
AIMMS Function Reference - GMProbst Procedures and Functions

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GMP::Robust Procedures and Functions

AIMMS supports the following procedures and functions related to robust optimization:

- `GMP::Robust::EvaluateAdjustableVariables`

GMP::Robust::EvaluateAdjustableVariables

The procedure `GMP::Robust::EvaluateAdjustableVariables` evaluates the values of a set of adjustable variables using the current values of the uncertain parameters inside the model.

```
GMP::Robust::EvaluateAdjustableVariables(
  GMP,           ! (input) a generated mathematical program
  Variables,     ! (input) a set of variables
  [merge]       ! (optional, default 0) a scalar value
)
```

Arguments:

GMP

An element in `AllGeneratedMathematicalPrograms`.

Variables

A subset of `AllVariables`.

merge

A scalar binary value to indicate whether the evaluated values for the adjustable variables should be merged with the existing values (value 1) or should replace them (value 0).

Return value:

The procedure returns 1 on success, or 0 otherwise.

Remarks:

- The *GMP* must have been created using the procedure `GMP::Instance::GenerateRobustCounterpart`.
- This procedure will ignore variables in the set *Variables* that are not part of the *GMP*. It will also ignore non-adjustable variables.
- The evaluated values will be stored in the `.robust` suffix of the adjustable variables. (Note that no values are stored inside this suffix after the robust counterpart is solved.)
- This procedure will fail if the option `Keep Uncertain Mathematical Program` was not switched on before calling procedure `GMP::Instance::GenerateRobustCounterpart`.

Examples:

Assume that `rcGMP` is a robust counterpart GMP with one adjustable variable `Production(i, t)` that depends on the uncertain parameter `Demand(s)`. After solving the robust counterpart you can calculate the values of `Production` for a certain realization of `Demand` as follows:

```
Demand(s) := 5;
GMP::Robust::EvaluateAdjustableVariables( rcGMP, AllVariables );
```

It is also possible to calculate the values of the adjustable variables without using this procedure:

```
Demand(s) := 5;  
  
CalculatedProduction(i,t) := Production.adjustable.Constant(i,t) +  
    sum( s, Demand(s) * Production.adjustable.Demand(i,t,s) );
```

Here `CalculatedProduction(i,t)` is a parameter used to store the calculated values of `Production(i,t)`.

See also:

The function `GMP::Instance::GenerateRobustCounterpart`.