

Heilemann, Ullrich

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## *Working Paper Series*

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Macroeconomic data

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Ullrich Heilemann

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# Macroeconomic data

**Ullrich Heilemann**

*Institut für Empirische Wirtschaftsforschung (IEW)*

*Universität Leipzig*

*(heilemann[at]wifa.uni-leipzig.de)*

## **Abstract:**

The following look on the current state and the future of macroeconomic data is likely to fail. For one thing, researchers will be disappointed to find that their claims for more and “better” data are not adequately supported; the Amtliche Statistik [(Official Statistics (OS)], while to some degree perhaps sharing this disappointment, may miss suggestions and specific comments on old and new data needs. In a material sense, the situation does not appear lamentable and no case can be made requiring immediate action. In addition, few of the following remarks are new or unique. Indeed, as an empirical macroeconomist, and as a member of various statistical advisory bodies, the present author is impressed by the progress made in numerous areas of research infrastructure that were inconceivable only a decade ago. Within the triad of data, methods, and theory, for an increasing number of areas of the social and behavioural sciences, “data” no longer appear to be the limiting factor (so here appetite comes with eating, too) - especially not when also looking at cost, returns, and setting negative priorities. It is true that improvements to the macroeconomic informational infrastructure over the last two decades were much smaller than the progress made in microeconomics and many of its sub-categories (for labour economics, e.g., Bender and Möller 2009; Schneider 2009). However, these other areas were only catching up with the state of macroeconomic data, which had experienced a similar jump with the launch of the National Accounts (NA) in Germany some 50 years ago. Given the breadth of the topic, at least in the context of this volume, the following remarks will be cursory and the references rather general.

## 1. General remarks

At present, German macroeconomic research appears to be largely content with the existing data supply. Government interventions (e.g., in price statistics) or even scandals, not quite uncommon in other Western countries, are more than rare here; more importantly, the general supply differs only slightly in substance or “style” – consistency, comparability, timeliness, etc. – from that of most other industrial countries. For nearly 40 years (1920–1960), the driving forces behind the launch and completion of the present macroeconomic infrastructure (notably the NA) had been research institutes, especially the Deutsches Institut für Wirtschaftsforschung (DIW) and some of its offspring. Nevertheless, large parts of the research community within and outside these institutes were all too happy when, in the 1960s, OS started to take over most of their business of data production and dissemination. This put an end to some institutes’ quasi monopolies on some data, but obviously more important for the institutes they felt relieved from a never-ending and, in terms of academic reputation, poorly rewarded occupation.

Looking back to the 1970s, by now much has been accomplished to broaden and deepen the scope of the NA; for example, by using much more elaborate satellite systems for household production and the environment, with more to come (health economy, civil society). Of course macroeconomists who rely heavily on the NA do have a number of requests on their agenda (s. below). However, neither researchers and research institutes nor the Verein für Socialpolitik have expressed much concern about that (or about the state of the information infrastructure in general). With statisticians and the Deutsche Statistische Gesellschaft things are, of course, different (for a somewhat agnostic view, see Richter 2002). Above all, in recent years much energy has been absorbed on all sides by the new concepts of SNA, price statistics, etc. and by the micro data revolution.

Despite all this, the economists’ gospel is still: *more and better data*, with “better” meaning “more actual” (i.e. more speedily publicized data). Requests for more reliable, more valid or more compatible data are rarely heard. When including methods and theory, however, the priorities seem less clear. Few economists would agree that the marginal return of a Euro spent for investment in research would yield the most if spent on data.

Many recent improvements, notably the speeding-up of the publication of NA data go back to the international financial markets, in addition to policy (in particular on the level of EU). It should have been clear right from the beginning that this might have consequences for

data reliability and might increase the amount of revisions. However, at the time, this did not really matter. Of course, it would have helped users of this data to know the actual trade-off between timeliness and “accuracy” – its size, whether it changed over time, what might be done to reduce it, which aggregates are the most relevant<sup>1</sup>, whether there are differences from other national statistical systems, and if so, can they be assigned to particular procedures and models, and what can be done to reduce them. So far, only a few users seem to have asked these questions, and no answers have been given.<sup>2</sup> The same questions might be asked with respect to the new SNA (ESA 95): did the list of trade-offs change, in which direction, etc.? Again, no such questions are being asked.

Requests for more and better data are usually answered by the statistical authorities by pointing at the cost involved, their limited resources, and fixed priorities, all of which are hard to contradict by third parties.<sup>3</sup> In general the German OS’s cost/benefit ratios and the about ten Euro per capita expenditure for statistics appear as favourable; however, specific information on the cost, including the burden of respondents, of specific fields (macro-/microeconomic, business cycle/growth analyses and forecasts, etc.) is not available for outsiders (Heilemann 1999). Even more difficult to clarify is the utility of (additional) investment in the various segments of the informational infrastructure, most of all from a research perspective. The economic and fiscal savings from precise and timely macro data may be enormous; however, the privilege of setting the SO’s priorities will be with policy.

Generally, the need for improvement of consistency, comparability, and timeliness, etc. – “style” – of the available macroeconomic data is more urgent than the need for new data, which is limited to a few areas. This is different from last ten to 15 years with their rapidly changing needs, which made their way into the SO’s agenda, much of which has been worked off. So far open, however, is the degree to which the hugely increased supply of micro data might help to improve the *empirical* foundation of macro data (see, for example, Becker et al. 2006) (and, in turn, thereby testing the “macro compatibility” of micro data).

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1 For the unfilled quest for meta-data, see Gregory et al. 2009.

2 As an example for such a study (for the UK), see Maitland-Smith 2003, recently for Germany also Kholodilin and Siliverstovs 2009. Leigh and Stehn (2009) rank in a comparison of temporal stability (1965Q1-2004Q4/ 1995Q1-2004Q4) of revisions in the G7 countries Germany surprisingly low, similar the European Central Bank (2009) in a Euro area comparison of revisions of NA demand aggregates.

3 For some elements of the recent discussions of the costs of statistics in Germany, see v. d. Lippe 2006 and Schlupp, Stäglin, Wagner 2003.

## 2. Specific demands

A more detailed appraisal of the consequences of research interest and needs for the present and future situation for data faces a number of problems.<sup>4</sup> First, it has to be realized that, with respect to macroeconomic data, there is still a large backlog of “unfilled orders.” To recall just a few: data requirements that came with the advent of globalization, such as detailed information on stocks and flows of foreign direct investment by a number of categories; and data on new technologies, the service economy etc.<sup>5</sup> Second, more basically, researchers’ data requests are necessarily stimulated by impending problems, as a closer look on the “order backlog” demonstrates; of course, sometimes things also go the other way and, for a number of reasons, new data may stimulate new questions. Present data needs could hardly have been foreseen five years ago and even harder to anticipate are the data needs that may arise in reaction to the present mixture of crises – financial, regulatory, macroeconomic, sector, currency, etc. “Theory”, as some might be hoping, will hardly serve as a guide: it may march to the beat of the same drummer as empirical research, but its empirical zeal has usually been modest; and despite the availability of so much “better” data, experience tells that this will hardly change in the foreseeable future. It is true that growth theories – old and new – articulate their needs for a better coverage of human capital,<sup>6</sup> but by now these are old requests and part of the “backlog.” Third, it should be remembered that the main thrust for improving official statistics are policy needs on the national and, increasingly, on the international level – certainly if monetary or other costs are involved. In the end, all users will benefit from this. The progress of information technology has reduced all these costs (think also of making a better use of administrative data) and will continue to do so, not least because of the government’s goal of a “slim state,” which will continue to require fiscal prudence. An exception may be the financial sector (including statistics) – the crisis is the father of progress.

The ever-increasing interest in the service sector was a natural consequence of its mounting size. Additional impulses came in the 1990s, when supply factors such as the Information Technology and the demand of the finance industry and of the information/knowledge society shaped the “New Economy”. Its direct and indirect links with

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4 See also from an U.S. perspective, the Jubilee Volume of The Conference on Research in Income and Wealth (Berndt and Triplett 1990).

5 For details, see, for example, the website of the former ‘European Advisory Committee on Statistical Information in the Economic and Social Spheres (CEIES),’ now ESAC (European Statistical Advisory Committee) <http://forum.europa.eu.int/Public/irc/dsisi/ceies/home>, see also Heilemann 2003. For a more (U.S.) research-oriented listing, see <http://www.nber.org/CRIW/general>. For migration, see also Kahanec and Zimmermann 2009, Haug 2009, both in this volume.

6 See the various education related papers in this volume.

the rest of the economy intensified, notably with industry, as illustrated by the 1990s productivity miracle in the U.S. By now, many disputes about the role and scale of technical progress have since been settled, although some of the questions raised – measuring output, hours worked/productivity, prices – still lack convincing answers, particularly in Europe and Germany. National and international statistical bodies made considerable efforts to overcome some of these difficulties.<sup>7</sup> Germany, for example, employed the “Annual structural surveys in the service sector” (Transport and communication, Real estate activities, etc.).<sup>8</sup> However, in other parts of the service sector, notably in banking and insurance, such surveys, as well as reliable short-term indicators for the service sector, are still missing.

Other avenues for research (and policy) that were opened by globalisation are causes, forms, and consequences on intra-firm/intra-group trade, FDI-proprietorship, trade restrictions, and, strange as this may sound, information as to size, development, forms, and structure of illegal activities (including the shadow economy). While the material/substantial dimensions of these problems are already difficult enough to cover, arguments of “style” pose even greater difficulties given their transnational, all-embracing nature. While by now the problem is recognized, activities to tackle it have only just started.<sup>9</sup>

Looking more closely at researchers’ demands, most of them seem to be related to the need for a broader and more fully integrated macroeconomic perspective. Starting with a traditional model of business cycle analysis of the *Keynes/Klein* type as a core model and a general framework of (multi-purpose) macroeconomic analysis, since the 1980s a number of subsystems or satellite systems have been added that explain, interdependently, demographic developments, human resources and human capital, energy, mobility of capital and people etc.<sup>10</sup> Clearly, this requires a high compatibility of data, and long time series within or at least compatible with the NA-framework.

The needs of business cycle research proper deserve more attention, quite independent from the present crisis (Löbbecke 2002). More precisely, while the indicator approach already enjoys much attention, at least at the level of the EU/EMU (Eurostat 2005), the analytical branch of business cycle analysis seems to be lagging behind. From an analytical point of view, theoretical as well as applied, great steps forward would be, first, primary data on stocks

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7 For example, the EU Commission funded the EU Klems project that aims to create a database on measures of economic growth, productivity, employment creation, capital formation and technological change at the industry level for all European Union member states from 1970 onwards (<http://www.euklems.net>).

8 It should be noticed that the “great” NA-revision in 2011 will picture, among others, the service sector in a more detailed way.

9 For a detailed outline of the problems, user needs and approaches followed by national and international statistical bodies, see, for example, CEIES (ed.) 2008.

10 While the 1983 version of the DRI model of the U.S. economy (Eckstein 1983) can serve as an early example for such a concept and its implementation, the Dutch CORE model (e.g., CPB 1999) may be seen as an illustration of present demands and possibilities.



freeing them from the stigma of being residuals, and second, the disaggregation of inventories, both being called for since more than 40 years (Fürst 1967).<sup>11</sup> An even more important leap forward would be an integrated accounting of the distribution of financial and real income and wealth within the NA or compatible with it.<sup>12</sup> This would allow for a detailed examination of the consequences of the functional, as well as personal, distribution of income and wealth as suggested by macroeconomic theory, in particular in mature economies like Germany's. Whether it will result in an improved explanation (or even more accurate forecasts) of private consumption or private investment remains to be seen. In any case, the information itself would be valuable.

Again, similar ideas have been put forward with respect to a better understanding and modelling of financial motives and financial markets, their actors and institutions (e.g., Eckstein 1983, 77ff). While some flow of funds models have been developed for the German monetary sector, their explanatory power, for a number of reasons, has not been very convincing. However, from a macroeconomic perspective, what is more troublesome is that they have not been linked to the real sector because the data for the closure of the various channels of transmission – the many forms in which wealth is held – are missing.<sup>13</sup> Of course, things will become even more difficult if we look for a proper inclusion of the international dimension, i.e. globalization and its consequences (not to mention European Monetary Union). Currently, the first vintage of actual data on international trade in goods is reported about two years after the fact, though preliminary data are not generally criticised as being particularly deficient. However, neither monetary flows, nor data of (other) assets, (including human capital or property rights) are reported with the necessary details or quality.

A more complete system, linking the flow of funds and asset data from the international economy, would greatly improve understanding of how the financial sector functions and make, for example, the now demanded contagion-related stress test of the financial system more realistic and reliable. Only then will we be able to examine the number and roles of the channels of transmission of various crises and their effects. Again, to analyse such influences on investment, consumption, government, distribution and the foreign sector<sup>14</sup> requires more information on wealth/income, its composition, and distribution (Hauser 2009), as much as possible within the NA-framework. All of these requests had already been made in the first report of the Council of Economic Experts (1964), and have been repeated many times since

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11 U.S. official statistics publish disaggregated inventory data since long. German OS acknowledges this need as established in ESA 1995, but because of the high cost has thus far declined to do.

12 For a current synopsis of the aggregated and sectoral non-financial wealth accounting, see, for example Schmalwasser and Müller 2009.

13 Ibid.

14 For example, how large would Germany's or Japan's net exports be in terms of proprietorship?

(e.g., Hax 1998; Glöckler 2003). In this context, the many discrepancies between financial accounting and NA should also be mentioned. Often, the differences are only the consequence of an incongruent dating of transactions, but this is sufficient to hamper economic analysis and assessment.

While the now easy and nearly cost free access to official data (journals might follow soon) has been much welcomed by the academic community, equally impressive progress regarding databases is often overlooked. The timeliness of publication of NA-data has been greatly improved and harmonized between EU-member states, which may especially benefit forecasters. There is now a continuous quality monitoring process, in particular with respect to revision.<sup>15</sup> However, it would be interesting to know, for example, whether revision needs have been increased by the now shorter publication periods or by the new SNA (ESA 1995). Besides, the informational gain could be considerably enhanced by following U.S. practice and publishing the indicator data on which the flash estimates are based. Forecasters are not the only ones who should benefit from knowing the past and present trade-offs between timeliness and revision-practice/-needs. It remains to be seen whether the current greater timeliness of the NA data is – from a broader quality perspective – a net gain, not just for policy and the financial markets, but for the academic community as well. Finally, OS might also reflect on the U.S.’ and others’ handling of chain index-based SNA data: the loss of precision when using absolute terms instead of indices is small while computation is greatly eased.

Even if the previous list is incomplete with respect to both substance and “style,” there is still an old and long list of demands to the OS.<sup>16</sup> Again, we should realize that considerable returns on investment might come from improving foreign information supply and infrastructures. This holds from research perspectives, most of all comparative ones, as well as from a policy perspective. The support given in the wake of the EU’s southern and eastern enlargements were of considerable help, even if, as with any harmonization, at least temporarily we may have to pay for this with a reduction of national standards.<sup>17</sup>

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15 See Körner and Schmidt 2006. This is a welcome first step but, of course, it could be extended to meta-data, once they are reported. See also FN 2.

16 See on this, for example, Richter (1992) and his often very demanding requests.

17 While there is no doubt that in recent years the European Commission (policy!) became increasingly important for national statistics, for a number of reasons not all researchers may be happy with that. For a European policy view on the statistical infrastructure, see Reeh 2009.

### 3. How to move forward

Goals and means are dependent on each other, and the quality of data is largely determined by who is collecting and who is processing them. The current crises will shift present priorities in the direction suggested above, even if, so far, there have been no hints that the German government is willing to commit more resources to this purpose, financial or administrative, its own or that of respondents. At present and for the near future, financial resources appear, at best, fixed. Negative priorities will be hard to set, and the potential to increase productivity appears for outsiders to be rather limited as privatization/outsourcing experiments in other countries during the past decade have shown. To reduce costs, the use of administrative data might be increased, while the use of primary data is reduced – hardly a reason to expect improvements in data quality. Another ambivalent example is the increase in the cut-off limits for enterprises, which has consequences for intermediate consumption, and our picture of the size and the dynamics of the economy, especially in Eastern Germany. At first, this will affect only the structural perspective, but ultimately it will also affect the aggregate level and its dynamics. On the other side, a wider reliance on administrative data may augment the coherence and compatibility of the OS data.

Leaving aside the overall comfortable situation for macroeconomics, a way for further improvement would be to renew researchers interest in data production and their passion for statistics, a source that so far seems to have been addressed in the discussion of the “informational infrastructure” only in an indirect way.<sup>18</sup> This is not to fail to recognize that some of the major research institutes are trying to come back to their roots in the creation and improvement of specific research infrastructures.<sup>19</sup> Ignoring policy institutions like central banks and international institutions like the OECD, it is outside the OS only that these institutes have enough expertise and motivation to engage in questions of macroeconomic data. More engagement and more reputational reward by the (German) academic community would benefit both their work and the informational infrastructure. A view supported not only by a look at the U.S., but also by looking back at Germany’s pre- and post-WWII (see above) experiences.

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18 See Kommission zur Verbesserung der informationellen Infrastruktur zwischen Wissenschaft und Statistik (Hrsg.) 2001, pp. 137ff, 146ff. Improving university education may be one strand, improving research standards another. See also, for example, Richter 1992, 293ff.

19 To mention just one example, the efforts of the DIW (Cors and Kouzine 2003) to bridge the gap between quarterly data may be cited. For a more complete overview, see Kommission zur Verbesserung der informationellen Infrastruktur zwischen Wissenschaft und Statistik 2001, 102ff.

#### 4. Conclusions and recommendations

Germany's macroeconomic statistical infrastructure is comparatively well developed: availability and access (including cost) do not leave much to be reasonably desired. The list of proposals for extension and improvements is long and comprehensive, though, again, not that much different from such a list for most other highly developed countries. The present crisis may speed up the accomplishment of some of these demands, but given that the financial restrictions of the past decade will continue to apply and the opportunities for additional productivity gains are small, this may mean only a shift of priorities – despite all of the rhetoric on the statistical needs of the “information society.” This is even more likely with a new NA system scheduled for 2014<sup>20</sup> and it would be surprising if more than planned so far (e.g., the great NA-revision 2011) were to happen before.

A new way to diminish this dilemma would be to stimulate within the academic community if not a passion, at least a stronger interest in questions of macroeconomic data. All sides involved would gain much by bringing the academic community closer to this, the forefront of empirical statistical research, making it a closer ally of the OS, as witnessed in microeconomics over the past 20 years.

Implementing the suggestions made here will broaden and improve the data infrastructure. It will help to find better solutions for our problems, primarily for our old problems. Scope, frequency and timeliness of macroeconomic forecasts will further increase and, with some luck, the amount of revisions will be reduced. In the end, monthly data may trigger a jump of insight in macroeconomic dynamics similar to the one that came with the transition from annual to quarterly data.<sup>21</sup> However, whether the accuracy of rate of growth forecasts of real GDP will increase more than by one or two digits is doubtful. The experience of the last 40 years – not just in Germany – does not support such hopes. However, do not worry: neither did theory, or new methods.

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20 In 2003 the Statistical Commission of the United Nations (UNSC) initialized a revision of the SNA 1993 <http://unstats.un.org/unsd/sna1993/issues>. In the course of this process, ESA 95 will be revised. Different from SNA, this will not be mandatory for EU member states.

21 The DIW started reporting quarterly NA data in 1953. OS began publishing complete sets of NA data in 1978.

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