Employment Reduction Spreadsheet Software

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The employment reduction spreadsheet software was developed by the July 1999 Public Expenditure and Institutional Review (PEIR) mission to assist the Government of Macedonia in prioritizing and setting realistic targets for net wage bill savings to be achieved as part of its effort to address its precarious short-term fiscal situation. It is also intended to assist individual Budget Users (BU's) in sensibly targeting any employment reductions they will need to undertake as part of this effort. In what follows we explain each of the modules within the software, and offer advice on how to use that software to best advantage. Following that, we highlight a few significant management and policy implications that can be drawn from applying this software to the *education sector*, based on the short term fiscal savings recommendations that the PEIR mission offered regarding that sector.

Explanation of the Spreadsheets

As just noted, the workbook is designed as a tool that the Government can use to sensibly target employment reductions. By "sensibly target" we mean targeting employment reductions so that they achieve the twin aims of (a) yielding a pre-specified net reduction in wage costs in the year 2000, while (b) concentrating the required employment reductions within those Budget Users and among those positions which will cause the least disruption in the capacity of the central administration and its individual Budget Users to satisfy their core and common function objectives. It has two modules: one to assist central authorities to set net wage cost reduction targets for individual Budget Users; a second to assist individual Budget Users to sensibly target employment reductions within their organizations so as to achieve the net wage cost reduction targets they have been assigned by central authorities. Each module consists of two worksheets. The first worksheet allows the user to enter basic data required to estimate the desired cost implications or targets. The second sheet calculates those cost implications or targets. The version provided to Macedonian authorities includes, besides a template version of the Budget User module worksheets, also a set of those two worksheets in which Education Sector employment reductions proposed by the PEIR mission have been entered, so as to illustrate precisely how that module can be used, as well as the cost implications of those particular proposed reductions.

Central Authorities' Module

Base Data and Assignment of Budget Units into Employment Reduction Priority Groups

This worksheet is a tool for central authorities (presumably the Ministry of Finance) to prioritize Budget Users (BU's) into a small number of groups, on the basis of the capacity of each BU to sustain employment reductions without unduly their capacity to meet *common function* performance requirements (policy formulation, financial management, human resource management and monitoring and reporting on their own performance in meeting their mandates) and to satisfy their *core function* mandates for policy implementation, service delivery and/or regulatory design and enforcement. The worksheet provides for assignment of BU's into three broad categories: those capable making significant employment reductions, those capable of making moderate employment reductions, and those capable only of making only fairly minor reductions. The user could readily expand the worksheet to accommodate a larger number of categories if desired.

The worksheet already includes data from the 1999 Budget (provided by the Ministry of Finance), identifying for each Budget Unit (BU) within the central administration (exclusive of municipalities and autonomous funds):

1. Organisational unit budget code
2. Budget User name
3. FY1999 planned wages, salaries and allowances expenditures (budget subcategory 40)
4. 1999 estimated average number of employees

In addition, based on that information the worksheet provides calculations for:

1. Average wages, salaries and allowances (per employee)
2. BU's wage bill as a percentage of the total central administration wage bill.

The original version of this worksheet provides a preliminary grouping of BU's across the three employment reduction priority categories. Category 1 (significant reductions) includes BU's ranked highest on the total wage bill plus those with outlying average gross wages. Category 2 (moderate reductions) includes the next highest ranking BU's by their wage bill, plus one BU with a relatively high employment level. Category 3 (minor reductions) includes the remaining BU's. Central authorities should revise the membership of these three groups based on their collective judgment of the likely capacity of each BU to sustain employment reductions without seriously undermining its capacity to meet common and core function performance requirements. Once all reassignments have been completed, the user should review the summary cells in this table (rows 16, 55, 161 and 163 in the original version of this worksheet – shaded in magenta for ready identification) to ensure that they still calculate the appropriate sums.

The groupings produced by this worksheet feed directly into the "Targeting Model" worksheet.

Targeting Model: To Determine Percentage Wage Bill Reductions Required from Each Category of Budget Units

This worksheet allows central authorities to identify a set of percentage reductions in net wage bill expenditures to assign to each of the three (or more) employment reduction priority groups identified in the "Base Data and Assignment of Budget Units into Employment Reduction Priority Groups" worksheet, such that total projected net wage bill savings will meet a given target. Central authorities must specify the total net wage bill savings to be sought. They may also select starting values for the percentage reductions to be required within each of the three (or more) priority groupings. Having made these two choices, the user should invoke the "solver" function within Excel, as directed in the worksheet, to enable Excel to identify a set of percentage reduction parameters for the three (or more) priority groups that will yield the desired overall net wage bill savings (see worksheet for directions). If the resulting parameters are deemed feasible and fair, they should form the basis of instructions to individual Budget Users as they plan their employment reductions, using the Budget Users' module worksheets.

If the parameters identified by the "solver" function are deemed either unrealistic or unfair, the user can either reduce the overall net savings target (to lower all targets) or alter the starting values for the group-specific percentage reductions (to alter the relative differences between the BU groups' reduction percentages).

In using this module, central authorities should be careful to ensure that: (a) their assignment of individual BU's to priority groups are reasonable and realistic; (b) overall net wage bill reductions being sought are actually feasible; and (c) the relative reductions to be required across the three (or more) priority groups are realistic and fair.

Budget Users' Module

Budget User Employment Reduction Worksheet

This worksheet requires individual Budget Users to provide the following information:[1]

Base Period Data (FY1999)

1. Employment composition (i.e., number of employees in each of a relatively small number of fairly homogeneous employment categories);
2. Wage bill (Category 40 expenditures) by employment category;
3. Average seniority by employment category (for determining severance payment requirements);
4. Average number of months of contributions to the Employment Fund (for determining unemployment compensation requirements).[2]

FY2000 Employment Reduction Plan

[1] All cells in these worksheets that require user input are shaded in yellow. Cells with no shading are formula-based and should not be changed, unless other changes made to the structure of the spreadsheet cause changes in the original formulas. Cells shaded in green provide instructions to the user.

[2] If this information is unknown, we recommend that the Budget User enter twelve times the average seniority as an estimate for each employment category.

1. Number of employment departures the Budget Unit is willing to commit to achieving by employment category by month during FY2000.

The worksheet uses the above data to calculate and project the following monthly savings and costs for FY2000-2004:

1. Salary savings from reduced staffing
2. Severance payment costs
3. Unemployment compensation costs

Post-2004 cash flows of each of these components of savings and costs are assumed, for simplicity, to remain constant at their December 2004 levels.

Salary savings are avoided net salary costs, which commence the month after a cohort of employees is projected to depart, and continue indefinitely. These are calculated as the salary net of personal income tax, health contributions and pension contributions. Each of these taxes or contributions is netted out because each represents both a reduction in wage payments and a reduction in revenues to the Treasury or the relevant Fund, without any corresponding reduction in liabilities against those funds. Contributions to the employment fund are not netted out of these calculations, since the reduction of contributions to the Employment Fund would be counterbalanced by the State's avoidance of additional contingent liabilities for unemployment compensation.

Severance payments are calculated by month for each departing cohort of employees on the basis of the severance payment formula found in the Labour Regulations, based on average seniority. The full severance payment costs are assigned to the month during which a cohort of employees is projected to depart and are calculated as the lower of one-half the number of years of seniority or twelve, multiplied by the net-of-all-taxes-and-contributions salary, as specified in those Labour Regulations.

Unemployment compensation commences the month after departure and is calculated by month on the basis of the estimated average number of months of contributions to the Employment Fund of the cohort departing during a given month. These are calculated as the replacement rate (50% during the first twelve months of eligibility; 40% during any additional months of eligibility) times the net-of-all-taxes-and-contributions salary. The duration of unemployment compensation is fixed by the non-linear formula summarized in Table 1, based on the average number of months of a given cohort's contributions to the Employment Fund.

The 300 months of eligibility in the final cell of Table 1 is simply a convenient algorithm to capture the unlimited eligibility currently granted to contributors who have more than 25 years (300 months) of cumulative contributions to the Employment Fund. Given the time horizon of the model in the workbook (namely, fifteen years, equivalent to 180 months), this algorithm is functionally equivalent to unlimited eligibility.

Table 1: Determination of Duration of Eligibility for Unemployment Compensation

Cumulative months (n) of contributions to Employment Fund	Months of unemployment compensation eligibility
n<12	3
12≤n<24	5
24≤n<50	8
50≤n<120	12
120≤n<240	15
240≤n<300	18
300≤n	300

Budget User Fiscal Impact Simulation

This worksheet summarizes the costs and savings projections generated by the "Budget User Employment ReductionWorksheet". It provides Present value summaries for a variety of time periods, [3] as well as a current value summary of the FY2000 savings and costs projections. The latter summary measure should be used to confirm whether the Budget User's employment reduction plan satisfies its net wage bill reduction target. The cell identifying the current value of those net salary savings during FY2000 (cell E15) is shaded in magenta for easy reference.

A quick glance at the education sector version of this worksheet ("Education Sector Fiscal Impact Simulation") reveals that the employment cuts proposed by the PEIR mission would yield short term net costs of nearly MKD 304 million during FY2000. The longer term Net Present value of those proposed employment reductions, on the other hand, is projected to be significantly positive – almost MKD 120 million over six years, and nearly MKD 2.5 billion over 15 years.

Management and Policy Implications

1. Central authorities implications: Central authorities face two main challenges in setting the net wage cost reduction targets. First, the better job they do at sorting Budget Users into those that can achieve substantial net wage cost reductions without seriously undermining their capacity to meet their common and core functions,[4] the less disruptive this undertaking will be. If central authorities fail to sort Budget Users on the basis of their capacity to reduce net wage costs without seriously undermining

[3] The discount rate can be set by the user to perform sensitivity analysis. Central authorities should decide on a common discount rate to be employed by all Budget Users, so as to ensure consistency. The discount rate (cell G4) is shaded in yellow for ready reference. For the Education Sector simulations, the Net Present value calculations are qualitatively insensitive to the choice of a discount rate, although the magnitudes of net benefits do increase noticeably at lower discount rates as of year six.

[4] Common functions are those functions common to all central administration Budget Users; namely, budget management, human resource management, policy formulation, and monitoring, evaluation and reporting on their own performance in meeting their core institutional objectives. Core functions are policy-driven, Budget Unit-specific core institutional objectives; namely, a Budget Unit's unique policy implementation, service delivery and/or regulatory design and enforcement objectives.

their own institutional capacity to carry out their common and core functions, this entire exercise could create more problems than it will resolve. Second, in selecting the overall budget reduction target, central authorities need to be realistic. If they set too ambitious a target, either of two outcomes would be likely. Either (a) they will find it impossible to enforce those targets, thereby undermining their credibility and the credibility of the overall reform process; or (b) they will succeed in enforcing targets that impose greater non-financial costs than they generate in net (financial) wage cost savings by compromising public administration, policy implementation and service delivery capacities of Budget Users. Either result would represent an unfortunate outcome. Thus, it behooves central authorities to exercise considerable caution and judgment as they make their decisions about assigning Budget Users to employment reduction priority groups and as they set the overall net wage bill reduction target.

2. Budget User implications: Net savings are sensitive to seniority and months of contributions to the employment system. Budget Users can increase net savings by targeting employment reductions among staff with less seniority and shorter employment histories (i.e., fewer months of contributions to the employment system). Cost savings achievable through such targeting should, however, be weighed against losses in productivity if such personnel are among the more productive members of the Budget User's workforce. This is a tradeoff that individual Budget Users will have to make. The more sensibly they make this tradeoff, the less disruptive will any employment cuts undertaken actually be. This is the most important challenge facing individual Budget Users when undertaking this effort.

3. Potential for wage bill savings: Given the generosity of the current combination of severance and unemployment compensation policies, employment reductions can readily yield net budget cost increases during and immediately following the period in which employment reductions are accomplished. The simulations for the Education sector suggest that under the employment reductions proposed by the PEIR mission, the present value of net savings would be negative for about five years, despite the fact that all costs would be incurred only during the first fifteen months after employment reductions actually occur, and monthly net cash flow savings would be positive the month after which employment reductions ceased. At the same time, the medium and longer term net savings are strongly positive in present value terms – over a six-year period the NPV would be about MDK 103 million, while these would total almost MDK 2.5 billion over a fifteen year period.[5]

4. Government policy implications: The Government could increase net savings achievable through employment reductions aimed at reducing inefficient over-employment in the public sector by revising the country's severance payment and unemployment compensation policies governing the public sector (e.g., through the current draft Civil Service Law). To do this, the Government would need to establish (e.g., in that Civil Service Law) policies that: (a) subject "redundancy" employment reductions in the public sector to various checks intended to ensure that they don't simply become an easy device for getting rid of staff; (b) reduce the generosity of both the severance and unemployment compensation systems by reducing either or

[5] These projections assume a 9% discount rate, but are quite insensitive to the choice of a discount rate since costs are heavily concentrated in the early period.

both of the parameters that determine total compensation available to a worker declared "redundant" – namely, (i) the rate at which compensation rises with either seniority or months of contributions to the employment system, (ii) the fraction of monthly salary in the formula for determining unemployment compensation, and (iii) by setting a lower lid on the maximum number of months of salary for which severance and unemployment compensation may be payable; and/or (c) eliminate or reduce unemployment compensation by the total amount of severance benefits when severance payments are made, on the grounds that they are serving the same purpose and hence need not be duplicated. This final policy change would be equally justified within both public and private sector labor markets.