
**MANAGEMENT AND
ORGANISATION SURVEY
SAMPLING METHODOLOGY**

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INTRODUCTION

The Management, Organisation and Innovation (MOI) survey collects data from the manufacturing sectors in selected EBRD countries of operation and Germany. It is envisaged that the MOI survey will be expanded to other parts of the world and services sector as well. The Survey uses a standardized survey instruments and a uniform sampling methodology to minimize measurement error and to yield data that are comparable across the economies. The MOI survey partly overlaps with the EBRD and WB BEEPS, which allows the use of BEEPS variables in the analysis.

The use of properly designed survey instruments and a uniform sampling methodology enhances the credibility of the World Bank and the European Bank of Reconstruction and Development (EBRD) analysis and the recommendations that stem from this analysis. The MOI survey aims to achieve the following objectives:

- To measure and compare management practices across countries, both now and in future waves following up the original firms
- To assess the constraints to private sector growth and enterprise performance resulting from constraints on good management practices;

This note provides information to implementing consultant and researchers on the sampling methodology. Two complementary documents, the [Implementation Note](#) and the [Questionnaire Manual](#) complete the documentation. The [Implementation Note](#) is geared to survey field managers, field supervisors and enumerators. The [Questionnaire Manual](#) provides a detailed explanation of the questions contained in the questionnaire.

1. SAMPLING METHODOLOGY

The sampling methodology of the EBRD and World Bank's Management, Organisation and Innovation (MOI) Survey generates sample sizes appropriate to achieve two main objectives:

- To measure and compare management practices across countries,
- To conduct firm performance analysis focusing on determining how management practices affect productivity and job creation in manufacturing.

To achieve both objectives the sampling methodology generates a random sample representative of the manufacturing sector (but not a more detailed level than that) and generates large enough sample sizes for manufacturing sector to conduct statistically robust analyses with levels of precision at a minimum 7.5% precision for 90% confidence intervals about the differences in management practices across countries.

1.1. Sample frame and stratification

The Management, Organisation and Innovation (MOI) survey includes (according to ISIC, revision 3.1) all manufacturing sectors (group D). Since management and organization tend to come to the forefront in medium and large establishments, the sample frame for each country should include only establishments with at least fifty (50) but less than 5000 employees. If available and of sufficient quality in terms of representativeness of the manufacturing sector the preferred sample frame is Bureau van Dijk's Orbis database, which contains published balance sheet and income and loss statements. When this source is not available or is of poor quality, the official sample frames without financial performance information can be used.

Including other dimensions of interest, such as location as variable of interest adds another dimension to the sampling strategy. If a second dimension is included, this is to ensure that choosing firms randomly from the stratified sample frame will resemble the distribution of the population. For example, if location is the second dimension, making sure that the sample frame is stratified by region will be enough to meet this requirement.

In the MOI survey, stratification along industries within manufacturing or establishment size will not be required. Regional variability will be considered in countries where the laws and regulations that may have an impact on management practices vary across regions. However, all regions in a country need to be covered, with the percentage of the sample in each region equal to at least one half of the percentage of the sample frame population in each region. Appendix A provides more detailed guidance on sampling strategy in the first MOI survey in 2008.

1.2. Response and non-response, panel dimension

In the case of countries where a panel component is available, priority should be given to completing interviews with the establishments in the panel first. A potential problem of this type of surveys is that in the majority of the cases the resulting data sets represent only firms that were willing to participate in the survey. Firms’ systematic refusal to participate may compromise the random nature of the sample. In most cases, this problem has been tackled by substituting with willing participants. Regardless of the solution undertaken, it is important to determine the non-response rate from the overall population and to distinguish it from substitutions emerging from problems of the sample frame such as firms with unknown location and/or firms that have gone out of business. For this reason, it is crucial to prepare a field-work report containing the following information:

Stratum	Target Sample	Non-Response			Substitutes	Complete	Incomplete
		Refusals	Out of scope				
Wrong or changed classification			Out of business/ impossible to locate				
Region							
Region 1							
Region 2							

This report is essential not only to clearly state response rates per strata but also to identify problems with the sample frame in order to adjust the design weights.

Item non-response, questions with missing responses, is a particularly acute problem in establishment level surveys. To account for item non-response, the sampling strategy will

factor in up to a 25% non-response per stratum, so that there will be enough valid responses to compute performance indicator with the precision indicated in this sampling methodology.

An objective of the survey is to roll it out to other parts of the world in the future and to build a panel of firms by re-interviewing them at regular, periodic intervals of time. For this reason, it is imperative that every implementing firm submit all the contact information of the participating firms to facilitate their location in future iterations of the survey. This information must be kept by the EBRD and the World Bank and not the implementing firm. If legal restrictions or internal bylaws require measures to guarantee the confidentiality of firms' identities, names and addresses can be kept separately from the main data set.

For surveys beyond the first iteration attrition becomes a major concern. This problem compounds the non-response bias present in most establishment level surveys. It is important to allocate resources to minimize attrition. It is also important to identify it and differentiate it from non response emerging from firms going out of business. Observationally, both manifest themselves as non response; in reality, one reflects a structural characteristic of the economy, firms dropping out of the market, and the other reflects a potentially endogenously defined reaction by firms' managers; it could be that less productive firms systematically reject the survey, that firms with worse management practices refuse to participate, or that refusals are the result of the previous experience with the survey. Econometric techniques allow to test and correct for this potential endogenous attrition.

Attrition may seriously compromise sample sizes per regional stratum. Consequently, substitutions may be needed following the original sample design to reach the target sample size per stratum. Substitutions by stratum attempt to reconstruct the original sample design of the survey at the first iteration. If in later iterations a representative sample of the new characteristics of the economy is desired, this will add an additional layer of analysis to the sample design. The structure of an economy changes over time and the relative distribution of different sectors may vary drastically. Potential solutions are using a rotating panel or a split panel. A split panel combines both rotating and non-rotating panel. Both solutions, however, may require additional resources to preserve the benefits obtained from pure panel data.

Appendix A: Detailed instructions on sample selection and response rates for MOI survey in 2008

Twelve countries are covered by the MOI survey in 2008: Germany as a benchmark and 11 transition countries. General instructions on sample frame and sample selection are:

1. Preferred sample frame is the Bureau van Dijk's Orbis database, when available and of acceptable quality in terms of being representative of the manufacturing sector. The MOI sample frame will be matched to the BEEPS sample frame (which comes from official sources, such as national statistical offices or national business registries) by EBRD and the World Bank, and the final decision on which sample frame to use will be made based on how closely the MOI sample frame resembles the BEEPS sample frame along the following dimensions: number of firms in the

- manufacturing sector of a defined size and regional distribution, where applicable. MOI sample frame is not available for Kazakhstan and Uzbekistan, so BEEPS sample frame will be used there.
2. No stratification will be used in majority of the countries (see below for exceptions), but the sample needs to be selected randomly, it needs to cover all regions and at least a 25 per cent response rate is required to be achieved. The implementing local institutes should not be issued the entire sample frame, they should only be issued the selected sample and up to 2 substitutions, as is the case with BEEPS.
 3. Sample needs to be stratified at the level of regions in the case of Russia. In other countries the target share of interviews in each region is half of that region's share in the population. For example, if region ABC has 10% of the population of firms inside from country XYZ then at least 5% of the sample must be from this region. So if country XYZ has a target sample of 200 firms this means that 10 firms (5% of 200) need to be interviewed from region ABC.
 4. Sample should be selected randomly from every cell, with probability depending on the size of the universe in each cell. The exception to this rule is panel firms, which are available in Germany and Poland. These firms should be picked with probability equal to 1.