence by expanding the characterization of the phenomenon of labour analogous to slavery. In this sense, the breadth of the concept now extends far beyond restriction of the worker's freedom of movement.

In addition, paragraph 1 of Article 149 also defines slave labour as situations in which the employer or his/her representative "restrains the use of any means of transportation by the workers to keep him/her in the workplace", or when the employer or his/her representative "keeps the worker under constant surveillance in the workplace or confiscates his/her personal documents or property to keep him/her in the workplace" (wording provided by Law No. 10,803 of 11.12. 2003). These elements are strongly associated with restriction of freedom, thus explaining the use of forced labour as one of the modalities that make up the indicator of slave labour.

In the case of slave labour, the survey sought to translate the normative concept expressed in Article 149 of the Criminal Code into an operational concept. In other words, to develop a methodology for the construction of Indicators of Slave Labour and its specific modalities, in line with the legal definition.

The next section describes each of the most common responses to the modalities that make up the Indicator of Slave Labour Indicator: Debt Bondage, Degrading Conditions and Exhausting Working Hours. The Forced Labour modality is operationalized as described above and, therefore, is not discussed in this section. Finally, the final figures resulting from the operationalization of the Indicator of Slave Labour are described in detail.

5.4.1 – Debt Bondage

Debt bondage, as a modality to be considered and characterized in the context of the survey for the construction of the Indicator of Modern-Day Slave Labour, reflects a situation in which the worker is trapped in the job as a result of a debt to their contracting agent. This debt can be of different natures, such as costs related to transportation, food and personal protective equipment, for which the worker is charged an abusive amount of money that is deducted directly from his/her salary.

In this survey, for methodological reasons debt bondage was measured only in relation to the recruitment process, and was reported by 1.6% of the 2,135 respondents in the selected households in the sample. In the methodology of this study, the composition of this modality includes the situation in which respondents declared having paid an agent (recruiter) or the employer to get the job, or having received, at the time of recruitment, an advance payment for the job to be done. That is, the methodology does not consider cases where the debt was contracted when the person was already employed, through the so-called "barracão" (general store) system in which, due to debt manipulation and inflated prices, the worker ends up with a debt that he/she is unable to repay. As a result, the worker is prevented from leaving the employer, who is also the owner of the store where the worker contracted the debt.

Image 9 – Debt bondage modality
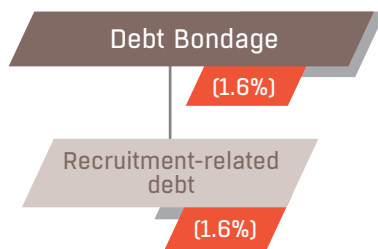
Source: Survey Measuring Modern-day Slave Labour in the State of Maranhão – 2017 (CRISP-UFMG)

5.4.2 – Degrading working conditions

The survey required significant effort as regards obtaining, from respondents, information on situations that violate the fundamental rights of workers not only by affecting their dignity as such but also by endangering their life and health. In this sense, the study sought to identify a set of irregular elements that may be present in the workplace, such as precarious accommodations, extremely low-quality nutrition, and lack of health care, basic sanitation and drinking water.

Three major categories were used in the composition of this modality: precarious accommodations; deprivation of water, food and sleep; and inadequate safety and health conditions at work. For each of these categories, a set of 12 sub-categories was used to capture these elements related to degrading conditions. It is important to note that for operationalizing the sub-category related to Unhealthy Working Conditions, three crucial factors were considered for its identification: lack of personal protective equipment, exposure to certain unhealthy situations and presence of symptoms possibly associated with this exposure.

As seen, of the total number of respondents in the selected households, 6.4 percent reported having experienced a situation of inadequate health and working conditions. Of this total, unhealthy working conditions were reported by 4.4 percent; work in poor health conditions by 1.7 percent; and inadequate transportation by 0.7 percent of respondents. In addition, 4.3 percent of respondents had experienced inadequate access to or deprivation of water, food and sleep at the workplace, and 2.5 percent reported issues related to precarious accommodations, which were considered unsafe and/or unhealthy by 2.0 percent and 1.0 percent of the respondents, respectively. In general, it can be observed that, as reported by respondents, the presence of this set of factors associated with degrading conditions is a recurrent element and should be seen as strongly associated with risks to the workers' health.

Image 10 – Degrading working conditions
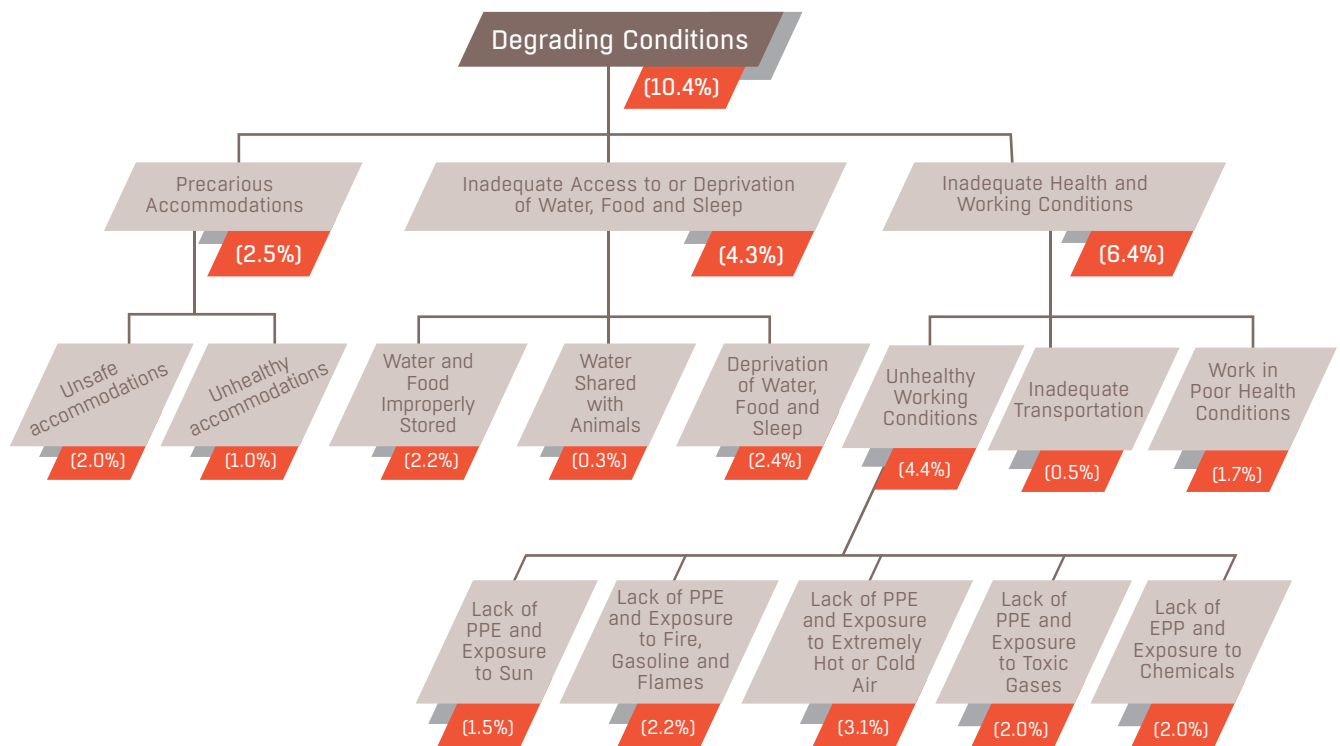
Source: Survey Measuring Modern-day Slave Labour in the State of Maranhão – 2017 (CRISP-UFMG)

5.4.3 – Exhausting Working Hours

Under Article 149 of the Brazilian Penal Code, exhausting working hours is one of the factors that define labour in situations analogous to slavery. In operational terms, the composition of this modality is structured in this survey by the categories related to duration and intensity, as shown in Image 11.

As seen, 3.8 percent of respondents are in a situation characterized as Exhausting Working Hours. The highest number of cases were related especially to the number of hours worked (duration), as reported by 33.7 percent of respondents and, to a lesser extent, to the volume of work or tasks (intensity), as reported by 8.3 percent of workers.

With respect to duration, four situations were considered: (1) work seven days a week and (2) between 11 and 18 hours a day; (3) be available 24 hours a day to work as required by the employer; and (4) be forced to do so without compensation. Intensity, in turn, is characterized by the very frequent use of medicines and reports of exhaustion when performing daily activities. To be characterized as victims of Exhausting Working Hours, respondents had to report these two categories simultaneously. This reduces significantly the prevalence of this situation.

Image 11 – Exhausting Working Hours
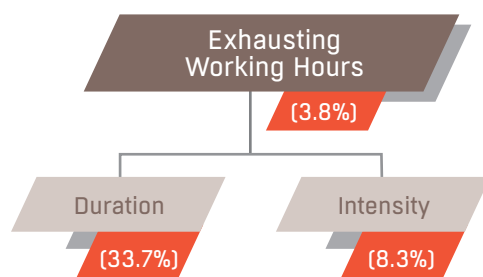
Source: Survey Measuring Modern-day Slave Labour in the State of Maranhão – 2017 (CRISP-UFMG)

5.4.4 – Indicator of Modern-Day Slave Labour

The Indicator of Modern-Day Slave Labour covers four modalities: forced labour, debt bondage, exhausting working hours, and degrading conditions. It is extremely important to highlight that the forced labour modality used is operationalized according to the ILO methodology, that is, the survey methodology is identical to that used for the production of estimates of forced labour under ILO Convention 29.

The total estimate of households with at least one adult exploited by modern-day slave labour was 16.2%, as can be seen in the diagram below. Considering that the sample planning resulted in a margin of error of 2.87% for a 95% confidence interval, this value can vary between 13.28% and 19.03%.

Image 12 – Vulnerability to Modern-Day Slave Labour
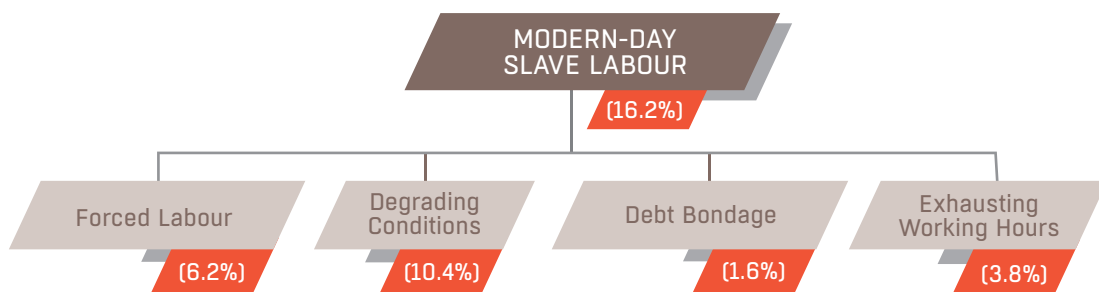
```
                    MODERN-DAY
                    SLAVE LABOUR
                        (16.2%)

   Forced Labour    Degrading       Debt Bondage    Exhausting
                    Conditions                      Working Hours
     (6.2%)          (10.4%)          (1.6%)          (3.8%)
```

Source: Survey Measuring Modern-day Slave Labour in the State of Maranhão – 2017 (CRISP-UFMG)

Socioeconomic and demographic determinants of forced labour and slave Labour

Modern slavery and traditional slavery, which was abolished in Brazil in 1888, have different characteristics. According to Schernovski (2013), slavery is still present in the contemporary world "not in its traditional, pre-capitalist form legalized and permitted by the State, but as a condition in which the worker, for the most part, is unpaid and his/her life is controlled by others". Until the signing of the Golden Law, the history of Brazil was marked by enslavement, first of native indigenous peoples and then of black Africans. However, modern slavery is not targeted at a specific ethnic group, although Afro-descendants are still the majority among the victims. According to Schernovski (2013), "today's slavery is an extreme form of economic exploitation that has adapted to the global world".[39]

Manual activities associated with the expansion of the agricultural frontier and under-mechanized rural activities have always been known for using the largest share of modern-day slave labour. These activities, which are considered archaic because they belittle work and workers, are currently found in places where there are enterprises linked to agribusiness and commodity export cycles, that is, in the fringes of one of the most prosperous sides of the Brazilian economy. However, since 2015 the number of workers rescued from situations analogous to slavery in urban activities has been higher, especially in the construction sector.

In view of this scenario, there seems to be a consensus that extreme poverty and lack of opportunities in regional contexts are key determinants of increased vulnerability to modern slavery. According to Martins (1997)[40], the persistence of archaic forms of labour exploitation reflects an exclusionary economic structure in which the lack of agrarian policies, coupled with income concentration, great regional inequalities and impunity of exploiters stand out. In this context, enslavers and enslaved and society in general tend to naturalize precarious work as an inevitable destination for poor workers, who would have no other working or living alternative.

As discussed by Moura (2006)[41], in the specific case of Maranhão - the state with the highest share of rescued workers in Brazil -, enslavement is due to both the action of the enslaver

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[39] "Slavery is fully reproduced by current economic conditions - technological unemployment, increased migration and reduction to the preposterous remuneration of traditional technologies, which are often technologically backward." COSTA, Antônio Luiz Monteiro Coelho da. A escravidão chega ao terceiro milênio. São Paulo: IstoÉ magazine, 16 October 2000, apud SCHERNOVSKI, 2013.

[40] MARTINS, José de Souza. **Fronteira:** a degradação do outro nos confins do humano. São Paulo: Hucitec, 1997.

[41] MOURA, Flávia de Almeida. **Escravos da precisão:** economia familiar e estratégias de sobrevivência de trabalhadores rurais em Codó (MA). São Luís, 2006. 121f. Dissertation (Master's Degree in Social Sciences) – Post-graduate Program in Social Sciences, Federal University of Maranhão.

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and the structural poverty of the victim. Also important in this process are the enticers, the so-called "gatos", that is, individuals or groups of individuals responsible for enticing workers in the most different situations.

In situations of extreme poverty, immediate financial resources in the form of wage advances and promises of a minimum income is the facilitating element of enticement. Moura (2006) characterizes the victims of modern slavery in the State of Maranhão as *"escravos da precisão"* (slaves of poverty), that is, people with little or no formal education[42], whose professional experiences are based on physical and manual labour that requires physical strength and endurance.

The NGO Repórter Brasil has also been trying to outline a profile of the enslaved population in Brazil. According to the organization, many of the workers rescued from degrading working conditions are illiterate or have a low level of formal education, little understanding of human and labour rights, and limited social perspectives. In 2015, in an effort to cross-reference data from different sources, the Public Labour Prosecution Service (MPT) began to build an unprecedented data repository in Brazil through the Decent Work DataHub managed by the Data Science Laboratory for Decent Work and linked to the MPT's Research and Information Analysis (SPAI/MPT). The SmartLab, or Digital Observatory of Slave Labour in Brazil[43], provides data in a completely open way and renders crucial service to Brazilian society by giving greater visibility to this type of information, promoting innovative projects in the area of interest and, fundamentally, strengthening the action of the MPT and other partner institutions. In 2016, the International Labour Organization and the MPT signed an international technical cooperation agreement for the development of initiatives to promote decent work in Brazil, thus further strengthening this initiative.

Situations of extreme poverty pressure the families to encourage its members to seek work elsewhere. Permanent or temporary migration becomes one of the few strategies to find work and earn some income. As stated by Costa (2008), "leaving does not solve the problem but staying does not help either, because there are not enough job offers, especially in the rural areas of the Northeast Region, which is usually plagued by drought".[44] According to Martins (1997), the motivation to migrate and venture into uncertain work situations is mainly related to providing for the family. For young people, having a family and being their provider is one of the main motivations for venturing into uncertain grounds in search of work and income, thus facilitating enticement by exploiters of slave labour. The author adds that migrant workers, who are vulnerable to enticement, leave not only in the hope of making money, but also to escape family conflicts (usually with the father), to prove their manhood or companionship and to realize the dream of living an adventure in strange lands and becoming a family provider.

This section analyses the statistical relationships between cases of forced labour and slave labour and other variables that were not an integral part of the indicators used to identify these cases, which are generally of a sociodemographic nature. For methodological reasons, the variables described in Chapter 5 cannot be used for this analysis. The presence of these variables on both sides of a modelled equation would make significant statistical calculations impossible. However, variables such as age, sex, geographical location and household conditions among others can be used in statistical modelling to help understand the extent to which these characteristics are correlated to the existence of slave labour or forced labour.

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[42] More information on the profile of workers rescued by the Special Mobile Inspection Groups (GEFM) (GEFM) can be found in: INTERNATIONAL LABOUR ORGANIZATION. **Perfil dos principais atores envolvidos no trabalho escravo rural no Brasil**. Brasília: ILO, 2011. 176 p. Available at: <http://www.ilo.org/wcmsp5/groups/public/---americas/---ro-lima/---ilo-brasilia/documents/publication/wcms_227533.pdf>. Access on em: 27 July 2017.

[43] SMARTLAB; PUBLIC LABOUR PROSECUTION SERVICE; INTERNATIONAL LABOUR ORGANIZATION. **Digital Observatory of Slave Labour in Brazil**. Available at: < https://observatorioescravo.mpt.mp.br/>. Access on 25 May 2018.

[44] COSTA, Patrícia Trindade Maranhão. A construção da masculinidade e a banalidade do mal: outros aspectos do trabalho escravo contemporâneo. **Cad. Pagu**, Campinas, n. 31, p. 173-198, Dec. 2008. Available at: <http://www.scielo.br/scielo.php?script=sci_arttext&pid=S0104-83332008000200009&lng=en&nrm=iso>. Access on 16 July 2018. http://dx.doi.org/10.1590/S0104-83332008000200009.

A correlation indicates the existence of statistical dependence between two variables, such as, for example, educational level and existence of slave labour. Although it cannot be said that the relationship between these variables is causal, that is, that the low level of education causes slavery, it allows us to infer, based on adequate statistical tests and with some level of accuracy, that the two variables are associated.

In this sense, bivariate analyses are presented in this section to enable a preliminary evaluation of the behaviour between what is known as independent variables and the indicators of Forced Labour and Slave Labour.

The first analysis is performed using the chi-square test for *k* proportions (chi-square test of homogeneity), which was used to test the hypothesis that different populations have the same incidence proportion of slave labour or forced labour. In addition, a regression analysis will be presented for the set of independent variables used in this study. In this analysis, Forced Labour and Slave Labour are treated as dependent variables in the model, whereas the other questionnaire variables that were not used in the construction of these indicators are used as independent variables.

Tables 25 and 26 present the bivariate analysis of the prevalence of forced labour and slave labour, respectively, according to independent variables.

Table 25 – Bivariate analysis of the prevalence of forced labour according to independent variables

Explanatory variables	Indicator of FORCED LABOUR (ILO)						p-value*
	No		Yes		Total		
	n	%	n	%	n	%	
Sex							
Female	999	95.5	47	4.5	1046	49.0	0.0070
Male	1009	92.7	80	7.3	1089	51.0	
Age group							
18 - 24	418	93.7	28	6.3	446	20.9	0.0071
25 - 29	330	89.9	37	10.1	367	17.2	
30 - 39	460	94.7	26	5.3	486	22.8	
40 - 49	340	96.0	14	4.0	354	16.6	
50 - 59	315	95.2	16	4.8	331	15.5	
60 +	145	96.0	6	4.0	151	7.1	
Members of household 18 years or older							
2 moradores	166	93.8	11	6.2	177	8.3	0.7204
3 moradores	978	93.7	66	6.3	1044	48.9	
4 or more	864	94.5	50	5.5	914	42.8	
Members of household under 18 years old							
1	561	94.1	35	5.9	596	27.9	0.7284
2	464	93.2	34	6.8	498	23.3	
3	414	94.3	25	5.7	439	20.6	
Not informed	569	94.5	33	5.5	602	28.2	
Marital status							
Single	539	94.4	32	5.6	571	26.7	0.0065
Married	663	96.4	25	3.6	688	32.2	
Consensual relationship	671	91.7	61	8.3	732	34.3	
Separated/Divorced	82	94.3	5	5.7	87	4.1	

Widow(er)	53	93.0	4	7.0	57	2.7	
Educational level							
Illiterate	272	93.8	18	6.2	290	13.6	0.2057
Incomplete fundamental education	608	93.5	42	6.5	650	30.4	
Complete fundamental education	180	90.9	18	9.1	198	9.3	
Incomplete secondary education	181	93.3	13	6.7	194	9.1	
Complete secondary education	576	95.7	26	4.3	602	28.2	
Higher education	190	95.0	10	5.0	200	9.4	
Not informed	1	100.0	0	0.0	1	0.0	
Working at the time of the survey							
No	824	91.3	79	8.7	903	42.3	< 0.0001
Yes	1184	96.1	48	3.9	1232	57.7	
Paid to get a job							
No	1154	96.4	43	3.6	1197	56.1	0.0054
Yes	30	85.7	5	14.3	35	1.6	
Not informed	824	91.3	79	8.7	903	42.3	
Average family income in minimum wages (MW)							
Up to 1/2 MW	449	93.2	33	6.8	482	22.6	0.1827
More than ½ to 1 MW	635	93.4	45	6.6	680	31.9	
More than 1 to 2 MW	578	95.2	29	4.8	607	28.4	
More than 2 to 3 MW	196	93.8	13	6.2	209	9.8	
More than 3 MW	109	98.2	2	1.8	111	5.2	
Not informed	41	89.1	5	10.9	46	2.2	
Type of contract							
Verbal agreement	1071	93.9	69	6.1	1140	53.4	0.0136
Written contract	549	94.3	33	5.7	582	27.3	
Information provided by others	132	88.0	18	12.0	150	7.0	
Not informed	256	97.3	7	2.7	263	12.3	
Hours worked							
Up to 7 hours	781	96.3	30	3.7	811	38.0	< 0.0001
8 hours	744	94.9	40	5.1	784	36.7	
9 -10 hours	217	91.2	21	8.8	238	11.1	
More than 11 hours	160	85.1	28	14.9	188	8.8	
Not informed	106	93.0	8	7.0	114	5.3	
Days worked							
1-3 days	255	95.1	13	4.9	268	12.6	0.2811
4-5 days	933	94.7	52	5.3	985	46.1	
6-7 days	777	93.2	57	6.8	834	39.1	
Not informed	43	89.6	5	10.4	48	2.2	
Total							
Total	**2008**	**94.1**	**127**	**5.9**	**2135**	**100.0**	

** Chi-square test of homogeneity for **H0**: the proportion of forced labour is the same in each variable (sex, age, education, work, etc.), i.e. p1 = p2 = ... = pk; versus **H1**: the proportion of forced labour is not the same in each variable (sex, age, education, work, etc.), i.e. at least one of the pi's is different from the others.*

Source: Survey Measuring Modern-day Slave Labour in the State of Maranhão – 2017 *(CRISP-UFMG)*

In Table 25, the chi-square test of homogeneity pointed out the following variables as significant at the 5% level of significance (p-value <0.05): Sex, Age Group, Marital Status, "Working at the Time of the Survey", "Paid to get the job", "Type of contract", and "Hours worked".

In Table 26, the chi-square test of homogeneity presented the following variables as significant at the 5% level of significance (p-value <0.05): Sex, Marital Status, Educational Level, "Working at the Time of the Survey", "Paid to get the job", "Average Family income in MW", "Type of contract", and "Days worked".

Table 26 – Bivariate analysis of the prevalence of slave labour according to independent variables

Explanatory variables	Modern-Day Slave Labour						p-value
	No		Yes		Total		
	n	%	n	%	n	%	
Sex							
Female	913	87.3	133	12.7	1046	49.0	< 0.0001
Male	858	78.8	231	21.2	1089	51.0	
Age group							
18 - 24	374	83.9	72	16.1	446	20.9	0.5911
25 - 29	296	80.7	71	19.3	367	17.2	
30 - 39	413	85.0	73	15.0	486	22.8	
40 - 49	294	83.1	60	16.9	354	16.6	
50 - 59	272	82.2	59	17.8	331	15.5	
60+	122	80.8	29	19.2	151	7.1	
Members of household 18 years or older							
2	144	81.4	33	18.6	177	8.3	0.4361
3	858	82.2	186	17.8	1044	48.9	
4 or more	769	84.1	145	15.9	914	42.8	
Members of household under 18 years old							
1	499	83.7	97	16.3	596	27.9	0.2940
2	409	82.1	89	17.9	498	23.3	
3	351	80.0	88	20.0	439	20.6	
Not informed	512	85.0	90	15.0	602	28.2	
Marital Status							
Single	488	85.5	83	14.5	571	26.7	0.0004
Married	591	85.9	97	14.1	688	32.2	
Consensual relationship	577	78.8	155	21.2	732	34.3	
Separated/Divorced	74	85.1	13	14.9	87	4.1	
Widow(er)	41	71.9	16	28.1	57	2.7	
Educational level							
Illiterate	227	78.3	63	21.7	290	13.6	< 0.0001
Incomplete fundamental education	514	79.1	136	20.9	650	30.4	
Complete fundamental education	158	79.8	40	20.2	198	9.3	
Incomplete secondary education	162	83.5	32	16.5	194	9.1	
Complete secondary education	531	88.2	71	11.8	602	28.2	
Higher education	178	89.0	22	11.0	200	9.4	

Not informed	1	100.0	0	0.0	1	0.0	
Working at the time of the survey							
No	714	79.1	189	20.9	903	42.3	< 0.0001
Yes	1057	85.8	175	14.2	1232	57.7	
Paid to get the job							
No	1034	86.4	163	13.6	1197	56.1	0.0013
Yes	23	65.7	12	34.3	35	1.6	
Not informed	714	79.1	189	20.9	903	42.3	
Average Family income in MW							
Up to 1/2 MW	388	80.5	94	19.5	482	22.6	0.0439
More than ½ to 1 MW	558	82.1	122	17.9	680	31.9	
More than 1 to 2 MW	513	84.5	94	15.5	607	28.4	
More than 2 to 3 MW	174	83.3	35	16.7	209	9.8	
More than 3 MW	102	91.9	9	8.1	111	5.2	
Not informed	36	78.3	10	21.7	46	2.2	
Type of contract							
Verbal agreement	934	81.9	206	18.1	1140	53.4	0.0006
Written contract	502	86.3	80	13.7	582	27.3	
Information provided by others	110	73.3	40	26.7	150	7.0	
Not informed	225	85.6	38	14.4	263	12.3	
Hours worked							
Up to 7 hours	717	88.4	94	11.6	811	38.0	< 0.0001
8 hours	656	83.7	128	16.3	784	36.7	
9 -10 hours	175	73.5	63	26.5	238	11.1	
More than 11 hours	134	71.3	54	28.7	188	8.8	
Not informed	89	78.1	25	21.9	114	5.3	
Days worked							
1-3 days	237	88.4	31	11.6	268	12.6	0.0006
4-5 days	834	84.7	151	15.3	985	46.1	
6-7 days	663	79.5	171	20.5	834	39.1	
Not informed	37	77.1	11	22.9	48	2.2	
Total							
Total	**1771**	**83.0**	**364**	**17.0**	**2135**	**100.0**	

** Chi-square test of homogeneity for **H0**: the proportion of forced labour is the same in each variable (sex, age, education, work, etc.), i.e. p1 = p2 = … = pk; versus **H1**: the proportion of forced labour is not the same in each variable (sex, age, education, work, etc.), i.e. at least one of the pi's is different from the others.*

Source: Survey Measuring Modern-day Slave Labour in the State of Maranhão – 2017 (CRISP-UFMG)

In this study, dependent variables were operationalized so as to become a dichotomous variable, with only 2 possible outcomes: yes or no for the existence of slave labour or forced labour. Since the goal, in the case of this section, is to test their correlation with the set of independent variables, the statistical technique known as logistic regression is suggested as the most appropriate tool to evaluate the association between the 12 independent variables selected and the binary indicators of forced labour and slave labour.

To facilitate both the interpretation of odds ratios and a better understanding of the associations presented in this logistic regression model, the 12 explanatory variables were also dichotomized using as reference a specific category as described in Table 27, which shows the specific frequencies for the 10 significant variables in the screening of the models.

Table 27 – Distribution of simple frequencies for the dichotomized variables used in the logistic models and their respective reference categories

Independent Variables (explanatory)	n	%
Sex		
Female	1046	49.0
Male (reference)	1089	51.0
Age group		
40+	836	39.2
Up to 39 (reference)	1299	60.8
Members of the household under 18 years		
3 or more	439	20.6
Up to 2 (reference)	1094	51.2
Not informed	602	28.2
Education		
At least secondary education	802	37.6
No secondary education (reference)	1332	62.4
Not informed	1	.0
Working at the time of the survey		
No	903	42.3
Yes (reference)	1232	57.7
Paid to get the job		
No	1197	56.1
Yes (reference)	35	1.6
Not informed	903	42.3
Average family income in minimum wages		
More than 1 minimum wage	927	43.4
Up to 1 minimum wage (reference)	1162	54.4
Not informed	46	2.2
Type of contract		
Written contract	582	27.3
No written contract (reference)	1290	60.4
Not informed	263	12.3
Hours worked		
Up to 8 hours	1595	74.7
9+ hours (reference)	426	20.0
Not informed	114	5.3
Days worked		
1 - 5 days	1253	58.7
6 or 7 days (reference)	834	39.1
Not informed	48	2.2
Total		
Total	2135	100.0

Source: Survey Measuring Modern-day Slave Labour in the State of Maranhão – 2017 (CRISP-UFMG)

In general, regression methods have become a key component of any data analysis aimed to describe the relationship between a dependent (response) variable and one or more independent (explanatory) variables. These methods are frequently used in cases in which the result is a categorical variable with two or more possible values (Hosmer, Lemeshow, 2013)[45]. In Human Science studies involving categorical variables, it is quite common to find variables such as race, sex, marital status, and educational and income levels making up the analysis model. Over the last decade, logistic regression models have become, in many areas of knowledge, particularly in Sociology, the standard method of quantitative analysis.

Typically, in statistical terms the use of logistic models with questions defined as binary or dichotomous measures (of the "yes" or "no" type) is very common. This is the case in epidemiological surveys, in which the question to be answered seeks to identify the relationship between one or more variables and the disease (outcome of interest). This methodology, therefore, enables estimating the probability of occurrence of the disease and how the "exposure" to independent or explanatory variables occurs.[46]

This study considered dichotomously measured variables of interest related to forced labour and slave labour. In other words, a set of responses was treated to identify whether a respondent who was working or had worked in the last three years fit a working condition defined as Forced Labour or Slave Labour.

A total of 12 independent variables were selected to depict characteristics of the profile of respondents I the family, income, education and work dimensions. These same variables were used to statistically measure their association with situations of forced labour or slave labour.

The logistic model is the most appropriate statistical technique to test the two previously described situations. In the logistic model, the respondent's profile was used to "explain" the occurrence of situations of forced labour and slave labour at the individual level.

Because a series of independent variables was used, modelling through multiple logistic regression analysis was adopted. The measure of association calculated from this logistic model is the odds ratio. Odds ratios are obtained by comparing individuals who differ only in the characteristic of interest and who have the values of the other constant variables.

In the case in question, as described above, the logistic function is perfectly applicable to problems of this nature because it is a function also varying between 0 and 1, in an elongated S-shape. Multiple logistic regression models the probability of the effect based on the expression below:

$$P(X) = 1 / (1 + e^{-(\alpha + \sum \beta_i X_i)}),$$

Or, similarly, $P(X) = e^{\alpha + \sum \beta_i X_i} / 1 + e^{\alpha + \sum \beta_i X_i}$. The term P(X) has a central role in logistic regression, since it defines the Logit function, $g(X) = ln\ [(P(X) / (1-P(X)] = \alpha + \sum \beta_i X_i$. The Logit transformation is responsible for linearizing the model in its parameters, thus making it possible to perform the proposed analysis.

The terms α and βi in this model represent unknown parameters that will be estimated using the maximum likelihood method based on sample data. Because of the model used, this method maximizes the probability of the data sampled.

Therefore, once the α and βi parameters and the values of the independent variables for a given individual are known, the above formula can be applied to calculate the probability of that individual having been subjected to forced labour or slave labour, as the case may be. This probability is explained for the *z – P (X)* formula.

[45] HOSMER, Davis; LEMESHOW, Stanley. **Applied Logistic Regression**. 3. ed. Hoboken, New Jersey: John Wiley & Sons, Inc., 2013

[46] For a given person the real disease (y) is a dichotomous event that can be understood as 1 when the disease occurs and as 0 when the disease does not occur.

One of the great advantages of logistic regression is that each estimated coefficient provides an estimate of the natural logarithm (ln) of the odds ratio adjusted for all model variables. Since the odds ratio logarithm has no practical interpretation, the exponential function in these coefficients βi is usually applied to facilitate interpretation of the effect, according to the equation below:

$$OR = \exp(\beta i)$$

Therefore, the estimated odds ratio (OR) represents the number of times that the characteristic of a particular individual affects the probability of the response. As shown by Long and Freese (2001)[47], this odds ratio can be converted to a percentage, called the percentage change in odds and expressed by the following equation:

$$100\ [OR\text{-}1]$$

It is observed that the percentage change can assume values above 100 percent when the OR is greater than 2.

In this study, the logistic models were calculated using the software package PASW Statistics, version 18.

The adjustment to the logistic regression model was assessed using the Hosmer and Lemeshow tests that examine whether the observed proportion of events is similar to the predicted probabilities of these events occurring in subgroups. In this test, *H0* means that the model is well adjusted to the data, according to Hosmer and Lemeshow (1980)[48] and Lemeshow and Hosmer (1982)[49]. Every variable with a p-value ≤ 0.25 was a candidate for the logistic model, and should obtain in this analysis a p-value ≤ 0.05 to remain in the final model. The odds ratios (OR) were obtained for each variable included in the final model, using a 95 percent confidence interval.

Tables 28 and 29 present the results of the models adjusted by logistic regression analysis for forced labour and slave labour respectively. Model 1 adjusts the probability of forced labour according to independent variables; and model 2 adjusts the probability of slave labour according to independent variables. In each of these adjustments we have the observed significance for the Hosmer-Lemeshow test, the coefficients adjusted by binary logistic regression and the respective statistical significance, as well as estimates for point and interval odds ratios, with a 95 percent confidence interval.

In model 1 the response variable "forced labour" is explained by the independent variables "Paid to get the job" and "Hours worked". This model tells us that:

- The chance of being a victim of forced labour increases by 244.1 percent if the respondent pays to get a job; and

- The chance of being a victim of forced labour increases by 127.6 percent if the respondent works 9 or more hours a day.

It can also be said that men have a 9.5 percent odds ratio of being characterized as victims of forced labour. In the case of families with a monthly income of up to 1 minimum wage, the chances of forced labour increase by 97.1 percent for this group.

[47] LONG, J. Scott; FREESE, Jeremy. **Regression models for categorical dependent variables using STATA**. Texas: College Station, 2001.

[48] HOSMER, Davis; LEMESHOW, Stanley. A goodness-of-fit test for the multiple logistic regression model. **Communications in Statistics** – Theory and Methods, v. 9, No. 10, pp. 1043-1069, 1980.

[49] LEMESHOW Stanley; HOSMER, David W. A review of goodness of fit statistics for use in the development of logistic regression models. **American Journal of Epidemiology**, v. 115, No. 1, January 1982, pp. 92-106.

Table 28 – Logistic regression model: Forced Labour and related factors

Explanatory variables	Coefficients (p-value)	OR (CI 95%)
Model 1: Forced labour	(Hosmer Lemeshow, p = 0.876)	
Intercept	-3.998 (< 0.001)	0.018
Sex	0.091 (0.792)	1.095 (0.558; 2.148)
Age group	0.215 (0.532)	1.240 (0.632; 2.432)
Educational level	0.017 (0.964)	1.017 (0.485; 2.132)
Paid to get the job (*)	1.236 (0.031)	3.441 (1.118; 10.586)
Average family income	0.678 (0.059)	1.971 (0.976; 3.979)
Hours worked (*)	0.822 (0.026)	2.276 (1.104; 4.690)
Days worked	-0.471 (0.209)	0.624 (0.299; 1.302)

(*): significant variables at a significance level of 5 percent.
Source: Survey Measuring Modern-day Slave Labour in the State of Maranhão – 2017 (CRISP/UFMG).

Model 2 (Table 29), where the response (dependent) variable used is victimization by slave labour (0 for non-victims and 1 for respondents considered victims), shows that this type of victimization is explained by the independent variables "Paid to get the job" and "Hours worked". This model tells us that:

- The chance of being a victim of slave labour increases by 287,1% if the respondent pays to get a job; and

- The chance of being a victim of slave labour increases by 124.3 percent if the respondent works 9 or more hours a day.

It can be said, however, that in households with up to two members under the age of 18 years the chances of having someone subjected to slave labour fall by 37.2 percent. On the other hand, the chances of having slave labour increase by 50.5 percent in households with a monthly household income of up to one minimum wage.

Table 29 – Logistic regression model: Modern-Day Slave Labour and related factors

Explanatory variables	Coefficients (p-value)	OR (CI 95%)
Model 2: Slave labour	(Hosmer Lemeshow. p = 0.801)	
Intercept	-2.288 (< 0.001)	0.101
Sex	0.282 (0.242)	1.326 (0.826; 2.127)
Number of household members under 18 years old (*)	-0.466 (0.050)	0.628 (0.394; 1.000)
Educational level	0.228 (0.412)	1.256 (0.729; 2.166)
Paid to get the job (*)	1.354 (0.006)	3.871 (1.468; 10.212)
Average family income	0.409 (0.097)	1.505 (0.929; 2.437)
Type of contract	0.138 (0.646)	1.148 (0.638; 2.066)
Hours worked	0.808 (0.003)	2.243 (1.325; 3.798)
Days worked (*)	-0.153 (0.542)	0.858 (0.524; 1.404)

(*): significant variables at a significance level of 5 percent.
Source: Survey Measuring Modern-day Slave Labour in the State of Maranhão – 2017 (CRISP-UFMG)

In this study, the chi-square homogeneity tests were performed using R software version 3.4.1 while logistic models were estimated using SPSS software version 20.

CHAPTER 7
Limitations of the study

The aim of the focus group in the qualitative survey was to represent the plurality of voices of different organizations engaged in assisting victims and fighting (preventing and repressing) slave labour and forced labour in the state of Maranhão. The goal of the focus group, which was formed by representatives of government organizations and civil society, was to understand how these actors perceive the actions and challenges involved in the fight against the phenomenon by discussing the results of their work, legislation, current forms of recruitment, and networking between governmental and civil society organizations in Maranhão.

The fact that only one focal group was held enabled collecting information and the perceptions of representatives of various organizations within the criminal justice system (repression and accountability), as well as of governmental and non-governmental organizations responsible for taking preventive measures and assisting victims on relevant issues, including: a) specificities of the phenomenon in different regions of the state of Maranhão; b) successful actions and limitations in the liaison between non-governmental and governmental organizations that make up the slave labour eradication and assistance network; c) understanding by the actors involved of the process of collection, processing and management of information on labour analogous to slavery in the state; and d) scope and limitations of public policies implemented in different municipalities in the state.

The quantitative survey aimed to measure information obtained from persons over 18 years of age who had been subjected to slave labour and/or forced labour in the state of Maranhão. The survey was based on a probabilistic sampling, with household data collected from 8/2/2017 to 4/4/2017 in 21 municipalities where 2,135 questionnaires were administered.

Throughout the knowledge generation process, several operational and methodological limitations were identified. In future survey exercises similar to the one developed in Maranhão, the questionnaire needs to be reviewed to include new questions (variables) that enable collecting more precise information and clarifying difficult and complex questions related to:

- Identification of risk factors and specification of situations of vulnerability to slave labour;

- Specification of migration processes related to modern-day slave labour, including information on forms of enticement, means of transport used, travel routes, and borders crossed (municipal, state, regional, national);

- Confiscation of documents and other forms of coercion during recruitment related to means of transport and characteristics of the trip;

- Forms of coercion, abuse and violence disaggregated according to the profile of exploiters of slave labour;

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- Specification of the exploitation process, including forms of exploitation and modalities of slave labour or forced labour in the workplace, in living conditions and in access to services and goods;

- Frequency of exploitation, whether weekly or monthly, dates of beginning and end of exploitation, means to flee and escape exploitation;

- Specification of the socioeconomic profile of the different population groups trapped in slave labour (adult men, adult women, adolescents, and children), including the intersectional analysis of the gender, race, age, etc. dimensions associated with the incidence of slave labour in urban and rural areas;

- Identification and monitoring of rescued workers that have fallen back into slave labour.

With respect data collection, attention must be paid to local specificities related to migratory patterns and dates, in order to ensure that respondents targeted by the survey are found at home.

In data analysis one should seek the develop more robust analysis plans, so that the algorithms produced are able to handle local particularities and enable consistency between the estimates produced and the context surveyed. For example, the collection and analysis of data on debt bondage should be expanded beyond the recruitment process, and more adequate ways of capturing and analysing the exhausting working hours phenomenon should be developed, given its complexity and difficult identification.

Finally, the sampling plan needs to be improved so that extrapolation of the survey results is valid also for the production of population estimates based on the number of victims of forced labour and slave labour.

CHAPTER 8:

Areas recommended for future studies

E very survey or study of slave labour and forced labour starts or ends by pointing out the limitations of databases on the phenomenon at local, regional, national, and global levels. This is a problematic scenario that seriously compromises our understanding of public policies, programs, and services focused on the eradication (repression and prevention) of slave labour and forced labour. The challenge we face today in Brazil is precisely the need to develop, improve and consolidate databases at municipal, state, regional and national levels, with a view to advancing in the prevention and repression of slave labour and forced labour and in the assistance to their victims.

An area for future studies is precisely a diagnosis of the limitations of data and information systems on slave labour and forced labour at municipal, state and national levels, as well as the potentials offered by the available information.

Another promising area are flow surveys, which monitor and track the registration of reports (Dial 100), rescued workers, proceedings initiated, indictments, and convictions related to slave labour and forced labour in the country.

One of the strategic objectives of the survey "Measuring Modern-Day Slave Labour in the State of Maranhão" is to produce information and knowledge for the design and improvement of public policies for the repression and prevention of modern-day slave labour.

An estimate of the prevalence of modern-day slave labour in the state of Maranhão indicates that 16.2 percent of permanent private households have at least one adult individual who is working or has worked in the last 3 years in conditions analogous to slavery. This estimate is the result of a complex scientific and methodological effort, especially because the datum is broken down into different modalities: Degrading Conditions (10.4 percent); Forced Labour (6.2 percent); Exhausting Working Hours (3.8 percent); and Debt Bondage (1.6 percent).

The survey identified Degrading Conditions (10.4 percent) as the main modality in the prevalence of modern-day slave labour in the state of Maranhão. This modality consists of three major categories: Inadequate Occupational Safety and Health Conditions (6.4 percent); Inadequate Access to or Deprivation of Water, Food and Sleep (4.3 percent); and Precarious Accommodations (2.5 percent). The categories, in turn, were broken down into a set of 13 sub-categories to capture the different degrading situations and conditions experienced by workers.

The different degrading situations and conditions captured in the survey provide an unprecedented opportunity for the development and improvement of repression and prevention laws and public policies at federal, state and municipal levels. This information can contribute to improving the Regulatory Standards (NR) of the Ministry of Labour and Employment, especially

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NR 31, as well as to enhancing the efficiency of the inspections carried out by the Special Mobile Inspection Group (GEFM)[50.]

The detailed analysis of the dimensions that make up the degrading conditions modality in the characterization of modern-day slave labour in the state of Maranhão shows that there is a set of situations which, when found, characterize degrading work. These included: unhealthy working conditions (4.4 percent); work in poor health conditions (1.7 percent); inadequate transportation (0.5 percent); water and food improperly stored (2.2 percent); deprivation of water, food and sleep (2.4 percent); water shared with animals (0.3 percent); unsafe accommodations (2.0 percent); and unhealthy accommodations (1.0 percent), besides a host of situations that included lack of PPE, exposures hazardous to health and related symptoms.

The list of degrading conditions and situations identified is long in its complexity and should be used in actions to guarantee the safety, health and dignity of workers. Recurrent arguments that ignore degrading working situations on the grounds that workers would be used and adapted to these conditions all but reproduce the predatory exploitation cycle that naturalizes rights violation and violence against the country's most vulnerable population.

The results of the survey provide robust information for the regulation and standardization of the degrading situations and conditions of modern-day slave labour, expanding and strengthening the parameters of NR 31 and of the inspection actions carried out by the Special Mobile Inspection Group. More consistent and robust parameters reduce the chances of subjective evaluations by inspectors and prevent conditions deemed degrading in a given inspection from being approved in subsequent inspections. The definition of inadequate situations and conditions related to accommodations, nutrition, hygiene, conviviality, and workplace, coupled with the identification of high-risk activities and the lack of personal protective equipment contributes to resolving discrepancies and reducing subjectivity in the characterization of degrading working conditions.

The regulation and standardization of the information that characterizes degrading conditions will provide inputs to the network of local non-governmental and governmental organizations, which has a widespread presence in states and municipalities in the country, thus increasing the quantity and quality of reports of degrading working conditions submitted to both SIT and the Mobile Group.

The consolidation of an information and action protocol system regarding the various forms of degrading conditions experienced by workers is a fundamental step towards innovation in public policies to repress and prevent modern-day slave labour in Brazil.

Thus, the implementation of an information and protocol system to improve and enhance the inspection efficiency of the GEFM should be accompanied by: (a) a standard data-collection document; (b) data-collection instruction manuals; (c) system operation manuals; (d) legal basis for system operation (laws and ordinances); (e) training of human resources to operate the system; (g) definition of document and information flows; and (f) definition of monitoring and evaluation indicators.

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[50]   The interinstitutional composition of GEFM operations guarantees the necessary competences for the effectiveness of inspection. The Group is formed by: labour inspectors (collection of evidence, infraction notices, shutdown of workplaces); labour attorneys (propose actions to the labour courts); Federal Police or Federal Highway Police (responsible for the group's safety, seizure of weapons, arrest of offenders).

APPENDICES

Appendix 1 – The sampling plan

1. The reference system

The reference system used in this survey were the lists of household addresses contained in the National Register of Addresses for Statistical Purposes (CNEFE) and of census tracts of the 2010 IBGE Census for the state of Maranhão, as well as data provided by the Ministry of Labour on native rescued workers in the population under study.

2. Sample calculation

The number of census tracts (or clusters) to be sampled was calculated from the equation below:

$$ m \geq \frac{M.\hat{S}^2_p}{M.V + \hat{S}^2_p} $$

in which the terms were obtained from the following equations:

$$ V = \left(\frac{N.B}{M.z_{\alpha/2}} \right)^2, \quad \hat{S}^2_p = \frac{\sum_{l=1}^{m} (a_l - N_l \hat{p})^2}{m-1} \quad e \quad \hat{p} = \frac{\sum_{l=1}^{m} a_l}{\sum_{l=1}^{m} N_l} $$

where m is the number of census tracts; a_l is the number of households with an attribute of interest; N_l is the total number of households in tract l; M the total number of tracts; and N is the total number of households.

The sample size required to estimate the proportion of households with victims of slave labour in Maranhão with a confidence level of 95 percent and a maximum margin of error of 2.87 percent was 2,100 households in 21 municipalities and 105 census tracts. In each census tract, 20 households were selected through systematic sampling. The sampling interval for conducting the interviews in each selected census tract was obtained from the number of households in the respective tract provided by IBGE.

The number of households was calculated based on the equation below:

$$m \geq \frac{n_0}{1 + n_0/N}, \text{ with } n_0 = \frac{\frac{N}{N-1} \cdot \hat{p} \cdot (1-\hat{p})}{\left(\frac{B}{z_{\alpha/2}}\right)^2 + \frac{\hat{p} \cdot (1-\hat{p})}{N-1}}$$

This calculation considered a sampling plan effect of 1.5 times and a non-response rate of 20 percent[51] (including vacant houses, destroyed houses, refusals, and incomplete interviews). In each selected household, the respondent was the first person to open the door to the interviewer, provided that he or she was a member of the household, was 18 years or older and was working at the time of the interview or had worked in the last 3 years. In case of refusal or impediment to conducting the interview, the next-door household was sampled.

3. Distribution of the planned sample

The sample sizes in each stratum were determined on the basis of uniform allocation, that is, the same sample size in each stratum. This type of allocation affords greater precision in the estimates and comparisons of these sub-populations, as noted by Bankier (1988) and Kish (1965)[52]. These sample sizes are shown in Table 2.

Table 2 – Sample sizes planned for the number of municipalities, census tracts and households per stratum

Stratum	Municipalities	Census Tracts	Households
No records of slave labour	7	35	700
Records of slave labour below the median	7	35	700
Records of slave labour above the median	7	35	700
Total	21	105	2100

Source: Survey Measuring Modern-Day Slave Labour in the State of Maranhão - 2017 (CRISP / UFMG).

Given this selection of municipalities, the spatial distribution of the municipalities selected for the sample is shown in Map 2.

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[51] A design effect (DEFF) is an adjustment made to find a survey sample size, due to a sampling method, e.g. cluster sampling, resulting in larger samples than you would expect with simple random sampling with replacement (SRS WR). The design effect is the ratio of the actual variance to the variance expected with SRS WR. For example, DEFF of 1.5 means that the variance is 1.5 times as large as you would expect with SRS WR. Therefore, if you use cluster sampling, you would have to use 1.5 times the sample size. In this case, an increase in sample size was also considered to allow up to 20 percent of the non-response rate, that is, up to 20 percent of interviews conducted without success.

[52] Bankier (1988) argues that it is better to use uniform allocation in strata when we want to capture differences among population strata. Kish (1965) points out that uniform allocation is often efficient and reinforces that when strata are of the same size, this tends to benefit estimates and also comparisons.

Map 2 – Spatial distribution of municipalities selected for the sample
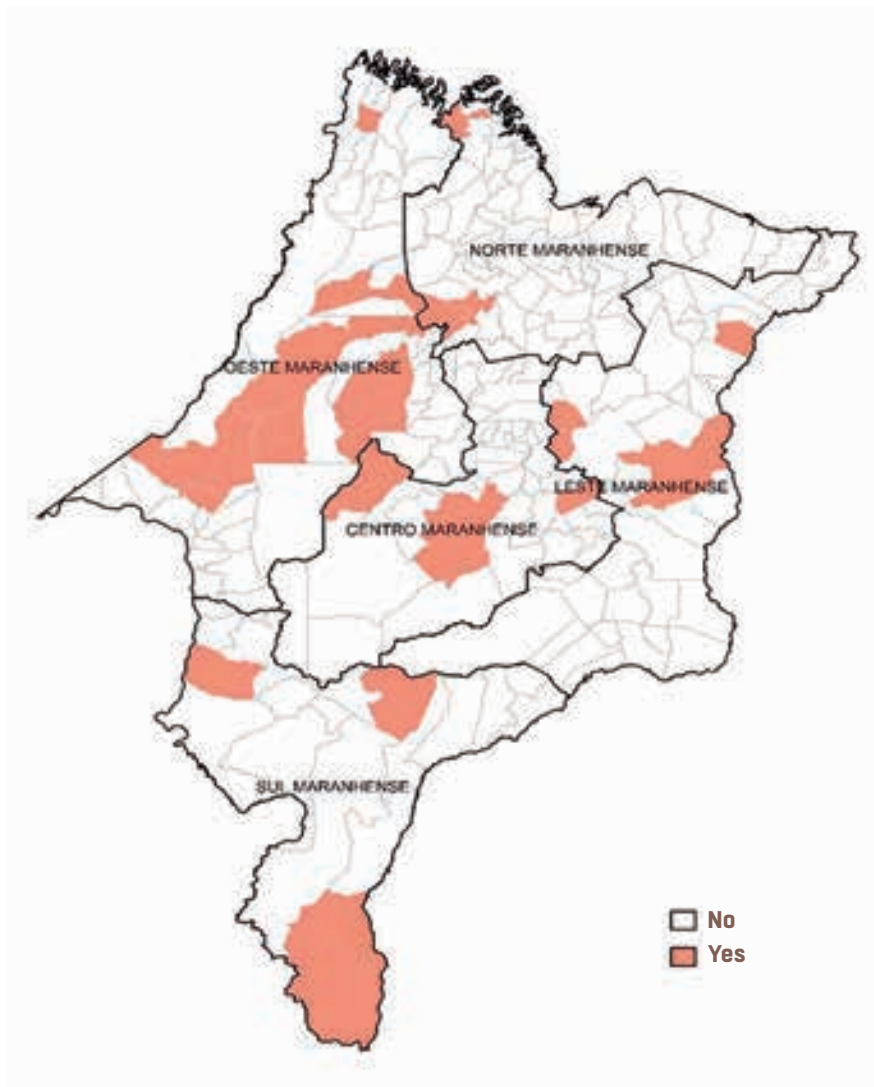
Finally, it was determined that the interviewer should cover the census tract clockwise, leaving from the starting point defined by IBGE, and always seeking households located on the right side of this path and respecting the limits of each tract. Due to some practical difficulties such as small tracts, distant houses or the need to leave the tract rapidly as a strategy to ensure the safety of the interviewer, changes were made to the sampling interval53, which did not necessarily follow the sampling interval used by IBGE. Therefore, a fixed sampling interval of four was arbitrarily defined in all tracts in this survey.

The starting point was randomly set from the sample function of R and based on the National Register of Addresses for Statistical Purposes provided by IBGE. This register, which was produced for the 2010 CENSUS, is the only address base available for Maranhão. It is important to note that since the starting point was randomly selected, any household within the tract had

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[53] The systematic sampling method is based on the selection of a fixed starting point in the target population and then on obtaining subsequent observations using a constant interval between the observations collected. This constant interval is called the sampling interval or the sampling period. Thus, if the total population has 1000 individuals, a random systematic sampling of 100 individuals within that population would be the set containing each 10th observation. In this hypothetical example, the sampling interval is 10.

a probability greater than zero of being included in the survey, thus ensuring that the survey remained probabilistic, even after the sampling interval was changed.

4. Calculation of sampling weights

This section describes the procedures used to calculate the sampling weights for the sampling plan used to adapt the Hard to see, harder to count survey in the state of Maranhão.

The publication ILO-IPEC Interactive Sampling Tools No. 654 was used as a methodological guide to calculate the sampling weights that enable extrapolating the sample results to population totals up to the household unit. The calculation of sampling weights considers selection probabilities according to the design contained in the survey sampling plan, the rate of non-response among initially selected households, and any additions to the population of households involving the sex (male and female) and age (18-29, 30-49 and 50 years or older) variables, which the survey results should comply with.

This survey has a complex sampling plan with unequal selection probabilities, which requires defining the expansion factors, also called sampling weights. In a basic sampling plan, the sampling weight of unit k of a probabilistic sample is equal to the inverse of its selection probability in the sample. In complex plans, as is the case of this study, the final weight is the product of the inverse of the selection probabilities at each stage of the sampling plan, including "non-response" correction processes and "calibrations" to adjust previously known population totals.

In this sense, the calculation of sampling weights for the households in this survey sample entailed three stages:

i) Calculation of basic weights of the sampling plan for the selected sample;

ii) Calculation of weights corrected for "non-response" for the selected sample; and

iii) Calculation of "calibrated" weights for the selected sample.

As the sample was obtained by cluster sampling in three steps, the basic sampling weights for the selected sample were also obtained in three steps. First, the basic weights for the municipalities in the selected sample were obtained, followed by the basic weights for the census tracts in the selected sample. And finally, the basic weights for the households in the selected sample were calculated.

The three steps of the sampling plan used in this survey can be described as follows:

- Step 1: Select seven municipalities (i) in each stratum h, with probability proportional to the number of census tracts;

- Step 2: Select five census tracts (j) in each selected municipality, with probability proportional to the number of households; and

- Step 3: Select 20 households (k) in each census tract, with systematic sampling.

If h is the index that represents a sampling zone (selection stratum) of census tracts and i is the index that identifies the tract within sampling zone h, then the basic sampling weight for a tract i in zone h was calculated as:

$$W_{hijk}, basic = 1/P_{hijk}$$

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54 INTERNATIONAL LABOUR OFFICE (ILO); INTERNATIONAL PROGRAMME ON THE ELIMINATION OF CHILD LABOUR (IPEC). **ILO-IPEC Interactive Sampling Tools No. 6**. Calculation of sampling weights. Version 1. Geneva: ILO, 2014. Available at: <http://www.ilo.org/ipecinfo/product/download.do?type=document&id=25475>. Access on: 24 July 2017.

Where P_{hijk} is the probability of selecting a household k in census tract j of municipality i in stratum h, expressed by:

$$P_{hijk} = \left(7\frac{S_{hi}}{S_h}\right)\left(5\frac{D_{hij}}{D_{hi}}\right)\left(20\frac{1}{D_{hij}}\right) = \frac{700 S_{hi}}{S_h D_{hi}}$$

Where S_{hi} is the total number of tracts in municipality i of stratum h; $N_h = \sum_i N_{hi}$ is the total number of tracts in stratum h; D_{hij} is the total number of households in municipality i and tract j of stratum h; and $D_{hi} = \sum_j D_{hij}$ is the total number of households in municipality i of stratum h.

In cases of "non-response", the weights were corrected according to the response rate (TR_{hij}) defined as the ratio of the number of households in census tract j of municipality i in stratum h, whose response was obtained (b'_{hij}) and also based on the sample size initially planned for this unit j (b_{hij}). That is,

$$TR_{hij} = \frac{b'_{hij}}{b_{hij}}$$

Thus, the weight of the basic sampling plan adjusted by the non-response rate is expressed as:

$$W_{hijk}, adjusted\ non-response = \frac{W_{hijk}, basic}{TR_{hij}}$$

These weights adjusted due to "non-response" are improved when they are adjusted to known totals in auxiliary variables. In this case, a calibration was used based on the auxiliary variables referring to the total population by sex and age (18-29, 30-49 and 50 years or older) of the 2010 census, according to the information provided by IBGE.

As noted in the publication ILO-IPEC Interactive Sampling Tools No. 6 (2014)[55], the calibration for known totals ensures that, due to the use of weights for auxiliary variables, the estimates provided will be exactly equal to the known population totals of these auxiliary variables.

Suppose that associated with each population element k there is a vector of J auxiliary variables x_k with values $= x_k = (x_{k1}, x_{k2}, ..., x_{kj}, ..., x_{kJ})$. The corresponding population total is given by the known vector t $t_x = \sum_{k \in U} x_k$. By extrapolation, the weights for the sampling values of the auxiliary variables are obtained by

$$t_{x\pi} = \sum_{k \in S} \frac{x_k}{\pi_k} = \sum_{k \in S} d_k x_k$$

which may differ from the known population values t_x.

Deville and Särndal (1992), cited in the aforementioned publication, have shown that extrapolation weights may be adjusted by minimizing the expected average distance between the adjusted weights (W_k) and the original weights (d_k), in order to obtain the following calibrated weights that follow the known population totals of the auxiliary variables:

55 Ibid.

$$W_k = d_k \left(1 + q_k x'_k \lambda \right)$$

Where

$\lambda = T_S^{-1} \left(t_x - t_{x\pi} \right)$ is the vector of the Lagrange multipliers, $T_S = \sum_S d_k q_k x_k x'_k$; and the parameters q_k are generally set as equal to 1.

In this survey the transformation $F_k(u) = exp(q_k u)$ instead of the proposed $F_k(u) = (1 + q_k u)$ used in the ILO-IPEC publication. This change was made to avoid negative weights after calibration by known totals of the auxiliary variables, but maintains the favourable properties of the estimators, as pointed out by Deville and Särndal (1992).

Finally, it should be pointed out that the statistical analysis of the data of a complex sample survey, as is the case of this survey, requires using appropriate statistical packages. Pessoa, Silva and Duarte (1997) and Silva, Pessoa and Lila (2002) point out that when calculations of estimates for population totals, averages, proportions, rates, and ratios involve sampling weights (provided in the database), the estimates obtained for the corresponding population parameters are not biased. The authors also argue that for these measures, any statistical package with weighing options provides the correct calculation in a simple way. On the other hand, the same authors draw attention to the case of estimation of dispersion measures (variance, standard deviation, coefficient of variation), associated quantiles (quartiles, deciles, percentiles, etc.) among others, in which additional aspects of the sampling plan should be incorporated into the estimation. Generally, the most common statistical packages do not provide adequate features for these analyses. Currently, the R (R DEVELOPMENT CORE TEAM, 2016) library survey (Lumey, 2004; Lumey, 2016) is being widely used by researchers and scientific institutes in analysis similar to the one carried out under this survey, including samples produced by IBGE.

Appendix 2 – Data collection instruments

GENERAL INFORMATION ON HOUSEHOLD COMPOSITION

Question ID	Question	Answer
1	Good morning (afternoon/ evening). My name is _____, I am a researcher from Instituto Olhar. We are conducting a study of living and working conditions in the State of Maranhão, and we would like your cooperation in answering the questionnaire addressing this topic.	
2	[Q_2] QUESTIONNAIRE ID	
3	[Q_3] What is your full name?	
4	[Q_4] How old are you?	
5	[Q_5] What is the respondent's sex?	<1> Male <2> Female
6	[Q_6] How many people 18 years of age or older, including you, live in your household?	
7	[Q_7] And how many people under the age of 18 live in your household?	<-2> None
8	Could you give me some information about the other people who live in the household? First, we will talk about people 18 years or older and then about people under 18.	

Members of the household over the age of 18 Iteration 1 - 15

Question ID	Question	Answer
9	[I_1Q_9] Name:	
10	[I_1Q_10] What is your sex {0}:	<1> Male <2> Female
11	[I_1Q_11] How old are you {0}:	
12	[I_1Q_12] Can you {0} read and write?	<1> Yes <2> No

Members of the household under the age of 18 Iteration 1 - 15

Question ID	Question	Answer
13	[I_1Q_13] Name:	
14	[I_1Q_14] What is your sex {0}:	<1> Male <2> Female
15	[I_1Q_15] How old are you {0}:	
16	[I_1Q_16] Can you {0} read and write?	<1> Yes <2> No

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GENERAL INFORMATION ABOUT THE RESPONDENT

Question ID	Question	Answer
17	Do you have a birth certificate or an ID card?	
	[T_17_1] Birth Certificate	<1> Yes <2> No
	[T_17_2] ID Card	<1> Yes <2> No

WORK BACKGROUND

Question ID	Question	Answer
18	[Q_18] Are you currently working?	<1> Yes <2> No
19	In the last three years, including your current job, have you had a job in which ...	
	[T_19_1] Did you receive an advance payment to start working?	<1> Yes <2> No
	[T_19_2] Did you have to pay anyone to get the job?	<1> Yes <2> No
	[T_19_3] Were the actual working conditions much worse than what had been agreed?	<1> Yes <2> No
	[T_19_4] At any time, did your employer require you to work overtime without your consent?	<1> Yes <2> No
	[T_19_5] Did your employer provide good quality food?	<1> Yes <2> No
	[T_19_6] Did your employer supply the equipment necessary for the job?	<1> Yes <2> No
	[T_19_7] Were you at any time prevented from leaving or abandoning your employer because of a debt you had to repay?	<1> Yes <2> No
	[T_19_8] Were you at any time prevented from leaving or abandoning your employer because of threat or use of physical violence?	<1> Yes <2> No
	[T_19_9] Were you at any time prevented from contacting your family or had your documents confiscated?	<1> Yes <2> No
	[T_19_10] Is this workplace far from your home and do you need to stay there for some time (week, fortnight or month)?	<1> Yes <2> No
	[T_19_11] Were you or other workers at any time under armed surveillance to prevent you from escaping or force you to work?	<1> Yes <2> No
20	[Q_20/Q_20_S] You are not currently working because....	<1> You are unemployed <2> You are on sick leave <3> The time of the year <4> You are retired <5> You are a pensioner <6> You are a student <7> You are in charge of household chores <8> Other, specify... <9> I don't know how to answer this question. <10> I don't want to answer this question.
21	[Q_21 And in the last three years, have you had any job/work/ activity for which you received money for your livelihood?	<1> Yes <2> No
22	About the work (job/activity) you had in the last 3 years	
	[T_22_1] In the past three years, have you received any kind of advance payment for work/job/ activities?	<1> Yes <2> No
	[T_22_2] In the last three years, have you had to pay someone to get a job/work/activity?	<1> Yes <2> No
	[T_22_3] In the last three years, have you started any work/job/activity in which the working conditions were much worse than what had been agreed?	<1> Yes <2> No

	[T_22_4] In the last three years, have you had any work/job/activity in which the employer required you to work overtime without your consent?	<1> Yes <2> No
	[T_22_5] In the last three years, has your employer provided good quality food?	<1> Yes <2> No
	[T_22_6] In the last three years, has your employer supplied the equipment necessary for the job?	<1> Yes <2> No
	[T_22_7] In the last three years, have you had any work/job/activity and was prevented from leaving it because of a debt you had to repay?	<1> Yes <2> No
	[T_22_8] In the last three years, have you had any work/job/activity and was prevented from leaving it or abandoning it due to threat or use of physical violence?	<1> Yes <2> No
	[T_22_9] In the last three years, have you had any employment/job/activity and was prevented from contacting your family or had your documents confiscated?	<1> Yes <2> No
	[T_22_10] In the last three years, have you had any work/job/activity far from your home and had to live in the workplace while carrying out your activities?	<1> Yes <2> No
	[T_22_11] In the last three years, have you had any work/job/activity in which workers were under armed surveillance to prevent them from escaping or force them to work?	<1> Yes <2> No
23	[Q_23] Now, thinking of all those who live here and who work, what is the total monthly income of all the people living in this household, including all sources such as salary, pension, retirement, social benefits, rents, odd jobs? [STIMULATED]	<1> Up to ½ minimum wage (less than R$468.50) <2> More than ½ and up to 1 minimum wage (up to R$937.00) <3> More than 1 and up to 2 minimum wages (up to R$1,874.00) <4> More than 2 and up to 3 minimum wages (up to R$2,811.00) <5> More than 3 minimum wages (more than R$2,811.00) <6> Did not answer/Refused to answer <7> Does not know/Cannot remember

GENERAL INFORMATION ABOUT THE RESPONDENT

Question ID	Question	Answer
24	[Q_24] You are currently:	<1> Single <2> Married <3> In a consensual relationship <4> Legally Separated/Divorced <5> Separated <6> Widow(er)
25	[Q_25] I will read a list of religions for you to tell me if your religion is included among them: [READ EXACTLY IN THIS ORDER, NEVER ASK DIRECTLY - WHAT IS YOUR RELIGION? - JUST READ THE PARENTHESES IF THE RESPONDENT HAS QUESTIONS ABOUT HIS CLASSIFICATION - STIMULATED]	<1> Evangelical Pentecostal (Christian Congregation in Brazil, Assembly of God, Evangelical Crusade, Foursquare Gospel, Brazil for Christ, House of Blessing, God is Love, Universal Church of the Kingdom of God, Reborn in Christ, International of Divine Grace, "Protestant") <2> Non-Pentecostal Evangelical (Baptist, Presbyterian, Methodist, Adventist, Lutheran, Episcopalian, Anglican, Congregational, Salvation Army, "Protestant") <3> Umbanda <4> Candomblé or other Afro-Brazilian religions (Xangô, Batuque de Mina, Omoloco, Catimbó, Tambor de Mina) <5> Kardecist, spiritualism <6> Catholicism <7> Judaism <8> Another religion (Mormon, Jehovah's Witness, Seisho-No-Ie, Messianic, Perfect Freedom, Buddhist, Holy Daime, Esoteric) <9> Has no religion/none <10> Atheist/Does not believe in God

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26	[Q_26] In what state were you born?	<1> Acre <2> Alagoas <3> Amapá <4> Amazonas <5> Bahia <6> Ceará <7> Distrito Federal <8> Espírito Santo <9> Goiás <10> Maranhão <11> Mato Grosso <12> Mato Grosso do Sul <13> Minas Gerais <14> Pará <15> Paraíba <16> Paraná <17> Pernambuco <18> Piauí <19> Rio de Janeiro <20> Rio Grande do Norte <21> Rio Grande do Sul <22> Rondônia <23> Roraima <24> Santa Catarina <25> São Paulo <26> Sergipe <27> Tocantins
27	[Q_27] In what municipality were you born?	
28	[Q_28] In your entire life, in how many different cities did you live for three or more years?	
29	[Q_29/Q_29_S] The property you are currently living in is:	<1> Rented <2> Bought and fully paid for (belongs to the respondent or to any other family member) <3> Bought and being paid for (financing) <4> Loaned by relatives <5> Loaned by employer (boss) <6> Other type(s) of loan. Specify... <7> Unlawful occupation <8> Other, specify... <9> I don't know how to answer this question
30	[Q_30/Q_30_S] Most of the water used in your household is supplied by (comes from)	<1> General network <2> Adaptation of the general network (illegal hook-up) <3> Well or spring on property <4> Well or spring off property <5> Community well <6> Tanker truck <7> Other(s). Specify... <8> I don't know how to answer this question. <9> I don't want to answer this question.
31	[Q_31/Q_31_S] Domestic sewage is disposed of in...	<1> Sewerage system <2> Septic/rudimentary pit (banana tree, bushes) <3> Ditch <4> Stream, river or lake <5> Other(s). Specify... <6> There is no bathroom in the house <7> I don't know how to answer this question <8> I don't want to answer this question
32	[Q_32/Q_32_S] In your household, lighting (electricity) comes mainly from ...	<1> Electrical network <2> Adaptation from the electrical network (illegal hook-up) <3> Generator <4> Gas lamp or oil lamp <5> Other(s). Specify... <6> I don't know how to answer this question. <7> I don't want to answer this question.

EDUCATIONAL BACKGROUND

Question ID	Question	Answer
33	[Q_33] What is the highest school grade you completed? [SPONTANEOUS]	<1> No education/illiterate <2> Incomplete fundamental education <3> Complete fundamental education <4> Incomplete secondary education <5> Complete secondary education <6> Incomplete higher education (Incomplete University/College course) <7> Complete higher education (Complete University/College course) <8> Post-Graduate program <9> I don't know how to answer this question
34	[Q_34/Q_34_S] Why did you drop out of school at that grade?	<1> I didn't like the school <2> I was not welcome in the school <3> I wanted to continue, but I had no money (to pay for the school) <4> Higher levels of education were not available in my area <5> Because I needed to make money for my family <6> Because I flunked a grade <7> Because I moved to another place <8> Because I moved to another place and the new school did not accept my previous school certificate <9> Due to a personal or family problem <10> Because I joined a monastery/nunnery <11> Other(s). Specify... <12> I don't know how to answer this question <13> I don't want to answer this question

RECRUITMENT PROCESS

Question ID	Question	Answer
35	So, now, let's talk a little bit about your CURRENT JOB. With regard to the main activity you perform/ carry out, could you please tell me about:	
36	So, now, let's talk a little about the JOB(s) YOU HAD IN THE LAST THREE YEARS. With regard to the main activity you performed/ carried out, could you please tell me about:	
37	[Q_37] What was your main task?	
38	[Q_38] What was the purpose of your job? The main product. What did you do?	
39	[Q_39] Was the work agreed on a productivity basis?	<1> Yes <2> No
40	[Q_40] What was the agreed productivity-based wage? In cash (R$)	
41	[Q_41] What was the agreed-wage? In cash (R$)	
42	[Q_42] This amount was paid:	<1> In cash only <2> Part in cash and part in kind (Voucher) <3> In kind only
43	[Q_43] So, at the end, how much money did you have left? (R$)	
44	[Q_44] Who took the decision that you should start/take that job?	<1> Myself <2> Myself with other people <3> Someone else decided for me without my consent <4> I don't know how to answer this question <5> I don't want to answer this question
45	[Q_45] What other person decided for you without your consent?	<1> My parents <2> My sibling(s) <3> My partner <4> The "gato"/agent <5> The employer <6> I don't know how to answer this question <7> I don't want to answer this question

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46	[Q_46/Q_46_S] Why did you decide that you would/should start/take this job?	<1> I needed money <2> I was not happy with my job at the time <3> There was no job in the city where I used to live <4> To accompany family members <5> Interest in a specific job/ skill <6> I knew someone from the workplace <7> I wanted to be independent <8> Death of the head of household <9> I was a victim of physical violence <10> I was forced/convinced by false promises <11> Confiscation of land/property <12> Confiscation of documents <13> Drug addiction <14> Domestic violence (physical or sexual) <15> Financial/economic crisis <16> Religious or ethnic problems <17> I was not welcome in the community. Why not? <18> Other. Specify... <19> I don't know how to answer this question. <20> I don't want to answer this question.
47	[Q_47/Q_47_S] How did you hear/find out about this job?	<1> Friends/Neighbours, Family Members <2> Another person told me about the job <3> Radio and Television <4> Advertising on wheels /Church/Megaphone <5>Newspaper/Magazine/Brochure <6> Travel Agency <7> Internet/social media <8> Other. Specify... <9> I don't know how to answer this question <10> I don't want to answer this question
48	[Q_48/Q_48_S] Did anybody help you get that job?	<1> Yes. Who? <2> No <3> I don't know how to answer this question <4> I don't want to answer this question
49	[Q_49/Q_49_S] But did you have to pay to get the job or did you get any advance payment (to/from a "gato" or the employer)?	<1> Yes, I received foodstuff <2> Yes, I received an advance payment. Specify amount: <3> Yes, I paid to get the job. Specify amount: <4> No <5> I don't know how to answer this question <6> I don't want to answer this question
50	[Q_50/Q_50_S] Who did you pay to and who did you receive from?	<1> Recruiter/agent <2> Employer <3> Employment agency <4> Family member <5> Other. Specify... <6> I don't know how to answer this question <7> I don't want to answer this question
51	[Q_51] Did you borrow money from someone to pay the fee to get the job?	<1> Yes <2> No <3> I don't know how to answer this question <4> I don't want to answer this question
52	[Q_52] Have you already paid back the loan?	<1> Yes <2> No <3> I don't know how to answer this question <4> I don't want to answer this question

EMPLOYMENT CONTRACT OR AGREEMENT

Question ID	Question	Answer
53	[Q_53] Was this job agreed upon before or after you arrived in the workplace?	<1> Before <2> After I arrived in the workplace <3> I don't know how to answer this question <4> I don't want to answer this question
54	[Q_54] About this job, the agreement was:	<1> A promise or verbal agreement <2> A written contract that was given to you <3> Information provided by a third person <4> I don't know how to answer this question <5> I don't want to answer this question

55	[Q_55] Did you understand what was written in the contract?	<1> I understood it fully <2> I understood it partially <3> I didn't understand anything <4> I didn't read the contract <5> I don't know how to answer this question <6> I don't want to answer this question
56	[Q_56/Q_56_S] Why did you understand the contract only partially and why did you not understand or read it?	<1> I never had the chance to read it <2> I didn't have enough time to read it <3> There were expressions/words that I didn't understand <4> I cannot read <5> I trusted the contracting party ("gato" or employer) <6> Other(s). Specify... <7> I don't know how to answer this question <8> I don't want to answer this question
57	[Q_57] Did you know who your employer would be?	<1> Yes <2> No
58	Please think about the time you arrived in the workplace. Compared to what had been agreed or to the information you had/knew, the actual situation you found in relation to ……	
	[T_58_1] Living conditions in the workplace	<1> Much worse <2> Worse <3> As promised/agreed <4> Somewhat better <5> Much better <6> Not discussed with recruiter/employer
	[T_58_2] Type of job/activity	<<1> Much worse <2> Worse <3> As promised/agreed <4> Somewhat better <5> Much better <6> Not discussed with recruiter/employer
	[T_58_3] Workplace	<1> Much worse <2> Worse <3> As promised/agreed <4> Somewhat better <5> Much better <6> Not discussed with recruiter/employer
	[T_58_4] Wages	<1> Much worse <2> Worse <3> As promised/agreed <4> Somewhat better <5> Much better <6> Not discussed with recruiter/employer
	[T_58_5] Working hours (daily/weekly/monthly/yearly)	<1> Much worse <2> Worse <3> As promised/agreed <4> Somewhat better <5> Much better <6> Not discussed with recruiter/employer
	[T_58_6] Quality of accommodations	<1> Much worse <2> Worse <3> As promised/agreed <4> Somewhat better <5> Much better <6> Not discussed with recruiter/employer
	[T_58_7] Free time/rest period	<1> Much worse <2> Worse <3> As promised/agreed <4> Somewhat better <5> Much better <6> Not discussed with recruiter/employer
	[T_58_8] Quality of nutrition/food	<1> Much worse <2> Worse <3> As promised/agreed <4> Somewhat better <5> Much better <6> Not discussed with recruiter/employer
	[T_58_9] Personal protective equipment (boots, sickles, hoes, etc.)	<1> Much worse <2> Worse <3> As promised/agreed <4> Somewhat better <5> Much better <6> Not discussed with recruiter/employer

	[T_58_10] Health benefits/health care	<1> Much worse <2> Worse <3> As promised/agreed <4> Somewhat better <5> Much better <6> Not discussed with recruiter/employer
59	[Q_59] After you arrived in the workplace, did you have the option to ask to change jobs?	<1> Yes <2> No
60	[Q_60] If you wanted/want, could you have abandoned/can you abandon the job and go back home?	<1> Yes <2> No
61	[Q_61/Q_61_S] What would have happened if you refused the recruitment/job offer? (Any negative impact for not accepting the job)	<1> Nothing, but I didn't have many job alternatives/options <2> The employer would try to stop other employers in the area from hiring me <3> Other people in my family would lose their jobs <4> I would not be able to repay the debt contracted to get the job <5> Threats of violence against me or my family <6> Other. Specify...
62	[Q_62] In what state is/was this place where you work/worked to support yourself and your family located? (If more than one area, choose the area where the respondent stayed for a longer period of time)	<1> Acre <2> Alagoas <3> Amapá <4> Amazonas <5> Bahia <6> Ceará <7> Distrito Federal <8> Espírito Santo <9> Goiás <10> Maranhão <11> Mato Grosso <12> Mato Grosso do Sul <13> Minas Gerais <14> Pará <15> Paraíba <16> Paraná <17> Pernambuco <18> Piauí <19> Rio de Janeiro <20> Rio Grande do Norte <21> Rio Grande do Sul <22> Rondônia <23> Roraima <24> Santa Catarina <25> São Paulo <26> Sergipe <27> Tocantins
63	In what municipality is/was this place where you work/worked to support yourself and your family located? (If more than one area, choose the area where the respondent stayed for a longer period of time)	<1> Doesn't know/Did not answer
64	[Q_64] In which district or community is/was this place where you work/worked to support yourself and your family? (If more than one area, choose the area where the respondent stayed for a longer period of time)	<-2> Does not know/Did not answer
65	[Q_65] How long have you been working/did you work in that location?	<1> Less than a year <2> 1-2 years <3> 2-3 years <4> More than 3 years
66	[Q_66/Q_66_S] Where do/did you carry out your activities?	<1> Factory <2> Plantation/farm/garden <3> Construction site <4> Mine/quarry/other area involving the extraction of minerals from the earth <5> Shop/kiosk/restaurant/hotel <6> Different locations (mobile) <7> Fixed place, street or market stall <8> Lake/pond/river <9> Oher. Specify... <10> I don't know how to answer this question <11> I don't want to answer this question

67	[Q_67/Q_67_S] How often do you get paid for your job in practice/in fact? (Payment may be made to the worker or to a third party by agreement)	<1> Daily <2> Weekly <3> Twice a week <4> Monthly <5> Annually <6> Twice a year <7> Gradually or after completing a certain task <8> Undefined <9> I don't get paid for my work <10> Other. Specify... <11> I don't know how to answer this question <12> I don't want to answer this question
68	[Q_68] Are you paid regularly on fixed dates?	<1> Yes <2> No
69	[Q_69/Q_69_S] Why aren't you paid regularly on fixed dates?	<1> Employer does not have enough money to pay me regularly on fixed dates <2> Employer wants to keep me working longer than agreed <3> I am not paid on the basis of time worked (e.g. I am paid upon the completion of certain tasks or the production of a specific number of articles or some other specified quantity of output) <4> Other. Specify...
70	[Q_70] How many days do you usually work per week?	<-2> Less than one day <-3> I don't know how to answer this question <-4> I don't want to answer this question a
71	[Q_71] How many (full) hours do you usually work per day? (Excluding breaks and lunchtime)	<-2> I don't know how to answer this question <-3> I don't want to answer this question
72	[Q_72/Q_72_S] How much free time do you have per day? (Including lunchtime and other breaks the worker can take throughout the day)	<1> 1 hour <2> 2 hours <3> 3 hours <4> Quick breaks when I am not actually working <5> There are no breaks <6> Other. Specify... <7> I don't know how to answer this question <8> I don't want to answer this question
73	[Q_73] During the week, do you have a free day to rest (go to a bar with co-workers) or visit the family?	<1> Yes <2> No <3> I don't know how to answer this question <4> I don't want to answer this question
74	I'm going to read you a list of problems related the job or the workplace. Please tell me if your employer or someone linked to your employer has forced you OR pressed you OR made you feel embarrassed and/or guilty for not doing any of these things. You may answer "never" or "sometimes" or "regularly" or "I don't want to answer".	
	[T_74_1] Perform tasks that are not part of your contract or verbal agreement	<1> Never <2> Sometimes <3> Regularly <4> I don't want to answer
	[T_74_2] Work for the employer's family or associates without your consent	<1> Never <2> Sometimes <3> Regularly <4> I don't want to answer
	[T_74_3] Take any energy-giving drugs to endure the workload	<1> Never <2> Sometimes <3> Regularly <4> I don't want to answer
	[T_74_4] Be available for work 24 hours a day, as required by the employer	<1> Never <2> Sometimes <3> Regularly <4> I don't want to answer
	[T_74_5] Work with symptoms of pain/exhaustion, etc.	<1> Never <2> Sometimes <3> Regularly <4> I don't want to answer
	[T_74_6] Consume improperly stored water or food (e.g. reusable gallons)	<1> Never <2> Sometimes <3> Regularly <4> I don't want to answer

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	[T_74_7] Commit acts that you think may be illegal	<1> Never <2> Sometimes <3> Regularly <4> I don't want to answer
	[T_74_8] Work under the influence of alcohol or drugs (crack cocaine, marijuana, cocaine, etc.)	<1> Never <2> Sometimes <3> Regularly <4> I don't want to answer
	[T_74_9] Provide sexual services (have sex, intercourse) to the employer or associates	<1> Never <2> Sometimes <3> Regularly <4> I don't want to answer
75	[Q_75/Q_75_S] At this job do/did you usually work more than 8 hours a day?	<1> Yes <2> No <3> Other. Ex: 12 by 36 <4> I don't know how to answer this question <5> I don't want to answer this question
76	[Q_76/Q_76_S] When you had to work longer than agreed, did the employer/foreman pay you for overtime?	<1> Yes <2> No. I'm forced to work overtime without payment <3> I'm not paid for overtime but I am entitled to non-financial compensation, such as days off or shorter workdays. <4> Other(s). Specify? <5> I don't know how to answer this question <6> I don't want to answer this question
77	[Q_77/Q_77_S] Could you/can you leave your job/ work or resign at any time?	<1> Yes, at any time, as long as the terms of the contract are respected (e.g. notice) <2> No, because there are no jobs available locally <3> No. The employer would not let me go <4> No, because I need to repay my loan or cash advance before I resign <5> No, because I have to wait to be paid outstanding wages before I leave <6> No, because there is no transportation available for me to leave the workplace <7> Other. Specify... <8> I don't know how to answer this question <9> I don't want to answer this question
78	[Q_78] What would happen if you left your job?	<1> I would have no income <2> The employer would get other employers from the area to boycott me or my family <3> Violence to myself by the employer or recruiter <4> Violence against my family <5> Loss of benefits for myself/ members of my family
79	I will read a list of problems that could be happening/could have happened in your workplace, caused by your employer or associates. Please say whether "you were threatened", "it happened to you", "it happened to co-workers", "it never happened", or "I don't want to answer"	
	[T_79_1] Physical violence	<1> You were threatened <2> It happened to you <3> It happened to co-workers <4> It never happened <5> I don't want to answer
	[T_79_2] Sexual violence (rape or attempted rape)	<1> You were threatened <2> It happened to you <3> It happened to co-workers <4> It never happened <5> I don't want to answer
	[T_79_3] Physical injury to family members	<1> You were threatened <2> It happened to you <3> It happened to co-workers <4> It never happened <5> I don't want to answer
	[T_79_4] Confinement to the workplace	<1> You were threatened <2> It happened to you <3> It happened to co-workers <4> It never happened <5> I don't want to answer

[T_79_5] Confinement to living quarters	<1> You were threatened <2> It happened to you <3> It happened to co-workers <4> It never happened <5> I don't want to answer
[T_79_6] Work under constant surveillance	<1> You were threatened <2> It happened to you <3> It happened to co-workers <4> It never happened <5> I don't want to answer
[T_79_7] Isolation from family or home	<1> You were threatened <2> It happened to you <3> It happened to co-workers <4> It never happened <5> I don't want to answer
[T_79_8] Withholding of wages	<1> You were threatened <2> It happened to you <3> It happened to co-workers <4> It never happened <5> I don't want to answer
[T_79_9] Retention of goods or property (belongings, clothing, mobile phones)	<1> You were threatened <2> It happened to you <3> It happened to co-workers <4> It never happened <5> I don't want to answer
[T_79_10 Retention of promised benefits (supply of food or other items)	<1> You were threatened <2> It happened to you <3> It happened to co-workers <4> It never happened <5> I don't want to answer
[T_79_11] Deprivation of food, water or sleep	<1> You were threatened <2> It happened to you <3> It happened to co-workers <4> It never happened <5> I don't want to answer
[T_79_12] Confiscation of personal documents	<1> You were threatened <2> It happened to you <3> It happened to co-workers <4> It never happened <5> I don't want to answer
[T_79_13] Work unprotected from the sun	<1> You were threatened <2> It happened to you <3> It happened to co-workers <4> It never happened <5> I don't want to answer
[T_79_14] Inappropriate physical/sexual contact	<1> You were threatened <2> It happened to you <3> It happened to co-workers <4> It never happened <5> I don't want to answer
[T_79_15] Insult and embarrassment about intelligence or physical appearance	<1> You were threatened <2> It happened to you <3> It happened to co-workers <4> It never happened <5> I don't want to answer
[T_79_16] Shouts, insults or curses while working	<1> You were threatened <2> It happened to you <3> It happened to co-workers <4> It never happened <5> I don't want to answer
[T_79_17 Embarrassing jokes about workers	<1> You were threatened <2> It happened to you <3> It happened to co-workers <4> It never happened <5> I don't want to answer

HEALTH & SAFETY

Question ID	Question	Answer
80	Now, I'm going to ask you questions about the health and safety conditions in your current job or any job(s) you had in the last three years.	
81	[Q_81] Does the employer supply the protective equipment/tools necessary for carrying out your work/activity?	<1> Yes, free of charge <2> Yes, but I pay for it <3> No <4> I don't know how to answer this question <5> I don't want to answer this question
82	[Q_82] To do your job, do you need to buy/pay for some kind of protective equipment?	<1> Yes <2> No <3> I don't know how to answer this question <4> I don't want to answer this question
83	[Q_83] In your daily life at work, does the employer provide food to workers?	<1> Yes, free of charge <2> Yes, but I pay for it <3> No <4> I don't know how to answer this question <5> I don't want to answer this question
84	[Q_84] In your daily life at work, does the employer provide an appropriate place to store and conserve the food items you use for your meals?	<1> Yes <2> No <3> I don't know how to answer this question <4> I don't want to answer this question
85	[Q_85/Q_85_S] In your daily life at work, the water drank by workers comes from …	<1> Home filter <2> Drinking fountain <3> River/stream <4> Dam shared with animals <5> Other, specify… <6> I don't know how to answer this question <7> I don't want to answer this question
86	[Q_86/Q_86_S] Have you been exposed to any of these things at work?	<1> Dust, smoke <2> Fire, gasoline, flames <3> Loud noise or vibration <4> Extremely hot or cold air temperature <5> Touch extremely hot or cold materials <6> Electrical charges <7> Toxic smells <8> Underground work <9> Work at great heights <10> Work in water/lake/pond/river <11> Very dark workplace <12> Work in confined spaces <13> Insufficient ventilation <14> Chemicals (pesticides, glues, paints, etc.) <15> Animal bites (e.g. snakes) <16> Other things, processes or conditions hazardous to health and safety. Specify… <17> No <18> I don't know how to answer this question <19> I don't want to answer this question
87	[Q_87/Q_87_S] Have you ever been injured or had health problems because of your work?	<1> Superficial wounds or open wounds <2> Fractures <3> Dislocated, twisted or strained member <4> Burns from chemicals, hot water, ice, etc. <5> Respiratory problems <6> Eye problems <7> Skin diseases <8> Stomach problems/diarrhoea <9> Fever <10> Exhaustion <11> Body swelling <12> Changes in the menstrual cycle of the women/girls <13> Aggravated pre-existing health condition. Specify… <14> Other. Specify… <15> No <16> I don't know how to answer this question <17> I don't know how to answer this question
88	[Q_88] Did the above-mentioned work-related illnesses/injuries force you to stop working?	<1> No <2> Yes, for at least one day <3> Yes, between 1 and 3 days <4> More than 3 days <5> Permanently, I will never be able to work again because of this illness/injury <6> I don't know how to answer this question <7> I don't want to answer this question

Question ID	Question	Answer
89	[Q_89] If you are very sick or injured, can you ask for sick leave?	<1> Yes, I always get it <2> Yes, but I don't always get it <3> No <4> I don't know how to answer this question <5> I don't want to answer this question

LIVING CONDITIONS IN THE WORKPLACE

Question ID	Question	Answer
90	Now I will ask you about your living conditions during the time you were working at "{O}"	
91	[Q_91] To carry out your activities/work do you sleep/stay in living quarters/bedrooms?	<1> Yes <2> No <3> I don't know how to answer this question <4> I don't want to answer this question
92	[Q_92] Do you feel safe and protected in your living quarters?	<1> Yes <2> No <3> I don't know how to answer this question <4> I don't want to answer this question
93	[Q_93] Are there equipment, machinery or agricultural supplies stored in the room where you sleep/rest?	<1> Yes <2> No <3> I don't know how to answer this question <4> I don't want to answer this question
94	[Q_94] Can you ask your employer to change rooms in case of a serious problem? (Serious problem means threats to physical safety or mental health)	<1> Yes <2> No <3> I don't know how to answer this question <4> I don't want to answer this question
95	[Q_95] Do you share the room with other people?	<1> Yes, with persons of the same sex <2> Yes, with persons of both sexes <3> No, I stay alone <4> I don't know how to answer this question <5> I don't want to answer this question
96	[Q_96] How many people do you share the room with? (Including the respondent)	
97	[Q_97] Is your employer or some other employee or associate constantly watching you in the living quarters? (This does not include a security guard for safety/protection purposes)	<1> Yes <2> No <3> I don't know how to answer this question <4> I don't want to answer this question
98	[Q_98/Q_98_S] How do you usually commute from your quarters to the workplace?	<1> There is no need to commute <2> On foot; how many minutes? <7> Other own motor vehicles (car, motorcycle, boat, motorboat...); how many minutes? <8> Other own non-motorized vehicles (horse, bicycle, rowboat...); how many minutes? <3> Public transportation; how many minutes? <4> Transportation provided by the employer; how many minutes? <5> I don't know how to answer this question <6> I don't want to answer this question
99	[Q_99] Does this transportation provided by the employer offer adequate safety conditions to take the workers to the workplace?	<1> Yes <2> No <3> I don't know how to answer this question <4> I don't want to answer this question
100	[Q_100] Are you free to leave your living quarters outside your working hours?	<1> Yes <2> No, the employer would not let me <3> Sometimes, but only with the employer's consent <4> I don't know how to answer this question <5> I don't want to answer this question
101	[Q_101/Q_101_S] Can you contact your family by phone?	<1> Yes <2> Sometimes, but only with the employer's consent <3> No, the employer would not let me <4> No, for financial reasons <5> No, because I have no access to a phone or because there is no mobile signal <6> No, for reasons unrelated to the employer or money. Specify... <7> I don't know how to answer this question <8> I don't want to answer this question

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102	[Q_102/Q_102_S] Can you visit your family outside your working hours?	<1> Yes <2> No, the employer would not let me <3> Sometimes, but only with the employer's consent <4> No, for reasons unrelated to the employer or money Specify... <5> I don't know how to answer this question <6> I don't want to answer this question
103	[Q_103] In general, how would you rate the conditions in this job?	<1> Terrible <2> Bad <3> Bad but acceptable <4> Good <5> I don't know how to answer this question <6> I don't want to answer this question
104	Please inform respondents' phone numbers {O}:	
	[T_104_1] 1st Phone # (with area code):	
	[T_104_2] 2nd Phone # (with area code):	
	[T_104_3] 3rd Phone # (with area code):	
105	[Q_105] Would you {O} authorize us to make a photographic record of your home?	<1> Yes <2> No
106	Take a picture of the living room:	
107	Take a picture of the bedroom:	
108	Take a picture of the kitchen:	
109	Take a picture of the outside area:	
110	[Q_110] We have reached the end of our interview. Is there anything else you would like to talk about?	
111	Instituto Olhar appreciates your participation!	

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ANNEX 1
Detailed description of the composition of indicators

Modality: Unfree Recruitment (IR) – Dimension: Involuntariness

Category 1: Forced Recruitment (RF)

Full question regarding the indicator:

VARIÁVEL

[Q_44] Who took the decision that you should start/take this job?"

> <1> Myself
> <2> Myself with other people
> **<3> Someone else decided for me without my consent**
> <4> I don't know how to answer this question
> <5> I don't want to answer this question

[OPERADOR]

VARIÁVEL

[Q_45] What other person decided for you without your consent?

> <1> My parents
> <2> My sibling(s)
> <3> My partner
> **<4> The "gato"/agent**
> **<5> The employer**
> <6> I don't know how to answer this question
> <7> I don't want to answer this question

Modality: Unfree Recruitment (IR) – Dimension: Involuntariness

Category 2: Deceptive Recruitment (RE)

Sub-category 1: False promises (RE_1)

Full question regarding the indicator:

VARIÁVEL

[Q_46] Why did you decide that you would/should start/take this job?

> <1> I needed money
> <2> I was not happy with my job at the time

<3> There was no job in the city where I used to live
<4> To accompany family members
<5> Interest in a specific job/skill.
<6> I knew someone from the workplace
<7> I wanted to be independent
<8> Death of the head of household
<9> I was a victim of physical violence
<10> I was forced/convinced by false promises
<11> Confiscation of land/property
<12> Confiscation of documents
<13> Drug addiction
<14> Domestic violence (physical or sexual)
<15> Financial/economic crisis
<16> Religious or ethnic problems
<17> I was not welcome in the community. Why not?
<18> Other. Specify...
<19> I don't know how to answer this question.
<20> I don't want to answer this question.

Sub-category 2: Deception about living conditions (RE_2)

Full question regarding the indicator:

AGREEMENT / VARIABLE

[Q_53] Was this job discussed and agreed before your arrived in the workplace?

<1> Before
<2> After
<3> I don't know how to answer this question
<4> I don't want to answer this question

(OPERATOR)

LIVING CONDITIONS
WORKPLACE / **(VARIABLE)**

[T_58_1] The living conditions in the were

<1> Much worse
<2> Worse
<3> As promised/agreed
<4> Somewhat better
<5> Much better
<6> Not discussed with recruiter/employer

(OPERATOR) - OR

[T_58_6] The quality of the accommodations was

> **<1> Much worse**
> <2> Worse
> <3> As promised/agreed
> <4> Somewhat better
> <5> Much better
> <6> Not discussed with recruiter/employer

(OPERATOR) - OR

LIVING CONDITIONS

FOOD / **VARIÁVEL**

[T_58_8] The quality of nutrition/ food was

> **<1> Much worse**
> <2> Worse
> <3> As promised/agreed
> <4> Somewhat better
> <5> Much better
> <6> Not discussed with recruiter/employer

Sub-category 3: Deception about the nature of the job (RE_3)

Full question regarding the indicator:

AGREEMENT **VARIABLE**

[Q_53] Was this job discussed and agreed before or after you arrived in the workplace?

> **<1> Before**
> **<2> After**
> <3> I don't know how to answer this question
> <4> I don't want to answer this question

(OPERATOR)

NATURE OF THE JOB **VARIÁVEL**

[T_58_3] The location of the job was

> **<1> Much worse**
> <2> Worse
> <3> As promised/
> agreed
> <4> Somewhat better
> <5> Much better
> <6> Not discussed with recruiter/employer

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Sub-category 4: Deception about the location of the job (RE_4)

Full question regarding the indicator:

AGREEMENT / **VARIABLE**

[Q_53]   Was this job discussed and agreed before or after you arrived in he workplace?

   <1> Before
   <2> After
   <3> I don't know how to answer this question
   <4> I don't want to answer this question

(OPERATOR) - AND

LOCATION OF THE JOB / **(VARIABLE)**

[T_58_3] The location of the job was

   <1> Much worse
   <2> Worse
   <3> As promised/agreed
   <4> Somewhat better
   <5> Much better
   <6> Not discussed with recruiter/employer

Sub-category 5: Deception about wages (RE_5)

Full question regarding the indicator:

AGREED / **VARIABLE**

[Q_53]   Was this job discussed and agreed before or after you arrived in the workplace?

   <1> Before
   <2> After
   <3> I don't know how to answer this question
   <4> I don't want to answer this question

(OPERATOR)

REMUNERATION / **VARIABLE**

[T_58_4] The salary was

   <1> Much worse
   <2> Worse
   <3> As promised/agreed
   <4> Somewhat better
   <5> Much better
   <6> Not discussed with recruiter/employer

Sub-category 6: Deception about working hours (RE_6)

Full question regarding the indicator:

AGREED / VARIABLE

[Q_53]   Was this job discussed and agreed before or after you arrived in the workplace?
   <1> Before
   <2> After
   <3> I don't know how to answer this question
   <4> I don't want to answer this question

(OPERATOR) AND

WORKING HOURS / VARIABLE

[T_58_5] The working hours (per day, week, month) were
   <1> Much worse
   <2> Worse
   <3> As promised/agreed
   <4> Somewhat better
   <5> Much better
   <6> Not discussed with recruiter/employer

Sub-category 7: Deception about rest and free time RE_7

Full question regarding the indicator:

AGREED / VARIABLE

[Q_53]   Was this job discussed and agreed before or after you arrived in the workplace?
   <1> Before
   <2> After
   <3> I don't know how to answer this question
   <4> I don't want to answer this question

(OPERATOR)

LEISURE AND FREE TIME / VARIABL

[T_58_7] The free time/rest time was<1> Much worse
   <1> Much worse
   <2> Worse
   <3> As promised/agreed
   <4> Somewhat better
   <5> Much better
   <6> Not discussed with recruiter/employer

Sub-category 8: Deception about working conditions (RE_8)

Full question regarding the indicator:

AGREED / **VARIABLE**

[Q_53]   Was this job discussed and agreed before or after you arrived in the workplace?

  <1> Before
  <2> After
  <3> I don't know how to answer this question
  <4> I don't want to answer this question

(OPERATOR)

WORKING CONDITIONS / **VARIABLE**

[T_58_9] The work equipment/tools (boots, sickles, hoes, etc.) were

  <1> Much worse
  <2> Worse
  <3> As promised/agreed
  <4> Somewhat better
  <5> Much better
  <6> Not discussed with recruiter/employer

Modality: Coercive Recruitment (PR1) – Dimension: Coercion (Penalty or Menace of Penalty)

Categories 1 and 2: Physical violence (PR1_1) and Confiscation of documents (PR1_2)

Full question regarding the indicator:

VARIABLE

[Q_46]   Why did you decide that you would/should start/take this job?

  <1> I needed money
  <2> I was not happy with my job at the time
  <3> There was no job in the city where I used to live
  <4> To accompany family members
  <5> Interest in a specific job/skill
  <6> I knew someone from the workplace
  <7> I wanted to be independent
  <8> Death of the head of household
  <9> I was a victim of physical violence
  <10> I was forced/convinced by false promises
  <11> Confiscation of land/property
  <12> Confiscation of documents
  <13> Drug addiction
  <14> Domestic violence (physical or sexual)
  <15> Financial/economic crisis
  <16> Religious or ethnic problems
  <17> I was not welcome in the community. Why not?

<18> Other. Specify...
<19> I don't know how to answer this question
<20> I don't want to answer this question
17. ( ) Não era bem-vindo na comunidade. Por quê?:
18. ( ) Outro. Qual?
19. ( ) Não sei responder essa pergunta.
20. ( ) Não quero responder essa pergunta.

Category 3: Punishment for refusing the job offer (PR1_3)

Full questions regarding the indicator:

VARIABLE

[Q_59]   *After you arrived in the workplace, did you have the option to ask to change jobs?*

<1> Yes
<2> No

(OPERATOR) AND

VARIABLE

[Q_60]   *If you wanted/want, could you have abandoned/can you abandon the job and go back home?*

<1> Yes
<2> No

(OPERATOR) AND

VARIABLE

[Q_61]   *What would have happened if you had refused the recruitment/job offer? (any negative impact for not accepting the job)*

<1> Nothing, but I didn't have many work alternatives/options
<2> The employer would try to stop other employers in the area from hiring me
<3> Other people in my family would lose their jobs
<4> I would not be able to repay the debt to the employer
<5> Threats of violence against me or my family
<6> Other. Specify...

Modality: Work under duress (IW) – Dimension: Involuntariness

Category 3: Forced engagement in illicit activities (IW_3)

Full question regarding the indicator:

VARIABLE

[T_74_7] *Commit acts that you think may be illicit*

<1> Never

<2> Sometimes
<3> Regularly
<4> I don't want to answer

Category 4: Work beyond what was agreed (IW_4)
Full questions regarding the indicator:

[T_74_1]   *Perform tasks that are not part of your contract or verbal agreement:*

    <1> Never
    <2> Sometimes
    <3> Regularly
    <4> I don't want to answer

(OPERATOR) OR

[T_74_2]   *Work for the employer's family or associates without your consent:*

    <1> Never
    <2> Sometimes
    <3> Regularly
    <4> I don't want to answer

Category 5: Work in poor health conditions (forced to work when sick) (IW_5)
Full questions regarding the indicator:

[T_74_5]   *Work with symptoms of pain/exhaustion, etc.*

    <1> Never
    <2> Sometimes
    <3> Regularly
    <4> I don't want to answer

(OPERADOR) AND

[Q_89]   *If you are very sick or injured, can you ask for sick leave?*

    <1> Yes, I always get it
    <2> Yes, but I don't always get it
    <3> No
    <4> I don't know how to answer this question
    <5> I don't want to answer this question

Category 6: Induced use of alcohol or drugs (IW_6)

Full questions regarding the indicator:

> **VARIABLE**

[T_74_3] Take any energy-giving drugs to endure the workload

>   <1> Never
>   <2> Sometimes
>   <3> Regularly
>   <4> I don't want to answer

(OPERATOR) OR

> **VARIABLE**

[T_74_8] Work under the influence of alcohol or drugs (crack cocaine, marijuana, cocaine, etc.)

>   <1> Never
>   <2> Sometimes
>   **<3> Regularly**
>   <4> I don't want to answer

Category 7: Forced provision of sexual services (IW_7)

Full question regarding the indicator:

> **VARIABLE**

[T_74_9] Provide sexual services (have sex, intercourse) to the employer or associates:

>   <1> Never
>   **<2> Sometimes**
>   **<3> Regularly**
>   <4> I don't want to answer

Category 8: Work without protection/protective equipment (IW_8)

Full questions regarding the indicator:

> **VARIABLE**

[T_79_13] Work unprotected from the sun:

>   <1> You were threatened
>   **<2> It happened to you**
>   <3> It happened to co-workers
>   <4> It never happened

[OPERADOR] AND

[Q_81]   [Q_81] Does the employer supply the protective equipment/tools necessary for carrying out your work/activity?

>   <1> Yes, free of charge

<2> Yes, but I pay for it

<3> No

<4> I don't know how to answer this question

<5> I don't want to answer this question

Modality: Work Under Duress (IW) – Dimension: Coercion

Category 1: Physical Violence (PC_1)

Full question regarding the indicator:

VARIABLE

[T_79_1] Physical violence

> **<1> You were threatened**
> **<2> It happened to you**
> <3> It happened to co-workers
> <4> It never happened
> <5> I don't want to answer

Category 2: Sexual Violence (PC_2)

Full questions regarding the indicator:

VARIABLE

[T_79_2] Sexual violence (rape or attempted rape)

> **<1> You were threatened**
> **<2> It happened to you**
> <3> It happened to co-workers
> <4> It never happened
> <5> I don't want to answer

[OPERADOR] OR

VARIABLE

[T_79_14] Inappropriate physical/sexual contact

> **<1> You were threatened**
> **<2> It happened to you**
> <3> It happened to co-workers
> <4> It never happened
> <5> I don't want to answer

Category 3: Threats against Family Members (PC_3)

Full question regarding the indicator:

[T_79_3] *Physical injury to family members*

> **<1> You were threatened**
> **<2> It happened to you**
> <3> It happened to co-workers
> <4> It never happened
> <5> I don't want to answer

Category 4: Confinement and Isolation (PC_4)

Full questions regarding the indicator:

[T_79_4] *Confinement to workplace*

> **<1> You were threatened**
> **<2> It happened to you**
> <3> It happened to co-workers
> <4> It never happened
> <5> I don't want to answer

[OPERADOR] OR

[T_79_5] *Confinement to living quarters*

> **<1> You were threatened**
> **<2> It happened to you**
> <3> It happened to co-workers
> <4> It never happened
> <5>I don't want to answer

[OPERADOR]

[Q_100] *Can you leave your quarters at any time outside your working hours?*

> <1> Yes
> <2> No, the employer would not let me
> <3> Sometimes, but only with the employer's permission
> <4> I don't know how to answer this question
> <5> I don't want to answer this question

[OPERADOR]

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[T_79_5] *Confinement to living quarters*

  <1> You were threatened
  <2> It happened to you
  <3> It happened to co-workers
  <4> It never happened
  <5> I don't want to answer

[OPERADOR]

VARIABLE

[Q_102] *Can you visit your family in your free time?*

  <1> Yes
  <2> No, the employer would not let me
  <3> Sometimes, but only with the employer's permission
  <4> I don't know how to answer this question
  <5> I don't want to answer this question

[OPERADOR]

VARIABLE

[T_79_6] *Work under constant surveillance*

  <1> You were threatened
  <2> It happened to you
  <3> It happened to co-workers
  <4> It never happened
  <5> I don't want to answer

Category 5: Retention of wages, property or promised benefits (PC_5)

Full questions regarding the indicator:

VARIABLE

[T_79_8] *Withholding of wages*

  <1> You were threatened
  <2> It happened to you
  <3> It happened to co-workers
  <4> It never happened
  <5> I don't want to answer

[OPERADOR] OR

VARIABLE

[T_79_9] *Retention of goods or property (personal belongings, clothing, mobile phones)*

  <1> You were threatened
  <2> It happened to you
  <3> It happened to co-workers

<4> It never happened

<5> I don't want to answer

[T_79_10] Retention of promised benefits (supply of food or other items)

<1> You were threatened

<2> It happened to you

<3> It happened to co-workers

<4> It never happened

<5> I don't want to answer

Category 6: Confiscation of documents (PC_6)

Full question regarding the indicator:

[T_79_12] Confiscation of personal documents:

<1> You were threatened

<2> It happened to you

<3> It happened to co-workers

<4> It never happened

<5> I don't want to answer

Modality: Impossibility of leaving the employer (ILE_1) – Dimension: Involuntariness

Category 1: Withholding of wages (ILE_1)

Full question regarding the indicator:

[Q_77]   Could you/can you leave your job/work or resign at any time?

<1> Yes, at any time, as long as the terms of the contract are respected (e.g. notice)

<2> No, because there are no jobs available locally

<3> No, the employer would not let me go

<4> No, because I need to repay my loan or wage advance first

<5> No, because I have to wait to be paid outstanding wages

<6> No, because there is no transportation available for me to leave

<7> Other. Specify...

<8> I don't know how to answer this question

<9> I don't want to answer this question

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Category 2: Debt Bondage (ILE_2)

Full question regarding the indicator:

> **VARIABLE**

[Q_50]   *Who did you pay to or who did you receive from?*

> **<1> Recruiter/agent**
> **<2> Employer**
> **<3> Employment agency**
> <4> Family member
> <5> Others
> <6> I don't know how to answer this question
> <7> I don't want to answer this question

[OPERADOR]

> **VARIABLE**

[Q_77]   *Could you/can you leave your job/work or resign at any time?*

> <1> Yes, at any time, as long as the terms of the contract are respected (e.g. notice)
> <2> No, because there are no jobs available locally
> <3> No, the employer would not let me go
> <4> No, because I need to repay my loan or age advance first
> <5> No, because I have to wait to be paid outstanding wages
> <6> No, because there is no transportation available for me to leave
> <7> Other. Specify...
> <8> I don't know how to answer this question
> <9> I don't want to answer this question

Modality: Coercion associated with impossibility of leaving the employer (ILE_2) – Dimension: Penalty or menace of penalty

Category 1: Threats and risks (Threats to prevent the worker from leaving) (PILE_1)

Exclusion from future employment opportunities – Boycott by other employers.

Full question regarding the indicator:

> **VARIABLE**

[Q_78] *What would happen if you left your job?*

> <1> I would have no income
> **<2> The employer would get other employers from the area to boycott me or my family**
> <3> Violence to myself by the employer or recruiter
> <4> Violence against my family
> <5> Loss of benefits for myself/members of my family

Category 2: Physical Violence – Risk of violence for leaving the employer. (PILE_2)

Full question regarding the indicator:

[Q_78] What would happen if you left your job?

        <1> I would have no income

        <2> The employer would get other employers from the area to boycott me or my family

        <3> Violence to myself by the employer or recruiter

        <4> Violence against my family

        <5> Loss of benefits for myself/members of my family

Category 3: Violence against members of the family – Threat of violence against members of the family. (PILE_3)

Full question regarding the indicator:

[Q_78]   What would happen if you left your job?

        <1> I would have no income

        <2> The employer would get other employers from the area to boycott me or my family

        <3> Violence to myself by the   employer or recruiter

        <4> Violence against my family

        <5> Loss of benefits for myself/ members of my family

Category 4: Loss of wages – Problems or threats at work or from employer regarding withholding of wages (PILE_5)

Full question regarding the indicator:

[Q_79_8] Withholding of wages:

        <1> You were threatened

        <2> It happened to you

        <3> It happened to a co-worker

        <4> It never happened

        <5> I don't want to answer

[OPERADOR]

[Q_78] What would happen if you left your job?

        <1> I would have no income

        <2> The employer would get other employers from the area to boycott me or my family

        <3> Violence to myself by the   employer or recruiter

<4> Violence against my family

<5> Loss of benefits for myself/ members of my family

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Modally: Debt Bondage

Category 1: Debt bondage associated with recruitment (SDiv_1)

Full question regarding the indicator:

> **VARIABLE**

[Q_49/Q_49_S] But did you have to pay to get the job or were you given any wage advance (to/from the recruiter or the employer)?

<1> Yes, I was given foodstuff

<2> Yes, I was given a wage advance. Specify amount:

<3> Yes, I paid to get the job. Specify amount:

<4> No

<5> I don't know how to answer this question

<6> I don't want to answer this question

[OPERADOR] AND

> **VARIABLE**

[Q_50/Q_50_S] Who did you pay or who paid you?

<1> Recruiter/agent

<2> Employer

<3> Employment agency

<4> Family member

<5> Other. Specify...

<6> I don't know how to answer this question

<7> I don't want to answer this question

Modality: Degrading Conditions

Category 1: Precarious accommodations

Sub-category 1.1 – Unsafe accommodations (DEG_1.1)

Full question regarding the indicator:

> **VARIABLE**

[Q_91] To perform your activities/work do you sleep/stay in living quarters/bedroom?

<1> Yes

<2> No

<3> I don't know how to answer this question

<4> I don't want to answer this question

[Q_92]   *Do you feel safe in living quarters/bedroom?*

        <1> Yes
        <2> No
        <3> I don't know how to answer this question
        <4> I don't want to answer this question

[OPERADOR] OR

VARIABLE

[Q_94]   *Can you ask your employer to change living quarters/bedroom in case of a serious problem? (Serious problem means threats to physical safety or mental health)*

        <1> Yes
        <2> No
        <3> I don't know how to answer this question
        <4> I don't want to answer this question

Modality: Degrading Conditions

Category 1: Precarious accommodations

Sub-category 1.2 – Unhealthy accommodations (DEG_1.2)

Full question regarding the indicator:

VARIABLE

[Q_91]   *To perform your activities/work do you sleep/stay in living quarters/bedroom?*

        <1> Yes
        <2> No
        <3> I don't know how to answer this question
        <4> I don't want to answer this question

[OPERADOR] AND

VARIABLE

[Q_93]   *Are there equipment, machinery or agricultural supplies stored in the room where you sleep/rest?*

        <1> Yes
        <2> No
        <3> I don't know how to answer this question
        <4> I don't want to answer this question

[OPERADOR] AND

VARIABLE

[Q_94] *Can you ask your employer to change living quarters/bedroom in case of a serious problem? (Serious problem means threats to physical safety or mental health)*

<1> Yes

<2> No

<3> I don't know how to answer this question

<4> I don't want to answer this question

Category 2: Inadequate access to and deprivation of water, food and sleep

Sub-category 2.1 – Food and water improperly stored (DEG_2.1)

Full questions regarding the indicator:

VARIABLE

[Q_84] *In your daily life at work, does the employer provide an appropriate place to store and conserve the food items you use for your meals?*

<1> Yes

<2> No

<3> I don't know how to answer this question

<4> I don't want to answer this question

OPERADOR

VARIABLE

[T_74_6] Consume improperly stored water or food (e.g. reusable gallons)

<1> Never

<2> Sometimes

<3> Regularly

<4> I don't want to answer

Category 2: Inadequate access to and deprivation of water, food and sleep

Sub-category 2.2 – Water shared with animals (DEG_2.2)

Full questions regarding the indicator:

VARIABLE

[Q_85/Q_85_S] *In your daily life at work, the water drank by workers comes from...*

<1> Home filter

<2> Drinking fountain

<3> River/stream

<4> Dam shared with animals

<5> Other. Specify...

<6> I don't know how to answer this question

<7> I don't want to answer this question

Category 2: Inadequate access to and deprivation of water, food and sleep

Sub-category 2.3 – Deprivation of water, food and sleep (DEG_2.3)

Full question regarding the indicator:

VARIABLE

[T_79_11] Deprivation of water, food or sleep

        <1> You were threatened

        <2> It happened to you

        <3> It happened to co-workers

        <4> It never happened

        <5> I don't want to answer

Category 3: Inadequate safety and health conditions at work when associated with self-declared job-related symptoms – Unhealthy working conditions 'Lack of PPE'. (A_EPI)

Condition 1 – Exposure to the sun and related diseases (SINT3.1)

Full question regarding the indicator:

LACK OF PROTECTION (PPE) / **VARIABLE**

[Q_81]   Does the employer supply the protective equipment/tools necessary for carrying out your work/activity?

        <1> Yes, free of charge

        <2> Yes, but I pay for it

        <3> No

        <4> I don't know how to answer this question

OPERADOR AND

EXPOSURE / **VARIABLE**

[T_79_13] Work unprotected from the sun

        <1> You were threatened

        <2> It happened to you

        <3> It happened to a co-worker

        <4> It never happened

        <5> I don't want to answer

OPERADOR AND

SYMPTOMS / **VARIABLE**

[Q_87/Q_87_S] Have you ever been injured or had health problems because of your job?

        <1> Superficial wounds or open wounds

        <2> Fractures

        <3> Dislocated, twisted or strained member

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<4> Burns from by chemicals, hot water, ice, etc.

<5> Respiratory problems

<6> Eye problems

<7> Skin diseases

<8> Stomach problems/diarrhoea

<9> Fever

<10> Exhaustion

<11> Body swelling

<12> Changes in the menstrual cycle of the women/girls

<13> Aggravated pre-existing health condition. Specify the health condition:

<14> Other. Specify:

<15> No

<16> I don't want to answer this question

<17> I don't know how to answer this question

Condition 2 – Exposure to fire, gasoline and flames (SINT3.1b)

Full question regarding the indicator:

LACK OF PROTECTION (PPE) / **VARIABLE**

[Q_81]   *Does the employer supply the protective equipment/tools necessary for carrying out your work/activity?*

<1> Yes, free of charge

<2> Yes, but I pay for it

<3> No

<4> I don't know how to answer this question

[OPERATOR] AND

EXPOSURE / **VARIABLE**

[Q_86/Q_86_S] Have you been exposed to any of these things at work?

<1> Dust, smoke

<2> Fire, gasoline, flames

<3> Loud noise or vibration

<4> Extremely hot or cold air temperature

<5> Touch extremely hot or cold materials

<6> Electrical charges

<7> Toxic smells

<8> Underground work

<9> Work at great heights

<10> Work in water/lake/pond/river

<15> Animal bites (e.g. snakes)

<16> Other things, processes or conditions hazardous to health and safety. Specify...

<18>   I don't know how to answer this question

<19> I don't want to answer this question

SYMPTOMS / VARIABLE

[Q_87/Q_87_S] Have you ever been injured or had health problems because of your work?

        <1> Superficial wounds or open wounds

        <2> Fractures

        <3> Dislocated, twisted or strained member

        <4> Burns from chemicals, hot water, ice, etc.

        <5> Respiratory problems

        <6> Eye problems

        <7> Skin diseases

        <8> Stomach problems/diarrhoea

        <9> Fever

        <10> Exhaustion

        <11> Body swelling

        <12> Changes in the menstrual cycle of the women/girls

        <13> Aggravated pre-existing health condition. Specify the health condition:

        <14> Other(s). Specify:

        <15> No

        <16> I don't know how to answer this question

        <17> I don't want to answer this question

Condition 3 – Exposure to extreme air temperatures (SINT3.1c)

Full question regarding the indicator:

LACK OF PROTECTION (PPE) / VARIABLE

[Q_81]   *Does the employer supply the protective equipment/tools necessary for carrying out your work/activity?*

        <1> Yes, free of charge

        <2> Yes, but I pay for it

        <3> No

        <4> I don't know how to answer this question

[OPERATOR]

EXPOSURE / VARIABLE

[Q_86/Q_86_S] Have you been exposed to any of these things at work?

        <1> Dust, smoke

        <2> Fire, gasoline, flames

        <3> Loud noise or vibration

        <4> Extremely hot or cold air temperature

        <5> Handle extremely hot or cold materials

        <6> Electrical charges

        <7> Toxic smells

        <8> Underground work

<9> Work at great heights

<10> Work in water/lake/pond/river

<11> Very dark workplace

<12> Work in confined spaces

<13> Insufficient ventilation

<14> Chemicals (pesticides, glues, paints, etc.)

<15> Bites of animals like snakes...

<16> Other things, processes or conditions hazardous to health and safety. Specify...

<17> No

<18> I don't know how to answer this question

<19> I don't want to answer this question

[OPERATOR] AND

SYMPTOMS / **VARIABLE**

[Q_87/Q_87_S] Have you ever been injured or had health problems because of your work?

<1> Superficial wounds or open wounds

<2> Fractures

<3> Dislocated, twisted or strained member

<4> Burns from chemicals, hot water, ice, etc.

<5> Respiratory problems

<6> Eye problems

<7> Skin diseases

<8> Stomach problems/diarrhoea

<9> Fever

<10> Exhaustion

<11> Body swelling

<12> Changes in the menstrual cycle of the women/girls

<13> Aggravated pre-existing health condition. Specify the health condition:

<14> Other(s). Specify:

<15> No

<16> I don't know how to answer this question

<17> I don't want to answer this question

Condition 4 – Exposure to toxic elements (SINT3.1d).

Full question regarding the indicator:

LACK OF PROTECTION (PPE) / **VARIABLE**

[Q_81] *Does the employer supply the protective equipment/tools necessary for carrying out your work/activity?*

<1> Yes, free of charge

<2> Yes, but I pay for it

<3> No

<4> I don't know how to answer this question

[OPERATOR] AND

[Q_86/Q_86_S] Have you been exposed to any of these things at work?

    <1> Dust, smoke
    <2> Fire, gasoline, flames
    <3> Loud noise or vibration
    <4> Extremely hot or cold air temperature
    <5> Handle extremely hot or cold materials
    <6> Electrical charges
    <7> Toxic smells
    <8> Underground work
    <9> Work at great heights
    <10> Work in water/lake/pond/river
    <11> Very dark workplace
    <12> Work in confined spaces
    <14> Chemicals (pesticides, glues, paints, etc.)
    <15> Animal bites (e.g. snakes)
    <16> Other things, processes or conditions hazardous to health and safety. Specify...
    <17> No
    <18> I don't know how to answer this question
    <19> I don't want to answer this question

[OPERATOR] AND

[Q_86/Q_86_S] Have you been exposed to any of these things at work?

    <1> Superficial wounds or open wounds
    <2> Fractures
    <3> Dislocated, twisted or strained member
    <4> Burns from chemicals, hot water, ice, etc.
    <5> Respiratory problems
    <6> Eye problems
    <7> Skin diseases
    <8> Stomach problems/diarrhoea
    <9> Fever
    <10> Exhaustion
    <11> Body swelling
    <12> changes in the menstrual cycle of the women/girls
    <13> aggravated pre-existing health condition. Specify the health problem:
    <14> Other(s). Specify:
    <15> No
    <16> I don't know how to answer this question
    <17> I don't want to answer this question

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Condition 5 – Exposure to chemicals. (SINT3.1e)

Full question regarding the indicator:

LACK OF PROTECTION (PPE) / **VARIABLE**

[Q_81] *Does the employer supply the protective equipment/tools necessary for carrying out your work/activity?*

    <1> Yes, free of charge

    <2> Yes, but I pay for it

    <3> No

    <4> I don't know how to answer this question

[OPERATOR] AND

EXPOSURE / **VARIABLE**

[Q_86/Q_86_S] Você foi exposto a alguma dessas coisas no trabalho?

    <1> Dust, smoke

    <2> Fire, gasoline, flames

    <3> Loud noise or vibration

    <4> Extremely hot or cold air temperature

    <5> Handle extremely hot or cold materials

    <6> Electrical charges

    <7> Toxic smells

    <8> Underground work

    <9> Work at great heights

    <10> Work in water/lake/pond/river

    <11> Very dark workplace

    <12> Work in confined spaces

    <13> Insufficient ventilation

    <14> Chemicals (pesticides, glues, paints, etc.)

    <15> Animal bites (e.g. snakes)

    <16> Other things, processes or conditions hazardous to health and safety. Specify...

    <17> No

    <18> I don't know how to answer this question

    <19> I don't want to answer this question

[OPERATOR] AND

SYMPTOMS / **VARIABLE**

[Q_87/Q_87_S] Have you ever been injured or had health problems because of your job?

    <1> Superficial wounds or open wounds

    <2> Fractures

    <3> Dislocated, twisted or strained member

    <4> Burns from chemicals, hot water, ice, etc.

    <5> Respiratory problems

    <6> Eye problems

    <7> Skin diseases

<8> Stomach problems/diarrhoea

<9> Fever

<10> Exhaustion

<11> Body swelling

<12> Changes in the menstrual cycle of the women/girls

<13> Aggravated pre-existing health condition. Specify the health condition:

<14> Other(s). Specify:

<15> No

<16> I don't know how to answer this question

<17> I don't want to answer this question

Sub-category 3.2 – Inadequate transportation

Full question regarding the indicator:

VARIABLE

[Q_98]   *How do you usually commute from your living quarters to the workplace?*

<1> There is no need to commute

<2> On foot; how many minutes?

<7> Other own motor vehicles (car, motorcycle, boat, motorboat...); how many minutes?

<8> Other own non-motorized vehicles (horse, bicycle, rowboat...); how many minutes?

<3> Public transportation; how many minutes?

<4> Transportation provided by the employer; how many minutes?

<5> I don't know how to answer this question

<6> I don't want to answer this question

[OPERATOR] AND

VARIABLE

[Q_99]   *Does this transportation provided by the employer offer adequate safety conditions to take the workers to the workplace?*

<1> Yes

<2> No

<3> I don't know how to answer this question

<4> I don't want to answer this question

Sub-category 3.3 – Poor health conditions

Full questions regarding the indicator:

VARIABLE

[T_74_5] *Work with symptoms of pain/exhaustion, etc.*

<1> Never

<2> Sometimes

<3> Regularly

<4> I don't want to answer

[OPERATOR] AND

VARIABLE

[Q_89] If you are very sick or injured, can you ask for sick leave?

<1> Yes, I always get it
<2> Yes, but I don't always get it
<3> No
<4> I don't know how to answer this question
<5> I don't want to answer this question

Modality: Exhausting working hours

Category 1: Number of working hours (EW_1)

Full question regarding the indicator:

VARIABLE

[Q_70]   How many days do you usually work per week?

<1> 1 day
<2> 2 days
<3> 3 days
<4> 4 days
<5> 5 days
<6> 6 days
<7> 7 days

[OPERATOR] OR

VARIABLE

[Q_76]   When you had to work for a longer period than agreed did the employer/ foreman pay you for overtime?

<1> Yes
<2> No. I'm forced to work overtime without pay
<3> I'm not paid for overtime but I am entitled to non-financial compensation, such as days off or shorter workdays.
<4> Other(s). Specify?
<5> I don't know how to answer this question
<6> I don't want to answer this question

[OPERATOR] OU

VARIABLE

[T_74_4]   Be available for work 24 hours a day, as required by the employer

<1> Never
<2> Sometimes

<3> Regularly

<4> I don't know how to answer

VARIABLE

[Q_71]   How many (full) hours do you usually work per day?

<>Between 11 and 18 hours per day

Category 2: Excessive volume of work (EW_2n)

Full question regarding the indicator:

VARIABLE

[T_74_3]   Do you take any energy-giving drugs to endure the workload?

<1> Never

<2> Sometimes

<3> Regularly

<4> I don't want to answer

VARIABLE

[Q_87/Q_87_S] Have you ever been injured or had health problems because of your job?

<1> Superficial wounds or open wounds

<2> Fractures

<3> Dislocated, twisted or strained member

<4> Burns from chemicals, hot water, ice, etc.

<5> Respiratory problems

<6> Eye problems

<7> Skin diseases

<8> Stomach problems/diarrhoea

<9> Fever

<10> Exhaustion

<11> Body swelling

<12> Changes in the menstrual cycle of the women/girls

<13> Aggravated pre-existing health condition. Specify the health condition:

<14> Other. Specify:

<15> No

<16> I don't know how to answer this question

<17> I don't want to answer this question

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Websites visited for the survey

Brazilian Association of Labour Judges – ANAMATRA (www.anamatra.org.br). (Entity representing labour judges from all over the country).

COETRAEs (coetraes.reporterbrasil.org.br). Page of the State Commissions for the Eradication of Slave Labour on the website of NGO Repórter Brasil.

National Commission for the Eradication of Slave Labour – CONATRAE (www.mdh.gov.br/informacao-ao-cidadao/participacao-social/orgaos-colegiados/conatrae/comissao-nacional-para-a-erradicacao-do-trabalho-escravo). Created in 2003, the Commission is linked to the Ministry of Human Rights and aims to coordinate and evaluate the implementation of actions provided for in the National Plan for the Eradication of Slave Labour.

Pastoral Land Commission (www.cptnacional.org.br). Since its inception in 1975, the Pastoral Land Commission has been recording conflicts involving rural workers and exposed cases of violence against them. In 1985 the CPT created a Documentation Sector to collect and systematize information on human rights violations in rural areas.

National Confederation of Agricultural Workers – CONTAG (www.contag.org.br). Brings together 27 Agricultural Workers' Federations (FETAGs) and more than 4,000 Rural Workers' Unions (STTRs). It fights for the rights of family farmers, agrarian reform campers and settlers, rural wage earners, sharecroppers, lessees, extractivists, quilombolas, small-scale fishermen and riverine populations.

Data and texts on the fight for land and agrarian reform (www.reformaagrariaemdados.org.br). Repository of information developed by the University of Brasilia.

Freedom Fund (freedomfund.org). International NGO headquartered in London. It was founded in 2013 with the aim to identify and support efforts to end modern slavery.

Social Observatory Institute (www.observatoriosocial.org.br/?q=temas/trabalho_forcado). Non-profit organization aimed to generate knowledge for trade unions and the world of work. It was founded in 1997 at the initiative of the Workers' Union Centre (CUT), of the Interunion Department of Statistics and Socio-economic Studies (DIEESE), of the Centre for Contemporary Cultural Studies (CEDEC), and of UNITRABALHO.

Institute of the National Pact for the Eradication of Slave Labour – InPACTO (www.inpacto.org.br). Established in 2013 as a result of the successful experience of the National Pact for the Eradication of Slave Labour, it aims to bring together private sector and civil society organisations to prevent and eradicate slave labour in production chains.

Ministry of Labour and Employment – MTE (www.trabalho.gov.br). Seeks to eradicate slave and degrading labour through inspection actions coordinated by the Labour Inspection Secretariat (SIT).

Public Labour Prosecution Service – MPT (www.mpt.gov.br). Area of the Public Prosecution Service responsible for enforcing the labour legislation. In the fight against labour analogous to slavery it counts on the support of the National Coordination for the Eradication of Slave Labour (CONAETE). The MPT also provides a website for reporting cases involving slave labour: https://peticionamento.prt19.mpt.mp.br/denuncia.

Integrated Action Movement – MAI (www.acaointegrada.org). Formed by several entities and institutions from a movement initiated in 2008 by the Regional Labour and Employment Superintendence in Mato Grosso (SRTE-MT), with support from the Labour Prosecution Service of Mato Grosso and the International Labour Organization (ILO). Its objective is to combine

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efforts to promote the social, educational and economic reintegration of workers rescued from and vulnerable to slave labour, seeking to replicate the example of Mato Grosso in other states and municipalities.

Human Rights Movement – MhuD (www.mhud.org.br). NGO dedicated primarily to the eradication of slave labour and child sexual exploitation. It supports the demarcation of indigenous lands and quilombola areas and advocates socio-environmental causes.

Agrarian Reform Study, Survey and Project Centre – NERA (www2.fct.unesp.br/nera). Linked to the Science and Technology School of the State University of São Paulo (UNESP), Presidente Prudente campus, NERA develops research into the agrarian issue and has prepared an atlas of rural and urban social and territorial movements.

International Labour Organization – Office in Brazil (www.ilo.org/brasilia/lang--pt/index. htm). Founded in 1919, the ILO has had an office in Brazil since the 1950s. In addition to the permanent promotion of international standards related to labour, employment, improved working conditions and increased social protection, the ILO is characterized by its support for the national effort to promote decent work.

Slavery, No Way! Programme (escravonempensar.org.br). Coordinated by NGO Reporter Brazil in partnership with the Special Secretariat for Human Rights of the Presidency of the Republic, it seeks to reduce, through education, the number of workers recruited for slave labour and subjected to conditions analogous to slavery in rural and urban areas of Brazil.

Repórter Brasil (reporterbrasil.org.br). The NGO seeks to identify and make public situations that violate labour rights and cause social and environmental harms in Brazil, with a view to mobilizing social, political and economic leaders.

National Union of Labour Inspectors – SINAIT (www.sinait.org.br). Represents Labour Inspectors (AFT) and employees of the Ministry of Labour and Social Security tasked with enforcing labour legislation.

Decent Work SMARTLAB (observatorioescravo.mpt.mp.br). Multidisciplinary knowledge management laboratory established through an international technical cooperation agreement between the Public Labour Prosecution Service (MPT) and the International Labour Organization (ILO), with a focus on promoting decent work in Brazil.

WN: Antislavery (wn.com/antislavery). Special project of the U.S. World News website.

ANNEX 3
List of municipalities and census tracts

The table below presents the municipalities and census tracts selected in each stratum, as well as the number of households to be chosen for systematization in each tract, including the number of the first household randomly chosen, and the size of the sample interval for choosing the other households in each tract.

Stratum	IBGE code for the municipality	Name of Municipality	IBGE code for the census tract	Type	Number of households in the population	Number of households in the sample	Size of sample interval for systematization	Randomly selected household
1	2100154	ÁGUA DOCE DO MARANHÃO	210015405000001	Urban	267	20	13	4
1	2100154	ÁGUA DOCE DO MARANHÃO	210015405000002	Urban	234	20	12	5
1	2100154	ÁGUA DOCE DO MARANHÃO	210015405000003	Urban	261	20	13	7
1	2100154	ÁGUA DOCE DO MARANHÃO	210015405000012	Rural	296	20	15	6
1	2100154	ÁGUA DOCE DO MARANHÃO	210015405000014	Rural	210	20	11	7
1	2101731	BELÁGUA	210173105000001	Urban	322	20	16	13
1	2101731	BELÁGUA	210173105000002	Urban	318	20	16	14
1	2101731	BELÁGUA	210173105000005	Rural	145	20	7	5
1	2101731	BELÁGUA	210173105000007	Rural	151	20	8	6
1	2101731	BELÁGUA	210173105000009	Rural	113	20	6	6
1	2104099	FORMOSA DA SERRA NEGRA	210409905000002	Urban	331	20	17	13
1	2104099	FORMOSA DA SERRA NEGRA	210409905000003	Urban	320	20	16	13
1	2104099	FORMOSA DA SERRA NEGRA	210409905000004	Urban	511	20	26	10
1	2104099	FORMOSA DA SERRA NEGRA	210409905000007	Rural	395	20	20	4
1	2104099	FORMOSA DA SERRA NEGRA	210409905000008	Rural	331	20	17	3
1	2104677	GOVERNADOR NUNES FREIRE	210467705000004	Urban	395	20	20	11
1	2104677	GOVERNADOR NUNES FREIRE	210467705000007	Urban	237	20	12	10
1	2104677	GOVERNADOR NUNES FREIRE	210467705000014	Urban	451	20	23	20
1	2104677	GOVERNADOR NUNES FREIRE	210467705000018	Rural	200	20	10	4
1	2104677	GOVERNADOR NUNES FREIRE	210467705000028	Rural	261	20	13	3
1	2105476	JENIPAPO DOS VIEIRAS	210547605000001	Urban	401	20	20	14
1	2105476	JENIPAPO DOS VIEIRAS	210547605000002	Urban	288	20	14	5
1	2105476	JENIPAPO DOS VIEIRAS	210547605000006	Rural	167	20	8	3
1	2105476	JENIPAPO DOS VIEIRAS	210547605000007	Rural	135	20	7	4
1	2105476	JENIPAPO DOS VIEIRAS	210547605000023	Rural	147	20	7	3

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1	2106359	MARAJÁ DO SENA	210635905000001	Urban	260	20	13	4
1	2106359	MARAJÁ DO SENA	210635905000004	Rural	215	20	11	5
1	2106359	MARAJÁ DO SENA	210635905000005	Rural	61	20	3	3
1	2106359	MARAJÁ DO SENA	210635905000010	Rural	259	20	13	8
1	2106359	MARAJÁ DO SENA	210635905000014	Rural	163	20	8	3
1	2110658	SÃO DOMINGOS DO AZEITÃO	211065805000001	Urban	358	20	18	13
1	2110658	SÃO DOMINGOS DO AZEITÃO	211065805000003	Urban	156	20	8	8
1	2110658	SÃO DOMINGOS DO AZEITÃO	211065805000005	Urban	287	20	14	7
1	2110658	SÃO DOMINGOS DO AZEITÃO	211065805000006	Rural	163	20	8	1
1	2110658	SÃO DOMINGOS DO AZEITÃO	211065805000013	Rural	178	20	9	5
2	2100956	ARAME	210095605000002	Urban	445	20	22	14
2	2100956	ARAME	210095605000003	Urban	321	20	16	2
2	2100956	ARAME	210095605000009	Urban	299	20	15	8
2	2100956	ARAME	210095605000026	Rural	352	20	18	6
2	2100956	ARAME	210095605000045	Rural	91	20	5	3
2	2101970	BOA VISTA DO GURUPI	210197005000001	Urban	266	20	13	10
2	2101970	BOA VISTA DO GURUPI	210197005000002	Urban	357	20	18	4
2	2101970	BOA VISTA DO GURUPI	210197005000003	Urban	346	20	17	2
2	2101970	BOA VISTA DO GURUPI	210197005000005	Rural	178	20	9	7
2	2101970	BOA VISTA DO GURUPI	210197005000008	Rural	205	20	10	9
2	2104628	GOVERNADOR LUIZ ROCHA	210462805000003	Urban	328	20	16	6
2	2104628	GOVERNADOR LUIZ ROCHA	210462805000004	Urban	371	20	19	11
2	2104628	GOVERNADOR LUIZ ROCHA	210462805000005	Urban	211	20	11	8
2	2104628	GOVERNADOR LUIZ ROCHA	210462805000006	Rural	75	20	4	1
2	2104628	GOVERNADOR LUIZ ROCHA	210462805000011	Rural	191	20	10	3
2	2104800	GRAJAÚ	210480005000019	Urban	623	20	31	11
2	2104800	GRAJAÚ	210480005000022	Urban	363	20	18	7
2	2104800	GRAJAÚ	210480005000023	Urban	909	20	45	24
2	2104800	GRAJAÚ	210480005000029	Rural	249	20	12	9
2	2104800	GRAJAÚ	210480005000066	Rural	321	20	16	16
2	2107100	MORROS	210710005000002	Urban	298	20	15	14
2	2107100	MORROS	210710005000004	Urban	402	20	20	16
2	2107100	MORROS	210710005000010	Rural	118	20	6	5
2	2107100	MORROS	210710005000019	Rural	312	20	16	11
2	2107100	MORROS	210710005000020	Urban	196	20	10	1
2	2111300	SÃO LUÍS	211130005000939	Rural	593	20	30	18
2	2111300	SÃO LUÍS	211130005001012	Urban	889	20	44	22
2	2111300	SÃO LUÍS	211130005001017	Rural	878	20	44	14
2	2111300	SÃO LUÍS	211130005001069	Urban	601	20	30	3
2	2111300	SÃO LUÍS	211130005001109	Urban	693	20	35	5

2	2111508	SÃO MATEUS DO MARANHÃO	211150805000017	Urban	277	20	14	8
2	2111508	SÃO MATEUS DO MARANHÃO	211150805000022	Urban	230	20	12	8
2	2111508	SÃO MATEUS DO MARANHÃO	211150805000032	Rural	270	20	14	1
2	2111508	SÃO MATEUS DO MARANHÃO	211150805000036	Rural	303	20	15	15
2	2111508	SÃO MATEUS DO MARANHÃO	211150805000042	Urban	414	20	21	5
3	2100055	AÇAILÂNDIA	210005505000029	Urban	520	20	26	23
3	2100055	AÇAILÂNDIA	210005505000041	Urban	283	20	14	1
3	2100055	AÇAILÂNDIA	210005505000051	Urban	403	20	20	5
3	2100055	AÇAILÂNDIA	210005505000071	Rural	270	20	14	12
3	2100055	AÇAILÂNDIA	210005505000122	Rural	391	20	20	4
3	2100501	ALTO PARNAÍBA	210050105000002	Urban	360	20	18	11
3	2100501	ALTO PARNAÍBA	210050105000005	Urban	388	20	19	2
3	2100501	ALTO PARNAÍBA	210050105000006	Urban	349	20	17	11
3	2100501	ALTO PARNAÍBA	210050105000009	Rural	164	20	8	5
3	2100501	ALTO PARNAÍBA	210050110000002	Rural	83	20	4	4
3	2103307	CODÓ	210330705000012	Urban	500	20	25	2
3	2103307	CODÓ	210330705000013	Urban	420	20	21	20
3	2103307	CODÓ	210330705000018	Urban	317	20	16	12
3	2103307	CODÓ	210330705000085	Rural	350	20	18	6
3	2103307	CODÓ	210330710000003	Rural	339	20	17	11
3	2106706	MIRADOR	210670605000001	Urban	269	20	13	11
3	2106706	MIRADOR	210670605000007	Urban	414	20	21	11
3	2106706	MIRADOR	210670605000010	Rural	154	20	8	3
3	2106706	MIRADOR	210670605000013	Rural	112	20	6	1
3	2106706	MIRADOR	210670610000001	Urban	161	20	8	2
3	2110906	SÃO FRANCISCO DO MARANHÃO	211090605000001	Urban	232	20	12	11
3	2110906	SÃO FRANCISCO DO MARANHÃO	211090605000003	Urban	243	20	12	4
3	2110906	SÃO FRANCISCO DO MARANHÃO	211090605000012	Rural	115	20	6	1
3	2110906	SÃO FRANCISCO DO MARANHÃO	211090610000001	Urban	157	20	8	2
3	2110906	SÃO FRANCISCO DO MARANHÃO	211090610000002	Rural	180	20	9	7
3	2112233	TRIZIDELA DO VALE	211223305000003	Urban	367	20	18	13
3	2112233	TRIZIDELA DO VALE	211223305000009	Urban	285	20	14	4
3	2112233	TRIZIDELA DO VALE	211223305000016	Rural	85	20	4	1
3	2112233	TRIZIDELA DO VALE	211223305000021	Rural	222	20	11	2
3	2112233	TRIZIDELA DO VALE	211223305000025	Urban	197	20	10	5
3	2112506	TUTÓIA	211250605000004	Urban	214	20	11	3
3	2112506	TUTÓIA	211250605000011	Urban	333	20	17	17
3	2112506	TUTÓIA	211250605000012	Urban	213	20	11	4
3	2112506	TUTÓIA	211250605000019	Rural	263	20	13	11
3	2112506	TUTÓIA	211250605000041	Rural	204	20	10	8

Source: IBGE

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