Mass Valuation Techniques used in Land Registry and Cadastre Modernization Project of Republic of Turkey
GENERAL DIRECTORATE of LAND REGISTRY & CADASTRE
TURKEY

PILOT IMPLEMENTATION

DATA COLLECTION

CONTRACTORS

ANALYSES

TKGM VALUATION TEAM

Neighbourhood | Parking Area | Number of Baths | Distance to Cultural Areas
Street/Road | Is it in a Building Complex? | Does it have a Balcony? | Distance to Sea*
Development Status of the Region | Facility Management | Is the Living Room Independent? | Distance to Recreational Areas
Location of Parcel | Number of Floors | Area Per Share | Distance to a Main Road
Slope | Heating System | Distance to City Centre | Distance to a Bus Stop
Street Width | On Which Floor | Distance to an Elementary School | Distance to a Metro Station
Earthquake* | Location of Individual Unit | Distance to a High School | Distance to a Metrobus Station *
Occupancy Permit | Direction of Individual Unit | Distance to a University | Distance to a Tramway Station *
Does it have Road Frontage? | Number of Directions of Individual Unit | Distance to a Supermarket | Distance to a Marmaray Station *
Building Age | Number of Rooms | Distance to a Bazaar | Distance to a Suburban Train Station **
Physical Status of Building | Gross Indoor Area | Distance to a Shopping Centre | Distance to Shanty Settlements **
Exterior Material | Gross Outdoor Area | Distance to a Mosque | Distance to Garbage Dump **
Does it have an Elevator? | Gross Area of the Storeroom/Coal Cellar | Distance to a Hospital

May 2015 - FIG Working Week – Sofia/BULGARIA
### Residential and Commercial Land in FATİH and MAMAK

<table>
<thead>
<tr>
<th>Location</th>
<th>Residential</th>
<th>Commercial</th>
<th>Land</th>
</tr>
</thead>
<tbody>
<tr>
<td>FATİH</td>
<td>2.702</td>
<td>262</td>
<td>-</td>
</tr>
<tr>
<td>MAMAK</td>
<td>2.722</td>
<td>-</td>
<td>691</td>
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</tbody>
</table>

<table>
<thead>
<tr>
<th>Location</th>
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<th>Commercial</th>
<th>Land</th>
</tr>
</thead>
<tbody>
<tr>
<td>FATİH</td>
<td>2.447</td>
<td>242</td>
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<tr>
<td>MAMAK</td>
<td>2.372</td>
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<td>367</td>
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</tbody>
</table>

### Model Building

- Multiple Regression Analysis - MRA
- Artificial Neural Networks - ANN
- Decision Trees
- Linear Model

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<table>
<thead>
<tr>
<th>Method</th>
<th>Num. of Variables</th>
<th>Success Average</th>
<th>St. Deviation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Multiple Regression Analysis</td>
<td>19</td>
<td>82.52%</td>
<td>14.4%</td>
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<tr>
<td>Artificial Neural Networks</td>
<td>39</td>
<td>80.40%</td>
<td>16.28%</td>
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<tr>
<td>Decision Trees (CHAID)</td>
<td>17</td>
<td>80.81%</td>
<td>15.7%</td>
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<tr>
<td>Linear Model</td>
<td>25</td>
<td>83.10%</td>
<td>13.58%</td>
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</tbody>
</table>

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<thead>
<tr>
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<th>Success Average</th>
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</tr>
</thead>
<tbody>
<tr>
<td>Multiple Regression Analysis*</td>
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<td></td>
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<tr>
<td>Artificial Neural Networks</td>
<td>38</td>
<td>85.45%</td>
<td>11.8%</td>
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<tr>
<td>Decision Trees (CHAID)</td>
<td>15</td>
<td>85.5%</td>
<td>12.5%</td>
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<tr>
<td>Linear Model*</td>
<td>20</td>
<td>83.17%</td>
<td>14.0%</td>
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FATIH RESULTS
for 16,845 Individual Units

**TAX VALUES**
- Total Value: 915,793,129,00 TL
- Total Tax (0.2%): 1,831,586,26 TL

**ESTIMATED VALUES**
- Total Value: 2,693,626,192,14 TL
- Total Tax (0.2%): 5,387,252,38 TL

MAMAK RESULTS
for 15,037 Individual Units

**TAX VALUES**
- Total Value: 872,906,000,00 TL
- Total Tax (0.2%): 1,745,812,00 TL

**ESTIMATED VALUES**
- Total Value: 1,640,881,703,19 TL
- Total Tax (0.2%): 3,281,763,41 TL
GENERAL DIRECTORATE of LAND REGISTRY & CADASTRE TURKEY

FATIH RESULTS for 2,530 Individual Units

TAKBIS VALUES (OFFICIAL REGISTERS)

TOTAL VALUE: 160,195,700,00 TL

TOTAL FEE (4%)
6,407,828,00 TL

x 2.5

ESTIMATED VALUES

TOTAL VALUE: 400,949,315,98 TL

TOTAL FEE (4%)
16,037,972,64 TL

MAMAK RESULTS for 9,315 Individual Units

TAKBIS VALUES (OFFICIAL REGISTERS)

TOTAL VALUE: 483,780,128,94 TL

TOTAL FEE (4%)
19,351,205,16 TL

x 2.1

ESTIMATED VALUES

TOTAL VALUE: 1,016,525,029,33 TL

TOTAL FEE (4%)
40,661,001,17 TL

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TAX REVENUES

FATIH
2.9

MAMAK
1.8

TRANSACTION FEES

FATIH
2.5

MAMAK
2.1

THANK YOU!...