Estimating the number of households: a statistical challenge for the official statistics

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The 2011 census has updated the photo of dwellings and households in Spain

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</thead>
<tbody>
<tr>
<td>Dwellings</td>
<td>17,220,399</td>
<td>20,946,554</td>
<td>25,208,623</td>
<td>3,726,155</td>
<td>4,262,069</td>
<td>21.6%</td>
<td>20.3%</td>
</tr>
<tr>
<td>Households</td>
<td>11,852,075</td>
<td>14,187,169</td>
<td>18,083,692</td>
<td>2,335,094</td>
<td>3,896,523</td>
<td>19.7%</td>
<td>27.5%</td>
</tr>
<tr>
<td>Population</td>
<td>38,872,268</td>
<td>40,847,371</td>
<td>46,815,916</td>
<td>1,975,103</td>
<td>5,968,545</td>
<td>5.1%</td>
<td>14.6%</td>
</tr>
</tbody>
</table>

(*) Population and Housing figures referring to 1 March 1991
(**) figures referring to 1 November
Censuses and surveys provide different pictures of the households

- Number of households:
  - 2011 Census: 18.1 millions
  - LFS (4/11): 17.4 millions
  - +700,000 households

- Size of households:
  - Size 1: Census 2011 (%) = 23.1, LFS (4/11) (%) = 19.6
  - Size 2: Census 2011 (%) = 30.0, LFS (4/11) (%) = 29.9
  - Size 3: Census 2011 (%) = 21.7, LFS (4/11) (%) = 23.2
  - Size 4: Census 2011 (%) = 18.6, LFS (4/11) (%) = 20.1
  - Size >4: Census 2011 (%) = 6.5, LFS (4/11) (%) = 7.3

  Differences (%):
  - Size 1: 18.1
  - Size 2: 3.7
  - Size 3: -3.2
  - Size 4: -4.3
  - Size >4: -7.6
Censuses and survey provide different pictures of the households

- **Number of households:**
  - 2001 census: 14.2 millions
  - LFS (4/01): 13.7 millions
  - +500,000 households

- **Size of households:**
<table>
<thead>
<tr>
<th>Size</th>
<th>Census 2001 (%)</th>
<th>LFS (4/01) (%)</th>
<th>Differences (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Size 1</td>
<td>20,3</td>
<td>14,6</td>
<td>-30,4</td>
</tr>
<tr>
<td>Size 2</td>
<td>25,2</td>
<td>26,5</td>
<td>-1,3</td>
</tr>
<tr>
<td>Size 3</td>
<td>21,2</td>
<td>23,3</td>
<td>-6,4</td>
</tr>
<tr>
<td>Size 4</td>
<td>21,5</td>
<td>24,2</td>
<td>-8,7</td>
</tr>
<tr>
<td>Size &gt;4</td>
<td>11,8</td>
<td>11,4</td>
<td>6,4</td>
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</tbody>
</table>
The availability of reference households figures would be very welcome

1. Improvement of quality of surveys through a correction of the bias induced by underrepresentativity in sample of households.

2. Higher consistency of the statistical system: coherence among sources (censuses, surveys, indicators, etc.) in terms of households figures.
Method of propensities: application of the estimated propensity of each subpopulation to live in every type of households to current population figures.


Types of households considered:

- Size 1, 2, 3, 4 and bigger than 4.
- Group establishments.
The propensities to live in each type of household summarize the social trends

- Propensity to live in a household of type $k$:

$$ PH^m_{h,s,x,i}(k) = \frac{P^m_{h,s,x,i}(k)}{P^m_{h,s,x,i}} $$

$m=$ month; $h =$ Province; $s =$ Sexo; $x =$ Age group ($<16$, $16-64$, $>64$);

$i =$ citizenship (Spanish/foreign).

- Average size of households for $k=5$ (or $k=6$):

$$ TM(5)^m_h $$

$$ TM(6)^m_h $$
The number of households comes from the propensities and population figures.

Estimate on the number of households of size $k$:

$$H^m_h(k) = \sum_{s,x,i} PH^m_{h,s,x,i}(k) \cdot P^m_{h,s,x,i} / TM^m_h(k)$$

Social and living trends

Demographic evolution
The number of households reaches 18.2 millions on 1 January 2013

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<tbody>
<tr>
<td>Total of households</td>
<td>14280067</td>
<td>15129263</td>
<td>15972235</td>
<td>16873211</td>
<td>17520072</td>
<td>18018508</td>
<td>18172992</td>
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<tr>
<td>Size 1</td>
<td>2907254</td>
<td>3192997</td>
<td>3467384</td>
<td>3734406</td>
<td>3960812</td>
<td>4169479</td>
<td>4257338</td>
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<tr>
<td>Size 2</td>
<td>3619456</td>
<td>3990326</td>
<td>4367812</td>
<td>4762783</td>
<td>5110532</td>
<td>5428021</td>
<td>5564440</td>
</tr>
<tr>
<td>Size 3</td>
<td>3021832</td>
<td>3203370</td>
<td>3395674</td>
<td>3613066</td>
<td>3779128</td>
<td>3912101</td>
<td>3954370</td>
</tr>
<tr>
<td>Size 4</td>
<td>3054760</td>
<td>3114637</td>
<td>3185830</td>
<td>3282104</td>
<td>3330005</td>
<td>3347008</td>
<td>3332560</td>
</tr>
<tr>
<td>Size bigger than 4</td>
<td>1676765</td>
<td>1627933</td>
<td>1555534</td>
<td>1480852</td>
<td>1339595</td>
<td>1161899</td>
<td>1064283</td>
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<tr>
<td>Population</td>
<td>41035271</td>
<td>42547454</td>
<td>44009969</td>
<td>45668938</td>
<td>46486621</td>
<td>46818216</td>
<td>46704314</td>
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</tbody>
</table>
Not all the increase/decrease of the population changes the nº of households

Monthly absolute increase in households and population

Joint EUROSTAT-UNECE Work Session on Demographic Projections
Rome, 14-15 October 2013
The households of size 4 would be decreasing since the beginning of 2012.

Monthly absolute increase in households by size
The smallest households, behind the current increase in the total of households

Monthly relative increase in households by size and population

Joint EUROSTAT-UNECE Work Session on Demographic Projections
Rome, 14-15 October 2013
Some conclusions

1. The evolution of the number of households takes place in parallel with the population, but it is much smoother.

2. The low fertility and the drop of the net migration impact mainly over the reduction of the number of households with big size.

3. Long-term factors (modern life-style, ageing, etc.) have a positive effect over the number of the smallest households.
A new statistics for providing data on dwellings and households more frequently

- New statistical action: the *Continuous Population Survey (ECP)*.
  
  - Providing annual data on dwellings and households in Spain.
  
  - It has started in 2013.
The ECP will provide definitive data on households with some delay

- In April of $t+1$:
  - Definitive data on 1 January $t$.
  - Provisional data on 1 July $t$.

- ¡Now-casts on households are needed referred to the most recent months!
What will be the role of the ECP regarding the current households figures?

- Since 2013, it will be the reference source which provides the annual data on households.

- It will let us extend the series of propensities beyond the census in a yearly basis higher quality of now-casts on households provided through the method of propensities.

- ¡All the statistical system will be coherent with the ECP in terms of the number of households!
Thank you very much for your attention

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