STUDY VISIT UKRAINE

Estimation Process

Madrid, 26-28 July 2012

Accommodation Occupancy Surveys

Estimation

- **Capacity variables: number of open establishments, bedplaces, bedrooms, holiday dwellings, pitches,...**

- **Occupancy variables: number of guests, overnightatys, occupied rooms, occupied dwellings, occupied pitches,...**

- **Other variables: average stay, occupancy rates,...**

Accommodation Occupancy Surveys

Estimation

- **Elevation factor: by bedplaces**
- **There is no imputation of data.**
- **Special treatment for starta without data**
- **The estimations are calculated at strata leve:**
- **For some provinces, the estimation is calculated adding the results of tourist areas or municipalities.**

Estimation
Hotel Establishments

Number of open establishments

- **Week**

$$\hat{E}_{jk} = E_{jk} \cdot \frac{e_{jk}}{e_{jk} + c_{jk}}$$

- **Week + XML**

$$\widehat{E}_{jk} = E_{jk} \frac{\left(e_{jk} + \sum_{i=1}^{e''_{jk}} \frac{dm_{ijk}}{D} \right)}{\left(e_{jk} + e''_{jk} \right) + c_{jk}}$$

- **Month**

$$\hat{EM}_{jk} = E_{jk} \cdot \frac{\sum_{i=1}^{e'_{jk}} \frac{dm_{ijk}}{D}}{e'_{jk} + c'_{jk}}$$

- **Month + XML**

$$\widehat{EM}_{jk} = E_{jk} \frac{\left(\sum_{i=1}^{e'_{jk}} \frac{dm_{ijk}}{D} + \sum_{i=1}^{e''_{jk}} \frac{dm_{ijk}}{D} \right)}{\left(e'_{jk} + e''_{jk} \right) + c'_{jk}}$$

Estimation (Hotel establishments)

Number of offered bedplaces

- **Week**

$$\hat{P}_{jk} = \sum_{i=1}^{E_{jk}} P_{ijk} \cdot \frac{\sum_{i=1}^{e_{jk}} P_{ijk}}{\sum_{i=1}^{e_{jk}} P_{ijk} + \sum_{i=1}^{c_{jk}} P_{ijk}}$$

- **Week + XML**

$$\widehat{P}_{jk} = \sum_{i=1}^{E_{jk}} P_{ijk} \cdot \frac{\left(\sum_{i=1}^{e_{jk}} P_{ijk} + \sum_{i=1}^{e''_{ijk}} P_{ijk} \cdot \frac{dm_{ijk}}{D} \right)}{\left(\sum_{i=1}^{e_{jk}} P_{ijk} + \sum_{i=1}^{e''_{jk}} P_{ijk} \right) + \sum_{i=1}^{c_{jk}} P_{ijk}}$$

- **Month**

$$\hat{PM}_{jk} = \sum_{i=1}^{E_{jk}} P_{ijk} \cdot \frac{\sum_{i=1}^{e'_{jk}} P_{ijk} \cdot \frac{dm_{ijk}}{D}}{\sum_{i=1}^{e'_{jk}} P_{ijk} + \sum_{i=1}^{c'_{jk}} P_{ijk}}$$

- **Month + XML**

$$\widehat{PM}_{jk} = \sum_{i=1}^{E_{jk}} P_{ijk} \cdot \frac{\left(\sum_{i=1}^{e'_{jk}} P_{ijk} \cdot \frac{dm_{ijk}}{D} + \sum_{i=1}^{e''_{ijk}} P_{ijk} \cdot \frac{dm_{ijk}}{D} \right)}{\left(\sum_{i=1}^{e'_{jk}} P_{ijk} + \sum_{i=1}^{e''_{jk}} P_{ijk} \right) + \sum_{i=1}^{c'_{jk}} P_{ijk}}$$

Estimation (Hotel establishments)

Number of guests

- **Week**

$$\hat{V}_{jkm} = \sum_{i=1}^{e_{jk}} V_{ijkm} \cdot \frac{D}{7} \cdot \frac{\hat{P}_{jk}}{\sum_{i=1}^{e_{jk}} P_{ijk}}$$

- **Week +XML**

$$\widehat{V}_{jkm} = \left[\left(\sum_{i=1}^{e_{jk}} V_{ijkm} \cdot \frac{D}{7} \right) + \sum_{i=1}^{e''_{jk}} V_{ijkm} \right] \cdot \frac{\widehat{P}_{jk}}{\left(\sum_{i=1}^{e_{jk}} P_{ijk} + \sum_{i=1}^{e''_{jk}} P_{ijk} \cdot \frac{dm_{ijk}}{D} \right)}$$

- **Month**

$$\widehat{VM}^{*}_{jk} = \sum_{i=1}^{e'_{jk}} VM_{ijk} \cdot \frac{\hat{P}M_{jk}}{\sum_{i=1}^{e'_{jk}} P_{ijk} \cdot \frac{dm_{ijk}}{D}}$$

- **Month + XML**

$$\widehat{VM}_{jk} = \left(\sum_{i=1}^{e'_{jk}} VM_{ijk} + \sum_{i=1}^{e''_{jk}} V_{ijk} \right) \cdot \frac{\widehat{P}M_{jk}}{\left(\sum_{i=1}^{e'_{jk}} P_{ijk} \cdot \frac{dm_{ijk}}{D} + \sum_{i=1}^{e''_{ijk}} P_{ijk} \cdot \frac{dm_{ijk}}{D} \right)}$$

Estimation (Hotel establishments)

Number of overnightstays

- **Week**

$$\widehat{N}_{jkm} = \sum_{i=1}^{e_{jk}} N_{ijkm} \cdot \frac{D}{7} \cdot \frac{\widehat{P}_{jk}}{\sum_{I=1}^{e_{jk}} P_{ijk}}$$

- **Week + XML**

$$\widehat{N}_{jkm} = \left[\left(\sum_{i=1}^{e_{jk}} N_{ijkm} \cdot \frac{D}{7} \right) + \sum_{i=1}^{e''_{jk}} N_{ijkm} \right] \cdot \frac{\widehat{P}_{jk}}{\left(\sum_{i=1}^{e_{jk}} P_{ijk} + \sum_{i=1}^{e''_{jk}} P_{ijk} \cdot \frac{dm_{ijk}}{D} \right)}$$

- **Month**

$$\widehat{NM}^{*}_{jk} = \sum_{i=1}^{e'_{jk}} NM_{ijk} \cdot \frac{\hat{P}M_{jk}}{\sum_{i=1}^{e'_{jk}} P_{ijk} \cdot \frac{dm_{ijk}}{D}}$$

- **Month + XML**

$$\widehat{NM}_{jk} = \left(\sum_{i=1}^{e'_{jk}} NM_{ijk} + \sum_{i=1}^{e''_{jk}} N_{ijk} \right) \cdot \frac{\widehat{P}M_{jk}}{\left(\sum_{i=1}^{e'_{jk}} P_{ijk} \cdot \frac{dm_{ijk}}{D} + \sum_{i=1}^{e''_{ijk}} P_{ijk} \cdot \frac{dm_{ijk}}{D} \right)}$$

Estimation (Hotel establishments)

Occupancy rate by bedplaces

- **Week + XML**

$$\hat{GP}_{jk} = \frac{\hat{N}_{jk}}{D \cdot \hat{P}_{jk} + \hat{N}'_{jk}} \cdot 100$$

- **Total**

$$\hat{GP}_{j} = \frac{\sum_{k} \hat{GP}_{jk} \cdot \hat{P}_{jk}}{\sum_{k} \hat{P}_{jk}}$$

- **Month + XML**

$$\hat{GPM}_{jk} = \frac{\hat{NM}_{jk}}{D \cdot \hat{PM}_{jk} + \hat{NM}'_{jk}} \cdot 100$$

- **Total**

$$\hat{GPM}_{j} = \frac{\sum_{k} \hat{GPM}_{jk} \cdot \hat{PM}_{jk}}{\sum_{k} \hat{PM}_{jk}}$$

Estimation (Hotel establishments)

Occupancy rate by bedplaces at weekend

- **Week + XML**

$$\hat{GP}^{fs}_{jk} = \frac{\widehat{N}^{fs}_{jk}}{D^{fs} \cdot \widehat{P}_{jk} + \widehat{N'}^{fs}_{jk}} \cdot 100$$

where:

$$\widehat{N}^{fs}_{jk} = \left[\left(\sum_{i=1}^{e_{jk}} N^{fs}_{ijk} \cdot \frac{D^{fs}}{2} \right) + \sum_{i=1}^{e''_{jk}} N^{fs}_{ijk} \right] \cdot \rho_{jk}$$

$$\widehat{N'}^{fs}_{jk} = \left[\left(\sum_{i=1}^{e_{jk}} N'^{fs}_{ijk} \cdot \frac{D^{fs}}{2} \right) + \sum_{i=1}^{e''_{jk}} N'^{fs}_{ijk} \right] \cdot \rho_{jk}$$

- **Total**

$$\hat{GP}^{fs}_{j} = \frac{\sum_{k} \hat{GP}^{fs}_{jk} \cdot \widehat{P}_{jk}}{\sum_{k} \hat{P}_{jk}}$$

Estimation (Hotel establishments)

Occupancy rate by bedplaces at weekend

- **Month + XML**

$$\hat{GPM}^{fs}_{jk} = \frac{\widehat{NM}^{fs}_{jk}}{D^{fs} \cdot \widehat{PM}_{jk} + \widehat{NM'}^{fs}_{jk}} \cdot 100$$

where:

$$\widehat{NM}^{fs}_{jk} = \left[\left(\sum_{i=1}^{e_{jk}} N^{fs}_{ijk} \cdot \frac{D^{fs}}{2} \right) + \sum_{i=1}^{e''_{jk}} N^{fs}_{ijk} \right] \cdot \varpi_{jk}$$

$$\widehat{NM'}^{fs}_{jk} = \left[\left(\sum_{i=1}^{e_{jk}} N'^{fs}_{ijk} \cdot \frac{D^{fs}}{2} \right) + \sum_{i=1}^{e''_{jk}} N'^{fs}_{ijk} \right] \cdot \varpi_{jk}$$

- **Total**

$$\hat{GPM}^{fs}_{j} = \frac{\sum_{k} \hat{GPM}^{fs}_{jk} . \widehat{PM}_{jk}}{\sum_{k} \hat{PM}_{jk}}$$

Estimation (Campings)

Estimación of number of bedplaces offered

$$\hat{P}M_{jk} = \sum_{i=1}^{E_{jk}} P_{ijk} \cdot \frac{\sum_{i=1}^{e'_{jk}} P_{ijk} \cdot \frac{dm_{ijk}}{D}}{\sum_{i=1}^{e'_{jk}} P_{ijk} + \sum_{i=1}^{c'_{jk}} P_{ijk}}$$

Monthly annex

where:

E= number of open establishments in the register
e'= number of establishments that answer the survey
c'= number of establishments of the sample that are closed in the month of reference
P= number of bedplaces according with the register
dm= number of days that the establishment has been opened during the month of reference
D=number of days of the month, j= province, k= category

Estimation (Campings)

Estimation of number of guests

$$\hat{VM}_{jk} = \sum_{i=1}^{e'_{jk}} VM_{ijk} \cdot \frac{\hat{PM}_{jk}}{\sum_{i=1}^{e'_{jk}} P_{ijk} \cdot \frac{dm_{ijk}}{D}} \qquad \hat{VM}_{jkm} = \hat{VM}_{jk} \cdot \frac{\hat{V}_{jkm}}{\sum_{m} \hat{V}_{jkm}}$$

Estimation of number of overnightstays

$$\hat{NM}_{jk} = \sum_{i=1}^{e'_{jk}} NM_{ijk} \cdot \frac{\hat{PM}_{jk}}{\sum_{i=1}^{e'_{jk}} P_{ijk} \cdot \frac{dm_{ijk}}{D}} \qquad \hat{NM}_{jkm} = \hat{NM}_{jk} \cdot \frac{\hat{N}_{jkm}}{\sum_{m} \hat{N}_{jkm}}$$

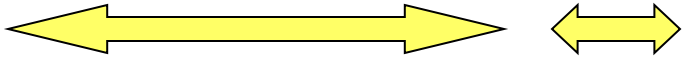
Where:

VM= number of guest in the month of reference, **NM**= number of overnightstays
P= number of bedplaces according register
dm= number of days that the establishment has been opened during the month of reference, **D**= number of days of the month of reference
e'= establishments that answer the monthly annex, **c'**= establishments of the sample that are closed during the month of reference

EMPTY STRATA

Hotels and rural tourism: empty strata

$$\hat{V}jk = \sum_{i=1}^{e_{jk'}} V_{ijk'} \cdot \frac{D}{7} \cdot \frac{\hat{P}\,jk}{\sum_{i=1}^{e_{jk'}} P\,ijk'} = \left(\sum_{i=1}^{e_{jk'}} V_{ijk'} \cdot \frac{D}{7} \cdot \frac{1}{\sum_{i=1}^{e_{jk'}} P_{ijk'}} \right) \cdot \hat{P}jk$$



Donor stratun

Empty stratum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