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UNIFIED REGISTRY INFORMATION CONSULTATION, SELECTION AND EXTRACTION TOOL (CECAD)

Creation of the tool - background

For many years social policies management in Brazil was handled piecemeal, with no coordinated approach to the varying needs of individuals and families, and with no account taken of the special characteristics of different places. Separate public bodies produced and used data from a number of different sources in isolation, which resulted in a fragmented and unsatisfactory approach to the needs of the low-income population.

The Federal Government's Unified Registry for Social Programs[1] represented a turning point in this scenario by filling an information gap regarding the socioeconomic conditions of poor families across the entire country. This data is now grouped into a single database which can be accessed to inform the designation and preparation of federal, state and municipal social programs, and which takes account of the real living conditions and needs of the poor and extremely poor population.

In recent years Unified Registry data have been used to plan, focus, implement and monitor social programs and actions, given that this data can be used to analyse in greater depth those families in a situation of poverty by supplying information on family incomes, household characteristics, educational levels, employment status, etc. The Unified Registry, for example, enables municipal governments to locate families in precarious living conditions and to steer them towards housing benefits, or to identify adults with low educational levels so that they can be offered literacy courses or vocational training.

Although Unified Registry information can now be used in many ways it was not possible before 2012 to generate detailed reports for the managers of social policies. While municipalities were able to feed data on low-income families into the Unified Registry system[2], the information could not be accessed more widely by the states, municipalities and other partner agencies of the Ministry of Social Development and Fight against Hunger (MDS). Even the Federal Government's more systematic use of the Unified Registry data was undermined due to the lack of a reporting method to make information available in a customized, user-friendly manner.

In the light of the above problems, the MDS's National Secretariat for Citizenship Income (SENARC), responsible for the core management of the Unified Registry, eventually requested the Secretariat for Evaluation and Information Management (SAGI) to create a Unified Registry data visualizer. Thus began the development of the Unified Registry Information Consultation, Selection and Extraction Tool (CECAD).

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[1] The Unified Registry is a tool for identifying and describing Brazil's low-income households, defined as those with a monthly household income of up to ½ minimum wage per person or a total of 3 minimum wages per household. In April 2015 approximately 27 million families were enrolled in the Unified Registry, amounting to some 82 million people (data from the Social Information Report).

[2] Introduced in 2011, Version 7 of the Unified Registry system is entirely online, enabling the municipalities to store data, directly in the national data bank, comprising details of enrollment, updates, transfers and deletions of individuals/families.

The tool-building process[3]

The Unified Registry team needed access to various types of reports. An incremental strategy was chosen as the initial step, where every functionality developed was first validated internally and then by the Unified Registry federal managers.

The tool was developed by a small team consisting of one SAGI professional and three from SENARC.

The basic functionalities came on stream in under one year. The CECAD effectively entered service as a system for accessing Unified Registry data to contribute to planning and implementing actions, programs, plans and social policies at all levels of governmen[4].

At the outset, the official database for the Unified Registry in the MDS was STAGE[5], which operated within an IBM DB2 Database Management System — an unfamiliar operating environment for the SAGI team[6], which was obliged to adapt its development approach to ensure interface with DB2.

Data collection, based on tables produced from the Unified Registry forms and SENARC--generated data, was thereafter initiated, aimed at bringing the required programming operations into line with CECAD, with managers responsible for testing each new module. SAGI has permanently monitored the use of the functionalities ever since[7].

The selection of Unified Registry fields to be accessed by the CECAD demanded a great deal of time and internal discussion. To make the process more flexible, a control table containing all the relevant fields was created so that Unified Registry managers could decide which data should be made available in the CECAD. This meant that fields could be inserted or removed for tabulating, displaying, selecting, filtering and exporting Unified Registry data.

Given than the original Unified Registry data did not reveal whether an enrolled family was in fact a beneficiary of the *Bolsa Família* Program (PBF), managers requested the inclusion of a marker confirming membership of the program. The Registry already contained information on family incomes and the number of people in a given family. Per capita income, income levels and age group were processed and inputted in the CECAD database to assist user tabulations.

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3   Section based on the writings of Caio Nakashima and the face-to-face interview with Caio Nakashima (SAGI) and Katia Vaz (SENARC) on 24 June 2015. Both were responsible for building the CECAD.

4   Users can access the CECAD in different ways. The state and municipal managers of the *Bolsa Família* Program, the Unified Registry and the Unified Social Assistance System can delegate their access profile to their colleagues; SENARC provides access to users of social program partner agencies.

5   STAGE is a data bank created by the MDS-run Information Technology Directorate (DTI) to store Unified Registry data.

6   At the time SAGI did not have full access to the Unified Registry database.

7   The use frequency of the modules implemented is considered to be an indicator of the weight of the accessed/accessible data.

In the course of the tool-building process, the Unified Registry managers were able to identify previously undetected problems resulting from unsystematic use of the database.

The CECAD expanded the scope of surveys, analyses and identification of standard features such as the number of family members and the percentage of single-parent families. This *new modus operandi* basically enabled the CECAD to enhance the value of the Unified Registry by identifying errors and gaps[8].

Once the CECAD had been fully developed (tab fields, filters, export of data, labeling, etc) the DB2 Database Management System had to be replaced by the POSTGRES[9], which led to a series of adjustments being made and a new programming code introduced to facilitate access to another database.

Since its launch in 2012, the CECAD has been upgraded several times. Currently it receives around 500,000 visits and a total of over 2 million queries a month[10] by, among others, researchers, federal, state and municipal managers, the electricity utilities[11], and the National Social Security Institute[12].

CECAD functionalities

The CECAD makes it possible to tabulate the data of enrolled families based on a single variable, or by cross-referencing two variables entered in the Unified Registry forms (e.g. details of income, education, family members). CECAD data are extracted monthly from the databases of the Unified Registry and the PBF payroll.

The CECAD features five access levels[13]:

1. **Tabulator:** makes it possible to cross-reference two Unified Registry variables and to apply filters (e.g. the variables 'maroon families' and 'type of water supply' or the 'family income' filter). In this case, to learn the number of registered maroon families with inadequate access to water, depending on their income level[14].

2. **Simple Frequency:** allows tabulation of only one Unified Registry variable and the application of filters: e.g. it is possible to obtain the number of disabled people in a given municipality and to apply the 'income' filter.

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8   Identified errors could be repeated if data monitoring is not done on a permanent basis.

9   The CECAD was ready, but the STAGE data were no longer reliable. SENARC therefore provided a server/computer with POSTGRES and the Unified Registry database.

10   Average time of view per page is 16 minutes and 38 seconds.

11   For monitoring Electric Energy Social Tariff beneficiaries.

12   Retirement pension for low-income optionally-insured individuals, popularly known as the "housewife´s pension".

13   (BRAZIL, 2012).

14   In the new version of the CECAD, it is possible to detect from the tabulator and the simple frequency application how many families/individuals are in the situation under survey, as well as the identity of these families and individuals (for authorized users only). This function facilitates the use of the CECAD by users who are not experts in data tabulation and use of spreadsheets.

3. **Data Extractor:** extracts information from the Unified Registry database (e.g. identification of enrolled families and the application of certain filters).

4. **Name Search/NIS**[15]**:** for confirming family and personal data by entering the full name, or NIS or CPF[16] numbers.

5. **Summary:** consolidated data on the country (Brazil), regions, states and municipalities from 2012 to the time of the most recently available information.

The CECAD is not freely accessible because it contains personal information related to the enrolled families and individuals. A personal password is required to gain access to the Bolsa Família Program Management System (SIGPBF).[17] There are three separate profiled levels of access to CECAD data, as follows:

1. **CECAD Federal Manager:** widest access to all the CECAD functionalities, allowing the user to download data from all the states and municipalities;

2. **CECAD State Manager:** allows access to data on a specific state or municipality in a State Manager´s area;

3. **CECAD Municipal Manager:** allows access to data on a specific city or town within a Municipal Manager´s domain.

SAGI has also developed an application known as the Unified Registry Data Tabulator (Ta-bCad).[18] This password-free application allows free access to the Tabulator, the Simple Frequency and the Summary features (note that the application does not allow access to the Data Extractor and NOME/NIS name-search facility, given that these contain personal details of enrolled/registered families[19]).

With the exception of the Continuous Cash Benefit (BPC)[20], all the federal social programs use the Unified Registry to identify the target audience. It follows that the CECAD is used by the staff of various programs for consultation purposes, to check the status of beneficiaries and to cross-reference data.

The overall role of CECAD is to deliver Unified Registry data, to provide technical information to the teams based in the states and municipalities, and to partner agencies, in order to enable them to plan actions for including low-income families in social programs, and thus contribute to improving the living conditions of Brazil´s most vulnerable citizens.

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15   NOME/NIS queries amount to 83% of the visits to the CECAD. The Social ID Number (NIS) is personal and non-transferable.

16   The CPF (Private Individuals´Registry) is issued by the Brazilian Federal Tax Office to all people on a once-only basis, regardless of age or nationality. The CPF code consists of 11 numbers (with a confirmatory digit).

17   The CECAD can be accessed at: www.mds.gov.br/sistemagestaobolsafamilia. Access can also be obtained through the Authentication and Authorization System of the National Social Assistance Secretariat (http://www.mds.gov.br/sagi).

18   TheTabCad is accessible at http://aplicacoes.mds.gov.br/sagi/cecad/sobre_tabcad.php.

19   Unified Registry data on families are confidential and can only be used for the formulation and management of public policies, or for studies and research (BRAZIL, 2015).

20   The BPC guarantees a minimum wage for elderly or handicapped people receiving under ¼ of the official minimum wage *per capita* per month.

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