



Informing a Data Revolution

COUNTRY REPORT ON COLOMBIA



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Chapter 1 – Analysis of the National Statistical System

1.1 National statistical strategy

To what extent has the development of statistics been acknowledged and incorporated into Colombia's national development policy?

Colombia's 2010-14 National Development Plan "Prosperity for All" left no doubt of the need to develop the country's National Statistical System (NSS) and it was decided the National Administrative Department of Statistics (Spanish: *Departamento Administrativo Nacional de Estadística*), commonly referred to as the DANE, would be tasked with coordinating this system within the framework of good governance strategies.

The interviewees gave the general impression that the authorities are increasingly interested in statistics, and use them and appreciate their importance, but do not give them priority when allocating resources. In addition, bearing in mind that this impression was given quite recently, there is obviously still plenty of room for giving the National Statistical System (NSS) greater priority in national development policies.

The DANE had previously adopted a National Strategy for the Development of Statistics (NSDS) for the 2006-12 period based on strengthening statistical information (Resolution 416 dated July 5th 2006).

In 2008, the DANE published Colombia's Strategic National Statistics Plan (PENDES) aimed mainly at providing Colombia with a strategic statistical information system able to effectively contribute to providing knowledge about the country's reality and trends, by means of statistical planning in the organisations belonging to it, and strengthening the development, adaptation and implementation of norms and standards to contribute effectively to statistical harmonisation in the National Statistical System, which will in turn facilitate international comparability and help draft, monitor and evaluate national, regional and sectorial policies.

A new strategy for the 2013-17 period is currently being implemented. This fact plus the different degrees of involvement and, therefore, understanding of the strategy and the implementation process, mean that the appraisals of different agents vary considerably.

Colombia's application for OECD membership, which all interviewees believe to be important for the improvement of statistical activities and the NSS as a whole, is an indication of the increasingly important role of statistics in strategic planning.

Interviewees mentioned several issues of interest for the new strategy, such as more research, although more importance was attached to the regional (sub-national) matter mentioned spontaneously in several interviews.

1.2. Legal framework for statistical activities

Statistical activities in Colombia, particularly those carried out by the DANE, are governed by Law 79 of 1993. However, this law predates the declaration of the principles of statistics and has since been complemented by other laws, i.e. government decree 4178 of 2011 concerning the harmonisation of concepts, standardisation of methods, coordination of statistical activity planning and certification of good practices; and decree 3851 of 2006 which provides a mechanism for certifying the quality of the statistical process carried out by the DANE.

Other general laws and decrees that regulate statistical activities include Decree 262 of 2004 which tasks the DANE with adapting and fostering the use of international nomenclatures and classifications in Colombia, and also formalising and adopting them, and also the Law of Transparency and right to access public information (Law 1712 of 2014) designed to permit the exchange of information between public bodies whilst safeguarding its confidentiality.

In the course of its work, the DANE also relies on non-mandatory or completely voluntary regulations such as the National Code of Good Practices. As a result, many aspects of statistical activity, including those of the NSS itself, are not sufficiently or systematically regulated at present.

A statistics law is currently being drafted and it is hoped that the report herein, together with the recommendations received as a result of Colombia's application for OECD membership, will be of use to the team drafting said law.

There are doubts as to whether said draft law will propose a two-way system or an NSS in which members share information on an equal footing, although interviewees agree, and even consider necessary, that the DANE should be in charge of the NSS to ensure its homogeneous development on the basis of standardised regulations, and that all this should be enacted by law.

1.3. Organisation and coordination of the National Statistical System

As mentioned earlier, as a result of certain legal provisions or guidelines adopted voluntarily by the other NSS agents, the DANE is in charge of or coordinates certain fundamental parts of statistical activity, including:

- the harmonisation of concepts and standardisation of methodologies
- the coordination of statistical activity planning
- the certification of good practices
- the certification of the quality of the statistical process, and
- the adaptation and promotion of the use of international nomenclatures and classifications in Colombia, and also their formalisation and adoption by passing laws that set forth the versions of the classifications adapted for Colombia.

However, the NSS coordination lacks the necessary legal capacity to exploit the synergies of shared governance.

Opinions about the effectiveness of this coordination vary. Some entities have agreements of different types with the DANE whilst others do not, and it is felt that there is too much reliance on volunteers, and that it is quite easy for an entity to withdraw if it decides to. Processes with very little coordination are carried out within the framework of the NSS, sometimes without the involvement of the DANE.

Some interviewees feel that planning is not facilitated by applicable legislation or the government's general regulations, and is sometimes due to a lack of specific training.

Current data exchange legislation requires all public producers of statistics to deliver the collected data to the DANE, which in turn allows access to sufficiently aggregated microdata to prevent individual reporting entities (the principle of data secrecy or confidentiality) being identified on its public online platform.

As mentioned earlier, several entities are not satisfied with the data access policies in force to date and would like to have better access for mutual reasons (*quid pro quo*) or be entitled to by law.

There is no law allowing the DANE to voice its opinion about the correct use of statistics, or the correctness with which they are used by other public or private entities to produce statistical information. However, in its capacity as the statistics authority, the DANE can clarify information that uses the DANE as a source. On several occasions when its statistics have been interpreted misleadingly, the DANE has sent rectifying notes to the media.

This situation does not facilitate the DANE's leadership, which despite being generally accepted, is sometimes questioned and its opinions disregarded when it suits another entity.

Chapter 2 – Assessment of the DANE

The DANE is the public statistic agency tasked with providing the government, other public and private entities and the general public with economic, socio-demographic and environmental data about the country.

In terms of resources, the DANE is subject to the government's budgetary procedures and the resources allocated to it each year. As mentioned earlier, this complicates the planning of its activities and, therefore, the statistical activities of Colombia in general, whilst denying it the possibilities and budgetary autonomy of other entities such as the Banco de la República.

2.1 Human resources

The DANE has a general HR policy and a general annual training scheme, but these useful initiatives are handicapped by difficulties in hiring the best professional university graduates due to competition from the universities themselves, private companies and areas in the public sector including the Banco de la República, the Ministry of Finance and the Planning Department.

This poor competitive edge when recruiting the best professionals is due mainly to the levels of job security and wages in the DANE.

The job security problem is caused by the fact that a great deal of the DANE's budget is classified as investment, although there is really no reason why, so many professionals are hired for specific projects and although they may work continuously on one project after another, they do not usually become permanent members of staff.

As a result the DANE is often unable to justify the allocation of funds for training temporary staff, and even less for training that involves travel abroad, or for post-graduate studies or scholarships – things which are possible for other entities such as the Banco de la República.

The low wages are, of course, a direct result of the budget allocated by the government.

However, quite a few of the interviewees believe that DANE staff earns enough to meet their needs and feel that they take an interest in their projects.

2.2 Equipment and infrastructure

At the present time, the DANE has a general IT policy based on three principles:

- a) A data security and management policy in which the DANE adopts measures and mechanisms for managing the data lifecycle and mitigating any risks to its integrity, availability and confidentiality within a framework of continuous improvement, whilst complying with the law of statistical confidentiality and fostering trust and cooperation amongst users.
- b) Guidelines for the DANE's procurement of green technologies, i.e. the criteria for the procurement of technological solutions as per the guidelines of the Ministry of the Environment and Sustainable Development for the procurement of the most environmentally sustainable ITC equipment.
- c) Policies concerning the correct use of computer tools. These policies aim to provide integrated IT guidelines to ensure to the reliability, availability and integrity of information and the best use of all the computing and communication resources owned or used by the DANE.

The DANE does, of course, have its own website and adequate computer facilities for its staff, including the buildings and other physical infrastructures necessary to do their jobs properly.

In general the interviewees are aware of the progress made in this respect and are in favour of initiatives to deal with new needs arising in the near future.

2.3 Financial resources

The DANE's current expenses and investment are both funded almost entirely by the public budget of the Government and other entities.

As mentioned earlier, due to certain peculiarities in the way budgets are drawn up in Colombia some recurrent costs are posted as extraordinary costs, with the ensuing problems for planning, job stability and the DANE's autonomy, amongst others.

2.4 Commitment to quality

In 2006 the DANE embarked on an official quality assurance process for the official statistics it produces and also those produced by other entities which are certified by the DANE and comply with its guidelines.

The DANE has determined that the quality of the statistical process in the National Statistical System is to be evaluated according to extent to which it complies with international criteria for the quality of statistical production, within the framework of the UN Fundamental Principles of Official Statistics and the National Code of Good Practice for Official Statistics, in order to promote credibility, reliability and transparency in the production of statistical information.

The DANE regularly collects information about the quality of official statistics and posts it on its website. It also works with external assessors and regularly collaborates with the scientific community on improving its methods.

The DANE's quality policy entails the periodical evaluation of data processes. The internal control office and the planning office use the DANE's Quality Management System to monitor the phases in the statistical process whilst it is taking place. This has resulted in the DANE receiving ISO 9001-2009 and NTC (*Norma Técnica de Calidad*, the Colombian quality standard) certification. In addition, the quality of the fundamental statistical activities carried out by the DANE are evaluated by a panel of independent experts which reviews each phase in the statistical process.

Many interviewees acknowledge the DANE's efforts to implement quality standards in the NSS.

An analysis of the catalogue of the DANE's main statistical activities revealed their key factors to be of appropriate quality, except frequency. Many activities, including such important ones as the population and farming censuses, are not conducted as often as is desirable. This is because of factors mentioned earlier, such as the DANE being subject mainly to annual budgets and the lack of medium-term planning governed by mandatory regulations.

This important work by the DANE in pursuit of quality data is not complete – indeed, like many other things, it never will be – but even the first phase of this task started in 2006 remains unfinished, therefore laws must be amended to give the DANE more authority and more resources too. Some areas of statistics are in fact poorly integrated into the NSS:

- A considerable part of regional and local statistics, as mentioned earlier.
- Administrative records, whose quality has a direct impact on the statistics using or based on them.
- Important realms of activity, such as public finance, operate in areas that can hardly be said to comply with the DANE's principles of quality.

2.5 Relationship with data users

The DANE maintains that it has official procedures for consulting users and says that it holds a public accountability campaign at least once a year in which citizens (data users) can voice their opinion about the statistics produced by the DANE. It also conducts a satisfaction survey of specialised users to ask

them about what statistics they need to be published. Finally, the DANE uses social networks to be constantly in contact with users and pinpoint specific needs as regards existing research and/or new issues. The “DANE for everyone” campaign launched in 2014 seeks to bring specialised users of DANE data together in regional, face-to-face, participatory spaces in the form of hands-on workshops based on techniques such as story telling and gamification.

Users’ responses revealed that they feel that their relationships with the DANE concern mainly specific projects conducted by their institutions for the DANE, regardless of who decided to implement them.

Some institutions feel that the DANE consults them, and of course the DANE is sure that it deals with queries and is listened to by other entities. In any case the DANE is an approachable entity as regards data users, i.e. mainly the other producers of statistical information, other public administration bodies, universities and other research entities, the media and other organisations in the third sector. The relationship with other data users is more distant.

In its capacity as NSS coordinator, the DANE is responsible for statistical planning. In this respect it must identify and state the priority of the necessary statistical information in the existing processes in order to draw up statistical plans, the first being to identify the producers and users of statistical information. An implicit part of this process is the identification and consultation of the users involved in national statistical activities about the statistical information they need.

According to the DANE round tables are held to bring users and producers together to determine statistical priorities.

This must be examined in greater depth during the seminar because no interviewees mentioned the existence of round tables or any other similar platform involving either the entities that combine the role of producers and users, or the users themselves.

As mentioned earlier, the DANE is in contact to a greater or lesser extent with each organisation and has detected processes to deal with users’ needs. However, in many cases, these processes are the result of specific projects promoted (and often paid for) by another entity, whilst others are due to mutual need and interest. Much work obviously remains to be done in order to formalise areas for discussion and agreement about information needs with the involvement of all stakeholders.

2.6 Access to statistics and information

All users, including those not in direct contact with DANE staff, can access the data posted on its website and see the calendar of publications, which is usually adhered to, in advance.

They can also find out how statistics are drawn up by consulting the metadata that the DANE posts on its website, i.e. information about the methods and procedures used.

In recent years, access has even been allowed to fully disaggregated data ensuring the confidentiality of statistics in the form of basic records or microdata.

Whilst all this is true, it must also be said that the disaggregated information posted on the website is organised in such a way that certain knowledge is needed to find what one is looking for and it is often necessary to resort to different sources to find the necessary information – something not all users are

able to do. In this respect, some users said that we must not forget they are advanced users. A redesigned website would be advisable, bearing in mind that since not all information is on this website, it would also be advisable to integrate data and enable them to be accessed via a single channel.

Mention must, of course, be made of the tug of war between the different data producers and analysts and the DANE, since they would all like to have access to the original data held by the sources but this obviously clashes directly with the confidentiality of statistics that takes precedence everywhere over the logical desire to have as much information as possible. It would be useful to examine this question to enable the new law to define as precisely as possible the scope of the confidentiality of statistics and how it could apply to different entities according to their circumstances.

2.7. Partnerships

There are official agreements and protocols about the exchange of data between data producers and the DANE and other users, such as universities and research bodies including business associations. These agreements and licenses define the rights and obligations related to the use of information produced by the DANE.

The DANE, and other members of the NSS that produce information, work with the scientific community and conduct studies in conjunction with it. There are also agreements that include training by universities and also the DANE for research bodies about their operations.

The management of most areas in the DANE includes staff with direct links to universities and who combine teaching with consulting services and writing papers for academic journals. In addition, several processes in the model – such as quality assurance – receive constant advice from the academic community.

Chapter 3 – Statistical process management

3.1 Relationship with data informants and providers

The NSS in Colombia is in no condition to coordinate and plan everything necessary to effectively coordinate the turnaround time of data requests so as to reduce the burden on data providers. Even in countries with highly developed statistical systems, this aim is difficult to achieve.

3.2 Management of information processes

The methods and procedures used by the DANE and some of the other data producers comply with international standards and recommendations.

3.3 Dissemination and use of data

Improvements in data dissemination is one of the areas of greatest consensus amongst interviewees. The DANE publishes the data online pursuant to an official publication policy, shares them with all users at the same time and shares the metadata in a standard format.

The DANE has implemented ANDA (Colombia's national data archive), a database which users can browse, search, compare, request access to and download information from about censuses, sample surveys and the statistical use of administrative records. ANDA holds the metadata obtained from statistical activities carried out by the DANE and other NSS entities. The information published in ANDA is documented according to the international standards DDI (1) and Dublin Core (2), with a view to strengthening the transparency, comparability, quality, reliability and credibility of the statistics produced by the NSS. In addition, some of the files contain microdata which can be accessed by the public.

3.4 Archiving and storage of data and metadata

The DANE stores and publishes the microdata of some of its surveys in ANDA. ANDA can be accessed by the general public via the DANE website. There is a protocol for access to microdata, data for public use (ANDA), data available under license (agreement), and those that can be consulted under supervision at the DANE head office. Databases can be obtained in text or SPSS format.

Not all the DANE's historical data and operations have been incorporated into ANDA although it does include the most recent ones, which account for a great deal of the data actually available.

Chapter 4 – Interaction with the international statistics community

4.1 Managing aid from donor organisations

In the last three years, just one donor has provided financial aid and six, technical assistance for statistical activities.

In general, the financial and technical assistance for statistics is not very well aligned with the national priorities set forth in the PENDES strategy.

Aid is often for specific activities. Although requests are made for medium-term, transversal issues or projects, they are rejected by donors on the grounds that Colombia's average wage is higher than in other countries which are given priority. In these circumstances, some problems are solved but others are not.

Although different organisations send aid missions, they too focus on specific issues, although it must be said that the missions or aid extend to all the NSS entities concerned. In areas related to accounts, for example, the DANE, Banco de la República, Ministry of Finance, DIAN (Colombia's tax and duty authority) and other entities are involved.

Because everything is incomplete, technical assistance is provided in response to the priority needs of the NSS.

Receiving and using aid for statistical activities sometimes places an additional financial burden on the DANE, for example, when the aid sent to the DANE obliges it to recruit or assign people to administer the aid and manage bank accounts and fees. Staff is sometimes hired using resources from the project

but sometimes they are not enough. Such costs are not very high but it is better for the donor to pay them directly.

4.2 Participation in the International Statistical System

Generally speaking, NSS institutions abide by and apply the international recommendations and norms governing the development of official statistics. This includes agencies of the United Nations, the OECD, the Andean Community and other organisations in the region and other areas. The NSS has managed to adapt these standards – and also their handbooks and other literature provided with them – to cater for local customs and make comments on them. These include particularly the nomenclatures and classifications, such as those of the ISIC, adopted and adapted by the DANE and now accepted throughout Colombia.

In addition, the new advances made in statistical production by international organisations are being closely monitored, as revealed by the ongoing interaction between the agents that have shaped the Regional Code of Good Practice.

Hence the DANE participates in the governance of the statistical system at the regional level but, like the other countries in this region, finds it more difficult to make it heard in the realm of the governance of statistical systems at the international level.

In the major worldwide institutions, which we refer to as international organisations, priority is given to the interests of the major countries or blocs. Many issues of interest to Latin America are not reflected in the decisions of the United Nations Statistical Commission (UNSC), and the international organisations keep pace with the developed countries, leaving the rest lagging behind. The guidelines of the System of Environmental-Economic Accounting (SEEA), for example, are based on the level of basic statistics in developed countries, and not what our countries need to reach that level.

Two years ago, for example, the question of the autonomy of statistical institutes was raised at the UNSC but it did not prosper. Neither did the suggestion that international organisations coordinate their requests for information from statistical institutes, because sometimes the same question is asked six or seven times, overwhelming the capacity of the statistical institutes.

These are issues which the Andean Committee or Committee of the Americas considers to be priorities but they are not the only ones: a complaint was also made rather unsuccessfully about the use of non-official sources in reports submitted by international organisations.

Chapter 5 – NSS development in the next five years

The priorities outlined here are basically those reported by the DANE. The priorities mentioned by interviewees were basically the same but with the addition of interesting details or explanations, which are listed at the end of each section below. These comments by interviewees are positive suggestions for the DANE and the NSS. No harsh criticism was heard, and if there was any, it would have been to suggest improvements.

5.1 Priorities in new statistics

- a) New statistics.
 - Population and migration.
 - Income and consumption.
 - Farming, forestry and fishing.
- b) Improvements in quality.
 - NSS coordination.
 - Better timeliness and punctuality of statistics.
 - Better accessibility and clarity of the statistics produced.
- c) Improvements in access to statistics and statistical data.
 - Data management for creating dynamic query systems.
 - Dataset preparation to make data anonymous, selection of subsamples and access to microdata.
 - Access interface.
- d) Improved use of statistics.
 - User support
 - Access interface.
 - Dataset preparation for publication of anonymous databases.
- e) Comments by interviewees on this section. Information needed to further the peace process affecting many sectors: the DANE should advise the Army, now the most involved in this task. Likewise in the post-conflict period. Population census. New technologies. Environmental considerations. Population mobility (migration, sometimes caused by violence, very important when allocating resources). Indicators of land and housing prices. Monthly GNP. Use of natural resources. Sub-national statistics.

Urban and rural frames of reference, new regionalisation. Reduce delays in availability of data. Improve surveys of companies. Increase size of samples and regional representation. Strict compliance with statistics calendar.

5.2 Priorities in strengthening institutional capacity

- a) Development of skills for
 - Public management.
 - Strategic planning.
 - Analysis.
- b) Staff training and creation of new skills and competences in:
 - Coordination.
 - Leadership.
 - Strategic planning.
- c) Key areas of ITC investment.
 - Processing.

- Dissemination.
 - Analysis.
- d) Key areas of investment in statistical infrastructure.
- Sampling frameworks and records for organisations and companies.
 - Sampling frameworks for household surveys.
 - Database structures.
- e) Strengthening NSS coordination and management.
- Data exchange guidelines and protocols
 - Statistical mandate and right of access to administrative records
 - Procedures to ensure the use of the agreed standards and classifications
- f) Comments by interviewees on this section. Necessary to create leadership and consistency, and set the same pace throughout the NSS. Restructure the DANE. Discuss the new law and let NSS members air their problems. Coordination, knowledge and teamwork, regular meetings. Make the DANE a ministry or failing that, a special independent entity which is autonomous and has power. The entity's management capacity needs to be improved by strengthening and making a big effort to improve its staff. The DANE should be more independent. More legal backing for the Statistics Plan. The DANE should improve its analysis and research.

5.3 Use of innovation

- a) In coordination and management.
- Achieve greater access to administrative records by proposing a modern, regulatory framework.
 - Make progress in collecting countrywide statistical information.
 - Improve the quality of the statistics produced by applying the quality assurance method.
- b) In the planning and design of statistical processes.
- The DANE has been using the same planning procedure for the last 10 years. A more dynamic process is needed, able to implement the considerations pinpointed in the plans.
 - Improvements needed in the ability to quantify the necessary resources for implementing the plan.
 - In the area of innovation, work is being carried out on the statistical process of adopting and adapting the GSBPM v5 model in order to carry out activities with new sources of information (including "big data") and provide a visualisation panel of all the entity's internal processes.
- c) In data collection.
- Data is being collected from new sources such as satellite images, and new alternatives are being studied within the framework of the data revolution.
- d) In data processing and analysis.
- The entity needs to bring itself up to date with new statistical software packages and keep constantly abreast of new developments in the market.
 - The entity needs to start training officers in different areas of data analysis: business intelligence, data mining, new statistical methods, data design, visualisation, etc.
- e) In data dissemination and use.

- The implementation of appropriate visualisations and the interaction of users with the published information can create knowledge and increase the culture of statistics in Colombia.
- f) In data archiving and storage.
 - Data organisation and storage are one of the DANE’s main priorities. The intention is for the data warehouse to respond to the automated processing of queries from external and internal users.
- g) Comments by interviewees on this section. Increase the DANE’s technological capacity in order to strengthen regional statistics. Improve the technological infrastructure for queries, make access to microdata more agile (cloud). More user-friendly platform. Possibility of (users) creating their own tables of results. What matters most is Colombia’s connectivity (internet access). Use drones to gather information. Georeferencing.

5.4 Priorities in financial aid for statistics

- a) Better coordination and management.
 - Implement the Statistics Law in Colombia, i.e. create and fine-tune the instruments needed to regulate the production and dissemination of statistics according to the provisions of the said law.
- b) Investment in physical infrastructure.
 - Lack of rooms for meetings and presentations, enlargement of existing facilities.
- c) Investment in statistics infrastructure.
 - Improve data warehouse. Increase automation of processes.
- d) Investment in human resources.
 - Data analysis training in different areas. Development of knowledge exchange policies.
- e) Data processing improvements including the planning, collection, processing and dissemination of data.
 - Platforms enabling data visualisation by end-users and analysis of intermediate processes.
 - Re-design the DANE’s current production model on the basis of the GSBPM 5 model. Resources are needed for technical advice on how to implement it and monitor the different processes.
 - Strengthen metadata management.
- f) Innovations in data archiving and storage.
 - Improvements to the data warehouse.

5.5 Priorities in technical assistance

- a) Coordination and management: no assistance required.
- b) Planning and designing statistical processes.
 - The DANE is studying the advisability of adopting or adapting the new GSBPM model, so it needs to find out about the experience of countries and institutions that have already do so, and also which international organisations can give the DANE advice, should it decide to implement said model.
- c) Data collection.
 - In order to use existing sources of statistical production, e.g. administrative records, or possibly new sources such as “big data”, technical advice from

international organisations that have already improved their data collection is needed.

- d) Data processing and analysis.
 - For the above reasons, the DANE needs advice on improving data processing and analysis.
- e) Dissemination and use of data.

For the above reasons, the DANE needs advice on improving the dissemination and use of data. In this respect, it is important to know what type of new instruments are being used by statistical institutes to present statistical information, which is why advice on this subject is needed.
- f) Data archiving and storage.
 - For the above reasons, the DANE needs advice on how to improve data archiving and storage.
- g) Interviewees made the following comments on this section. Information needed about the experiences of other countries that have solved the problems being examined here. Must find out what help can be received from abroad and comply with international standards. Advice on the population census.
Training: bring or teach courses taught abroad. Improve the dissemination and knowledge of what is available in all fields.

Chapter 6 – Participation in the data revolution

6.1 How Colombia can contribute

Within the framework of the data revolution, Colombia is taking part, together with Mexico, in top-level international forums to define the use of digital data and discuss whether “big data” can be used to replace official statistics, with the existing problems.

6.2 What is needed

As regards the administrative records mentioned earlier, it would be useful to obtain regular, timely data at a lower cost continuously over time, to find ways of improving the use of administrative records and to study other similar projects around the globe to make the most of them. This is why the methodological improvement of the design and use of records is mentioned as possible way in which PARIS21 or other international organisms could help. How can models developed for Nordic settings be transformed into models for Latin America?