Luxembourg Income Study – response

Janet C. Gornick1 · Markus Jäntti1 · Teresa Munzi1 · Thierry Kruten2

Received: 16 June 2015 / Accepted: 17 June 2015 / Published online: 18 July 2015
© Springer Science+Business Media New York 2015

Keywords Inequality · Data · Income · Consumption · LIS

1 Overview

Professor Martin Ravallion (henceforth MR) has done LIS a great service by carefully reviewing elements of the LIS Database. He has identified several weaknesses in documentation, as well as practices that should be defined, defended, and explained, and, if found lacking, modified. MR allowed us to comment on drafts of his review and was responsive to our input; he also generously attributes several of what he deems questionable practices to LIS’ limited budget. Internally, at LIS’s, we are carefully assessing the contents of his review and will be addressing the shortcomings that he identifies in due course. We are—and our data users should be—grateful to MR for the scrutiny that he has provided.

Before we proceed to discuss a few central substantive issues raised by MR, we wish to emphasize a key point about LIS which we think is crucial for placing in context many of the criticisms that he raises. LIS’s primary goal has always been the provision of harmonised microdata for research purposes. While many supranational organizations provide access to country-level data, LIS is one of only a few institutions in the world that grant access to cross-nationally harmonised microdata. LIS grew out of a research project and continues to be closely associated with academic research. Making microdata available to researchers, through a sophisticated remote-execution system that was developed over many years, is the primary public good that we provide.

Janet C. Gornick
jgornick@ge.cmu.edu

1 LIS: Cross-National Data Center in Luxembourg, Esch-Belval, Luxembourg
To complement and supplement our provision of microdata, LIS provides a number of ancillary products and services. One of these products is what we call the LIS “Key Figures”. These are national-level statistics constructed by our staff, based on our microdata; they include various indicators of the distribution of disposable income. These Key Figures are a side product of the core work that we do, which is harmonising microdata for research use. As we emphasize in our explanatory materials, enabling data users to make their own methodological decisions is at the heart of LIS’s philosophy.

Although MR clarifies in his review that LIS provides microdata, the bulk of his review addresses the LIS Key Figures, with considerable attention paid to the decisions that we make in constructing these figures. It is indeed the case that LIS has made particular choices in constructing these Key Figures; we implement a set of decisions regarding, for example, the use of bottom- and top-coding, the choice of equivalence scale, and the statistics to be estimated, to name but a few. (We return to these choices below). At the same time, we provide on our website the actual programs used to estimate the LIS Key Figures — and in multiple programming languages — so that researchers who want to use the LIS data but are not content with the choices that we made in the Key Figures can modify our programs as they wish and “roll their own”.

In this response, we will primarily address a few important substantive decisions that we have made that MR identifies as dubious, but which we think can be robustly defended or at least rendered intelligible. These include LIS’s country coverage, our focus on income rather than consumption data, our reliance in the Key Figures on relative poverty indices, and a few minor, mostly quite technical issues. We would also like to emphasize that MR’s review is limited to LIS’s income data. We also provide extensive labour market microdata and, more recently, wealth microdata as well; nevertheless, we will limit our discussion to the income data, as he did.

2 Country coverage

First, we address the issue of LIS’ country coverage. MR criticizes LIS for providing data primarily for rich countries. And, indeed, 30 of the 49 countries currently in (or soon to be in) the LIS Database are high-income countries. The rest are middle-income countries; the LIS Database includes no low-income countries. As we understand MR’s review, he lauds our recent inclusion of several middle-income countries but finds that insufficient; he is also critical of the absence of low-income countries. Overall, he laments the fact that LIS is not — at least not yet — a “global tool”.

Indeed, LIS has moved only recently to include a substantial number of middle-income countries and we acknowledge that the pace of this expansion has been moderate; furthermore, at this time, we have no concrete plans to include low-income countries. But these are not decisions that we have reached lightly. At least two factors come into play; one relates to our funding and governance, and the other concerns the “fit” between the LIS Database and the lowest-income countries.

First, LIS, like any institution, has a history. We started as an academic research project based on country membership, with participating countries providing both the data and funding. Our decision-making body includes the decision-making power, stems from the financial contributions from supranational organizations. Until such institutional constraints are lifted, middle-income countries will find it difficult to make their voice heard.

Second, as we explain below, sink costs. We have, historically, included income, and we have maintained that income countries. LIS’ value, of course, is that it focuses on high- and middle-income countries; we also provide datasets that include consumption. That mission may be best suited for the World Bank, the IMF, and the UN.

One conclusion that we do draw from our website about the logic that we use data and our decision not to try to cover every country prominently that we provide “data around the world” — but we will cover the organization of their data.

3 Income versus consumption

MR is especially critical of our reliance on this distribution of wellbeing measures (which are only provided for that purpose). As we noted above, since the inception of LIS, we have constructed consumption data that is a better indicator of wellbeing, especially in middle-income countries.

We should first note that when we acquire and harmonize data, we always include it in our database. We think that it is premature to consider the entire database, and that the constraints on the treatment of this question here. The
To complement and supplement our provision of microdata, LIS provides a number of ancillary products and services. One of these products is what we call the LIS "Key Figures". These are national-level statistics constructed by our staff, based on our microdata; they include various indicators of the distribution of disposable income. These Key Figures are a side product of the core work that we do, which is harmonising microdata for research use. As we emphasize in our explanatory materials, enabling data users to make their own methodological decisions is at the heart of LIS's philosophy.

Although MR clarifies in his review that LIS provides microdata, the bulk of his review addresses the LIS Key Figures, with considerable attention paid to the decisions that we make in constructing these figures. It is indeed the case that LIS has made particular choices in constructing these Key Figures; we implement a set of decisions regarding, for example, the use of bottom- and top-coding, the choice of equivalence scale, and the statistics to be estimated, to name but a few. (We return to these choices below.) At the same time, we provide on our website the actual programs used to estimate the LIS Key Figures— and in multiple programming languages— so that researchers who want to use the LIS data but are not content with the choices that we made in the Key Figures can modify our programs as they wish and "roll their own".

In this response, we will primarily address a few important substantive decisions that we have made that MR identifies as dubious, but which we think can be robustly defended or at least rendered intelligible. These include LIS's country coverage, our focus on income rather than consumption data, our reliance on the Key Figures on relative poverty indices, and a few minor, mostly technical issues. We would also like to emphasize that MR's review is limited to LIS's income data. We also provide extensive labour market microdata and, more recently, wealth microdata as well; nevertheless, we will limit our discussion to the income data, as he did.

2 Country coverage

First, we address the issue of LIS's country coverage. MR criticizes LIS for providing data primarily for rich countries. And, indeed, 30 of the 49 countries currently in our data pool have a per capita income above the international poverty line. However, LIS includes no low-income countries. As we understand MR's review, he laments the recent inclusion of several middle-income countries but finds that insufficient; he is also critical of the absence of low-income countries. Overall, he laments the fact that LIS is not at least not yet—a "global task".

Indeed, LIS has moved only recently to include a substantial number of middle-income countries and we acknowledge that the pace of this expansion has been moderate; furthermore, at this time, we have no concrete plans to include low-income countries. But these are not decisions that we have reached lightly. At least two factors come into play; one relates to our funding and governance, and the other concerns the "fit" between the LIS Database and the low-income countries.

First, LIS, like any institution, has a history. We started as an academic research project based on country membership, with participating countries providing both the data and

LIS actually provides two sets of Key Figures: the longstanding "Inequality and Poverty Key Figures" and the newer "Employment Key Figures by Gender". MR does not discuss the latter, so neither do we in this response. Thus, throughout this response, the term "Key Figures" refers only to the "Inequality and Poverty Key Figures".

financing. Our decision-making body still consists mainly of representatives from paying countries; they are keenly aware of the risks of free riding. While we increasingly receive financial contributions from supranational organizations, the bulk of our budget, and of the decision-making power, stems from high-income countries— because they provide our funding base.

It is true that we have expanded into middle-income countries, and that has dramatically broadened the horizons of both LIS and the research based on the LIS data. That expansion has in turn brought about some challenges related to governance that we are trying to solve, such as attempting to find funding sources other than the country contributions. Until such institutional constraints have been addressed, however, our expansion into middle-income countries will be limited, in large measure, by the interests of our funders.

Second, as we explain below, since LIS's inception, our common core has been income data. We have, historically, included only datasets that include comprehensive data on income, and we have maintained that "golden rule" as we have added datasets from middle-income countries. LIS's value, of course, is that it allows cross-country comparisons; many researchers focused on middle-income countries are drawn to LIS precisely because LIS enables direct comparisons with high-income countries. As MR understands well, surveys in the low-income countries often lack income data, for sound reasons. We have, to date, decided to allocate our resources to datasets that include income data, and that keeps us focused on high- and middle-income countries. There may be a day in the future when LIS adds datasets that include consumption but no income data—and at present we do not see that as a wise choice for LIS, not least because we lack the resources. For all of these reasons, our governing body has not yet counselled us to become a truly global data source. That mission may be best suited for others. Large supranational organizations, such as the World Bank, the IMF, and the UN come to mind.

One conclusion that we do draw from MR's review is that we ought to be more explicit on our website about the logic that we employ—especially regarding our reliance on income data and our decision not to try to cover the entire globe. Throughout our materials, we do indicate prominently that we provide "harmonised microdata from high- and middle-income countries around the world"—but we clearly need to explain that more fully.

3 Income versus consumption data

MR is especially critical of our reliance on (disposable household) income as a key basis for assessing the distribution of wellbeing. This criticism applies both to the LIS Key Figures (which are only provided for that income concept) and more broadly to our microdata. As we noted above, since the inception of LIS, we have included in the LIS Database only datasets that allow us to construct disposable household income. MR, in turn, thinks consumption is a better indicator of wellbeing.

We should first note that when consumption data are available in the datasets that we acquire and harmonise, we always include those data and provide them to our users. However, we think that it is premature to conclude that consumption is a preferred indicator of wellbeing, most especially in the many high- and middle-income countries for which we do provide data.

There has been an active and longstanding debate on the merits of income versus consumption data, and space constraints do not permit us to provide more than a cursory treatment of this question here. The problems with using consumption data start with
the differing purposes for gathering data. Typical household budget surveys, especially in high-income countries, are intended to provide information not on household-level consumption for distributive analysis, but to estimate aggregate expenditures on groups of goods to provide weights for price indices. The reference periods for consumption data are typically short – usually two weeks to a month – during which households record their expenditures, supplemented with data on purchases of durables during longer time periods. Income surveys, by contrast, are routinely collected exactly for the purpose of providing information on the income distribution. Thus, regardless of whether or not consumption or income is the better indicator for gauging wellbeing, the datasets available to us in high- and middle-income countries are unlikely to provide a good basis for making distributional judgments concerning consumption. It is telling that several efforts to provide comparable data on consumption for multiple countries, such as several carried out at Eurostat, the EU statistical agency, have failed to deliver.

Those, however, are practical considerations and they do not address the issue of which indicator of wellbeing, income or consumption, is to be preferred in theory. Good cases can be made for both. However, LIS is the product of a long tradition of distributational research in rich countries. In that tradition, it is the distribution of income, not of consumption, that is the object of interest. Maybe we can think of it as the revealed preference of the social planner(s).

Many intelligent conversations have been held about which measure should be preferred. LIS has been an active participant in these conversations, as well as in discussions about how income should be measured. The case that income can and should be used has been made repeatedly in publications by supranational organizations, such as the OECD and the UN. The measurement of income and its distribution has been discussed, with active participation by LIS, in the original Canberra report (Expert Group on Household Income Statistics [The Canberra Group], 2001) and its update (Canberra Group 2011), replacing earlier work within the UN (United Nations 1977). The OECD has recently attempted to broaden the standardization of the measurement of wellbeing, work in which, again, LIS has been an active participant (OECDE 2013).

Authoritative assessments of income distributions in rich countries – presumably based on the view that this is a good, possibly the best, way to assess the distribution of wellbeing – have relied, in whole or in part, on LIS data. These include Atkinson et al. (1995), OECD (2008), and OECD (2011). When the European Union put in place its indicators on social exclusion, the use of income was discussed in detail (see Atkinson et al. 2002). Several broad reviews of both inequality and distribution, including chapters published in central economics journals or series, have relied on income, often using LIS data, for their assessments. These include, among others, contributions to the Handbook on Income Distribution such as Gottschalk and Smeeding (2000) and Jantti and Danziger (2000), and to the Journal of Economic Literature (Gottschalk and Smeeding 1997).

Both conceptual and practical matters affect the choice of income or consumption as the basis for the measurement of wellbeing. Conceptually, consumption is what economists traditionally think is more important for comparisons of wellbeing. However, that view is based, at least in part, on a narrow view of wellbeing, and is much influenced by the permanent income hypothesis that, among other things, views consumption as being more stable over time than income and therefore a better gauge of wellbeing. In fact, making the link between wellbeing and consumption in a given period is more complex. Furthermore, at the top of the income distribution, where savings rates are typically high, consumption surveys are likely to be even less informative of money-metric wellbeing than are income surveys.

From a practical perspective, how capturing consumption expenditures micro-level comparisons of individual income distribution surveys are designed.

Thus, while strong cases can be made for LIS’s reliance on income, its parisons. By “absolute”, MR appear means and medians) that express proportions of nominal national currencies (PPP) conversion factors.

Whether or not poverty (and wellbeing) is also a matter of much debate. Many included in the LIS Database, do prove to be fixed in real terms. Indeed, one feels free to construct absolute measures including us – often do so when carry.

Now, consider the task before LIS international real income comparisons made (many of which can be, and are practiced) by using LIS data, for their assessments. These include, among others, contributions to the Handbook on Income Distribution such as Gottschalk and Smeeding (2000) and Jantti and Danziger (2000), and to the Journal of Economic Literature (Gottschalk and Smeeding 1997).

Both conceptual and practical matters affect the choice of income or consumption as the basis for the measurement of wellbeing. Conceptually, consumption is what economists traditionally think is more important for comparisons of wellbeing. However, that view is based, at least in part, on a narrow view of wellbeing, and is much influenced by the permanent income hypothesis that, among other things, views consumption as being more stable over time than income and therefore a better gauge of wellbeing. In fact, making the link between wellbeing and consumption in a given period is more complex. Furthermore, at the top of the income distribution, where savings rates are typically high, consumption surveys are likely to be even less informative of money-metric wellbeing than are income surveys.

4 LIS Key Figures: Relative vs

MR is critical of LIS’ reliance, in our parisons. By “absolute”, MR appear means and medians) that express proportions of nominal national currencies (PPP) conversion factors.

Whether or not poverty (and wellbeing) is also a matter of much debate. Many included in the LIS Database, do prove to be fixed in real terms. Indeed, one feels free to construct absolute measures including us – often do so when carry.

Now, consider the task before LIS international real income comparisons made (many of which can be, and are practiced) by using LIS data, for their assessments. These include, among others, contributions to the Handbook on Income Distribution such as Gottschalk and Smeeding (2000) and Jantti and Danziger (2000), and to the Journal of Economic Literature (Gottschalk and Smeeding 1997).

Both conceptual and practical matters affect the choice of income or consumption as the basis for the measurement of wellbeing. Conceptually, consumption is what economists traditionally think is more important for comparisons of wellbeing. However, that view is based, at least in part, on a narrow view of wellbeing, and is much influenced by the permanent income hypothesis that, among other things, views consumption as being more stable over time than income and therefore a better gauge of wellbeing. In fact, making the link between wellbeing and consumption in a given period is more complex. Furthermore, at the top of the income distribution, where savings rates are typically high, consumption surveys are likely to be even less informative of money-metric wellbeing than are income surveys.

2 See http://www.lisdatacenter.org/data-access
household budget surveys, especially in formation not on household-level con-
cere aggregate expenditures on groups of pence periods for consumption data are
during which households record their
do not address the issue of which
t it is mainly for the purpose of providing
lishless of whether or not consumption or d the datasets available to us in high-
that a good basis for making distributional s to several efforts to provide comparable
carried out at Eurostat, the EU
they do not address the issue of which
be preferred in theory. Good cases can long tradition of distributional research is
of income, not of consumption, that is the revealed preference of the social
out which measure should be preferred.
ations, as well as in discussions about one can and should be used has been organisa-
such as the OECD and tution has been discussed, with active
(Expert Group on Household Income (Canberra Group 2011), replacing
The OECD has recently attempted to
wellbeing, work in which, again, LIS
s in rich countries — presumably based
of assessing the distribution of wellbeing include Atkinson et al. (1995), OECD
put in place its indicators on social
(see Atkinson et al. 2002). Several
including chapters published in central
of using LIS data, for their assess-
the Handbook on Income Distribution
and Danziger (2000), and to the Journal
choice of income or consumption as
ally, consumption is what economists
ns of wellbeing. However, that view
being, and is much influenced by the
views consumption as being more a
of wellbeing. In fact, making the period is more complex. Furthermore,
are typically high, consumption
metric wellbeing than are income

From a practical perspective, household budget surveys in rich countries are better at
capturing consumption expenditures than consumption, and tend not to be designed for
micro-level comparisons of individual or household wellbeing, while that is exactly what
income distribution surveys are designed to be used for.

Thus, while strong cases can be made for both consumption and income, in our view,
MR seriously understates the value of using income data. Indeed, the citations in the above
paragraphs are absent from the list of references in MR's review and only the Canberra
report and OECD Working Groups get mentioned (in footnote 7). This debate, we believe,
is far from settled, and belittling or ignoring a vast body of research and measurement
literature is not the way to settle it.

4 LIS Key Figures: Relative versus “absolute” poverty indicators

MR is critical of LIS' reliance, in our Key Figures, on relative rather than “absolute” com-
parisons. By “absolute”, MR appears to mean statistics of especially poverty (and also
means and medians) that express monetary units in fixed international prices, using conver-
sions of nominal national currencies using price indices and Purchasing Power Parity-based
(PPP) conversion factors.

Whether or not poverty (and wellbeing) should be measured in relative or absolute terms is
also a matter of much debate. Many countries, even many of the high-income countries
included in the LIS Database, do provide poverty estimates based on poverty lines that have
been fixed in real terms. Indeed, one line of defence is (to repeat) that researchers should
feel free to construct absolute measures when using the LIS data. Many LIS data users
— including us — often do so when carrying out research projects.

Now, consider the task before LIS in deciding to provide poverty estimates based on
international real income comparisons in its Key Figures. Apart from all other choices to be
made (many of which can be, and are by MR, debated) we would then need to choose which
price deflator to use within each country, choose a PPP conversion factor, and pick a real
income poverty line. This sequence, which already assumes that we decided to first inflate
incomes to a base year using a within-country price index, and then to apply a PPP conver-
sion factor, involves several choices that can (and should) be contested. For instance, there
are no PPPs for household sector disposable income. PPPs for GDP are readily available,
but those are clearly not appropriate for comparisons involving only the household sector.

We do, in fact, provide PPP-based income estimates through our Web Tabulator — i.e.,
an online table-maker recently added to LIS's data access tools, and still in development.
The PPP conversion rates that we use in the Web Tabulator are available on our website.2
We rely on PPPs estimated primarily by the OECD and Eurostat, as these are based on data
(prices and aggregate consumption patterns) for the high-income countries that mainly constitute
the LIS Database. We rely on World Bank data for cases in which OECD data are unavailable.
We have settled for using PPPs for household-sector final consumption expenditure, but who knows if these are “best”? We have also settled for using price deflators for
that same category of expenditures, but there is a lively debate on how best to measure real
incomes, and any specific choices can be questioned. Even assuming real income compar-
isons are made using our choices and meet with approval, how are we to pick an appropriate
real poverty line? In our research work, for lack of a better option, we tend to rely on the

U.S. official poverty line (for a family of four). But why would such a choice be appropriate for, say, Sweden? That is a matter of judgment, but a judgment we mostly prefer to leave to the researcher.

Are the decisions that we have made in the Key Figures, or the Web Tabulator, the most appropriate? We do not know, but what we do know is that we want to impose our decisions on the rest of the research community as little as possible. If we added "absolute" income indicators to the LIS Key Figures, we have no reason to believe that our choices would meet with approval by MR. The point of LIS is to allow researchers, as much as possible, to make these decisions for themselves. We do provide the price data that we use in the Web Tabulator and that many of us use for our own research, but we make no pretense to have found the Holy Grail of real income comparisons.

5 Other LIS practices regarding methods and access

MR devotes considerable space to critiquing some of the decisions that we have made in the construction of the LIS Key Figures. He questions, for example, the top- and bottom-coding practices, and our choice of equivalence scale. (To clarify, these concerns pertain only to the Key Figures, not to the microdata.) On these points, our main response is to explain that we have indeed made methodological choices, but our intention is not to suggest that these are the only choices – or even the best choices – that could be made. As we have noted, in general, LIS data users can re-run the Key Figures, adapting the programs that we make available as they wish, or they can disregard the Key Figures entirely and start "fresh" in the microdata, generating inequality and poverty indicators as they choose.

All of that said, we understand that some consumers of the LIS Key Figures may not have programming capacity and may not qualify for access to the microdata – in which case they are indeed limited to use the Key Figures as we have constructed them. So, while we consider the Key Figures to be a small portion of what we produce, we do appreciate MR's pushing us to re-examine the decisions that we have made historically – and we will indeed revisit them. More immediately, on our website, we will more clearly explain the logic of the choices that we have made.

Furthermore, MR questions some of the decisions that LIS has made as we harmonise the data. In particular, he notes that we do not impute missing values into the data and that we make no attempts of our own to correct for non-response. It is true that we mostly accept as given the data provided to us by our many data producers. This practice is debatable (and we do debate it internally), but we have stuck to it mainly for practical reasons. In a nutshell, largely due to the resource constraints that we face, we tend to not have enough information or resources to be able to properly impute missing values into our data, nor to improve on the non-response corrections implemented by the data producers. We do try to work with data producers to understand what they have done, and in some cases (e.g., Germany), where the data provider updates imputations and/ or weighting both for new and old datasets, we too update all datasets from them with each revision. But in general, we rely on the professionalism of the data producers in providing accurate data on the populations that they survey. Exploring the extent to which those data are accurate is a priority and something that LIS, together with data providers and other experts, has explored and continues to explore in appropriate fora, including the OECD Working Groups discussed above.

There are many minor issues raised by MR that we would like to comment on, but space permits only a few. We will focus on restrictions on the use of the data. In acquiring data from country data providers, LIS must often overcome many kinds of scepticism.

References

OECD: Divided We Stand: Why Inequality Ke...
Some data producers have not let themselves be convinced of the value of providing their data to LIS for use by the research community, despite decades of discussion. Major concerns for many data providers are the integrity and security of the data, which is why LIS continues to restrict access to individual records and relies primarily on the remote-execution system. Balancing usability and data protection requires delicacy; the large number of LIS’ data providers requires us often to choose a ‘least common denominator’ approach.

An important practice that we have followed is that, once a dataset has been added to the LIS Database, its use is governed by the same rules as all others. That is why we do not post the pre-harmonised data even if they can be freely distributed (they are then, after all, available from the data provider). In part, because an increasingly common methodological approach to using the LIS data calls for merging datasets across countries, we have resisted the kind of double remote-execution system that MR envisions that we might employ to acquire, e.g., official Chinese microdata. LIS has indeed long realized that some research requires more intensive access than that allowed by our remote-execution system; sometimes one really has to go into the data up to the elbows. We enable that through our on-site Visiting Scholar program, which provides such access in a secure computing environment. Finally, the question as to why commercial use is never allowed is one that should be asked of the legislatures of many of the countries that provide us with data, including, incidentally, Australia.

A final note. The LIS data have increasingly been used in combination with national-level or subnational-level data. Thus, while MR thinks that the use of the remote-execution system – known as “LISSY” – makes it hard to combine LIS data with data based on geography (such as country or region within a country), that is not the case. A researcher needs only to send LIS staff their external dataset and we make such data available for the researcher through LISSY.

In closing, we are enormously appreciative of MR’s assessment of LIS. In the short-term, we will work to clarify our explanatory materials and to sharpen our documentation as needed. In the medium- and longer-term, we will, with our governing body, consider his constructive suggestions as they pertain to the selection, acquisition, harmonisation, dissemination, and presentation of our data.

References


OECD: Divided We Stand: Why Inequality Keeps Rising. OECD, Paris (2011)

Appraising income inequality

François Bourguignon

Received: 9 March 2015 / Accepted: 28 May
© Springer Science+Business Media New York

Abstract This paper provides an eval
Latin America: the CEPALSTAT and
same household surveys conducted by
reported in the two databases differ in
come from distinct adjustments made
National Accounts aggregate income dis-
parison, the paper then provides a gene-
data to National Accounts as well as a
way inequality is estimated and report.

Keywords Inequality in Latin America
survey data and national accounts

1 Introduction

Income inequality in Latin America is:
level of inequality in the region. Basic
nationally through two databases. The
department of the Economic Commission
the second one, SEDLAC (Socioecono...