

Estimating Customer Potential Value using panel data of a Spanish bank
Supplementary material

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Tables

Table 1. Descriptive statistics

| | Mean | S.D. | Median | Minimum | Maximum |
|--------------------------------|-----------|-----------|----------|---------|-----------|
| 1. Length of the relationship | 21 | 4,99 | 24 | 1 | 24 |
| 2. Cross-buying | n.a. | n.a. | 0 | -4 | 5 |
| 3. Product usage | 2,30 | 1,52 | 2 | 0 | 12 |
| 4. Purchase Recency | n.a. | n.a. | 0 | 0 | 24 |
| 5. Cancellation Recency | n.a. | n.a. | 0 | 0 | 24 |
| 6. Adoption online Banking | n.a. | n.a. | 0 | 0 | 1 |
| 7. Average monthly Assets | 6.363,09 | 39.304,89 | 0 | 0 | 813.905,5 |
| 8. Average monthly Liabilities | 6.862,70 | 21.753,92 | 406,01 | 0 | 446.715,5 |
| 9. Age | 38,42 | 19,72 | 36 | 1 | 100 |
| 10. Gender | n.a. | n.a. | 1 | 1 | 2 |
| 11. Income | 15.168,24 | 21.598,06 | 9.894,02 | 0 | 643.298,1 |

Table 2. Correlation matrix

| | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 |
|--------------------------------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|----|
| 1. Length of the relationship | 1 | | | | | | | | | | |
| 2. Cross-buying | -0,04** | 1 | | | | | | | | | |
| 3. Product usage | 0,20** | 0,12** | 1 | | | | | | | | |
| 4. Purchase Recency | -0,13** | 0,43** | 0,04** | 1 | | | | | | | |
| 5. Cancellation Recency | 0,04** | -0,54** | 0,04** | -0,04** | 1 | | | | | | |
| 6. Adoption online Banking | 0,02** | 0,02** | 0,31** | 0,01* | 0,05** | 1 | | | | | |
| 7. Average monthly Assets | 0,06** | 0,01 | 0,36** | 0,01 | 0,02** | 0,10** | 1 | | | | |
| 8. Average monthly Liabilities | 0,12** | 0,001 | 0,22** | 0,01 | 0,05** | -0,03** | 0,03** | 1 | | | |
| 9. Age | 0,12** | 0,004 | 0,15** | 0,004 | 0,04** | 0,002 | 0,03** | 0,27** | 1 | | |
| 10. Gender | 0,02** | -0,01 | -0,06** | -0,01** | -0,01** | -0,03** | -0,04** | -0,02** | -0,04** | 1 | |
| 11. Income | 0,10** | 0,002 | 0,30** | 0,01 | 0,05** | 0,12** | 0,22** | 0,42** | 0,19** | -0,06** | 1 |

* $p < 0,05$, ** $p < 0,01$; n.a. = not applicable

Table 3. Parameter estimates for univariate Probit models (Coefficient (standard error))

| | Stock Capital | Credit Card | Debit Card | Linked Life Insurance | Account | Deposit |
|----------------------------|---------------|--------------|---------------|-----------------------|---------------|---------------|
| Length of the relationship | 0,17 (0,02)* | 0,01 (0,03) | 0,13 (0,01) | 0,02 (0,03) | 0,10 (0,02)* | 0,07 (0,03)** |
| Cross-buying | 0,11 (0,13) | -0,06 (0,13) | -0,10 (0,12) | -0,33 (0,14)** | -0,66 (0,19)* | -0,11 (0,15) |
| Product usage | 3,68 (0,07)* | 1,44 (0,07)* | 3,97 (0,07)* | 2,55 (0,10)* | 1,85 (0,10)* | 1,65 (0,07)* |
| Purchase Recency | -0,40 (0,13)* | -0,18 (0,16) | -0,29 (0,09)* | 0,40 (0,19)** | 0,64 (0,18)* | 0,31 (0,14)** |

| | | | | | | |
|-----------------------------|---------------|-----------------------------|---------------|-----------------|-----------------|---------------|
| Cancellation Recency | 1,10 (0,25)* | -0,34 (0,24) | -1,28 (0,18)* | 0,34 (0,28) | -0,63 (0,32)*** | -0,78 (0,23)* |
| Adoption online Banking | -0,13 (0,14) | 1,03 (0,22)* | 1,31 (0,12)* | -0,80 (0,26)* | -0,15 (0,19) | -1,19 (0,19)* |
| Average monthly assets | 1,24 (0,17)* | -3,34e ⁻⁴ (0,07) | -1,42 (0,06)* | 0,46 (0,07)* | -2,35 (0,09)* | -1,48 (0,21)* |
| Average monthly liabilities | -0,66 (0,09)* | -0,79 (0,16)* | -1,62 (0,10)* | -3,31 (0,38)* | -0,01 (0,09) | 1,41 (0,09)* |
| Age | 1,60 (0,09)* | 0,57 (0,18)* | -0,46 (0,08)* | -0,34 (0,20)*** | -1,34 (0,11)* | 2,55 (0,12)* |
| Gender | -0,42 (0,16)* | 1,46 (0,35)* | 0,89 (0,13)* | 0,35 (0,29) | -1,14 (0,22)* | -1,04 (0,27)* |
| Income | 0,05 (0,06) | 0,06 (0,05) | 0,14 (0,06)** | -0,16 (0,08)* | 0,23 (0,15) | -0,07 (0,05) |
| Pseudo R ² | 0,56 | 0,37 | 0,56 | 0,47 | 0,33 | 0,39 |

* Significant at the 0,01 level, ** at the 0,05 level, *** at the 0,1 level

Table 4. Parameter estimates for multivariate Probit model (Coefficient (standard error))

| | Stock Capital | Credit Card | Debit Card | Linked Life Insurance | Account | Deposit |
|-----------------------------|---------------|-----------------|-----------------|-----------------------|-----------------|---------------|
| Length of the relationship | 0,01 (0,002)* | -0,01 (0,003)** | 0,01 (0,001)* | 0,005 (0,003)** | -0,005 (0,002)* | 0,02 (0,003)* |
| Cross-buying | 0,04 (0,04) | 0,09 (0,05)** | 0,005 (0,04) | -0,04 (0,04) | -0,20 (0,04)* | -0,003 (0,04) |
| Product usage | 0,68 (0,01)* | 0,41 (0,01)* | 0,53 (0,007)* | 0,57 (0,01)* | 0,26 (0,01)* | 0,26 (0,008)* |
| Purchase Recency | -0,19 (0,03)* | -0,1 (0,05)*** | -0,13 (0,03)* | 0,01 (0,05) | 0,07 (0,03)** | 0,17 (0,04)* |
| Cancellation Recency | 0,26 (0,07)* | 0,06 (0,1) | -0,59 (0,07)* | 0,16 (0,09)** | -0,27 (0,07)* | 0,08 (0,09) |
| Adoption online Banking | -0,31 (0,02)* | 0,31 (0,03)* | 0,59 (0,01)* | -0,38 (0,03)* | 0,03 (0,02) | -0,33 (0,03)* |
| Average monthly assets | 0,10 (0,01)* | -0,04 (0,01)* | -0,24 (0,01)* | 0,06 (0,01)* | -0,16 (0,01)* | -0,84 (0,03)* |
| Average monthly liabilities | -0,12 (0,01)* | -0,13 (0,01)* | -0,40 (0,01)* | -0,98 (0,04)* | 0,03 (0,01)* | 1,11 (0,02)* |
| Age | 0,23 (0,01)* | 0,15 (0,02)* | 0,02 (0,01)** | -0,04 (0,01)** | -0,29 (0,01)* | 0,19 (0,01)* |
| Gender | -0,08 (0,02)* | 0,08 (0,03)* | 0,19 (0,01)* | 0,18 (0,02)* | -0,37 (0,02)* | 0,03 (0,02) |
| Income | -0,03 (0,01)* | 0,04 (0,01)* | -0,01 (0,01)*** | -0,04 (0,01)* | 0,10 (0,01)* | -0,12 (0,01)* |
| Pseudo R ² | 0,06 | | | | | |

* Significant at the 0,01 level, ** at the 0,05 level, *** at the 0,1 level

Table 5. Marginal effects for univariate Probit models (Coefficient (standard error))

| | Stock Capital | Credit Card | Debit Card | Linked Life Insurance | Account | Deposit |
|----------------------------|-------------------------------|------------------------------|---------------|--------------------------------|-------------|-------------------------------|
| Length of the relationship | 4,30e ⁻⁸ (0,00)** | 7,14e ⁻³² (0,00) | 0,005 (0,004) | 6,35e ⁻²² (0,00) | 0,00 (0,00) | 9,54e ⁻²² (0,00)** |
| Cross-buying | 2,92e ⁻⁸ (0,00) | -3,60e ⁻³¹ (0,00) | -0,04 (0,05) | -9,73e ⁻²¹ (0,00)** | 0,00 (0,00) | -1,54e ⁻²¹ (0,00) |
| Product usage | 9,57e ⁻⁷ (0,00)** | 8,39e ⁻³⁰ (0,00)* | 1,53 (0,03)* | 7,58e ⁻²⁰ (0,00)* | 0,00 (0,00) | 2,26e ⁻²⁰ (0,00)* |
| Purchase Recency | -5,20e ⁻⁸ (0,00)** | -1,77e ⁻⁴⁹ (0,00) | -0,12 (0,04)* | 3,22e ⁻²⁵ (0,00) | 0,00 (0,00) | 8,99e ⁻²⁶ (0,00) |
| Cancellation Recency | 1,03e ⁻⁵ (0,00) | -1,63e ⁻⁴⁹ (0,00) | -0,45 (0,05)* | 2,54e ⁻²⁵ (0,00) | 0,00 (0,00) | -5,78e ⁻²⁷ (0,00) |
| Adoption online Banking | -3,14e ⁻⁸ (0,00) | 1,60e ⁻⁴⁵ (0,00) | 0,46 (0,04)* | -1,83e ⁻²⁵ (0,00) | 0,00 (0,00) | -6,00e ⁻²⁵ (0,00) |
| Average monthly assets | 3,22e ⁻⁷ (0,00)** | -1,94e ⁻³³ (0,00) | -0,55 (0,03)* | 1,36e ⁻²⁰ (0,00)* | 0,00 (0,00) | -2,02e ⁻²⁰ (0,00)* |

| | | | | | | |
|-----------------------------|--------------------------------|-------------------------------|---------------|---------------------------------|-------------|-------------------------------|
| Average monthly liabilities | -1,77e ⁻⁷ (0,00)** | -4,59e ⁻³⁰ (0,00)* | -0,63 (0,04)* | -9,84e ⁻²⁰ (0,00)* | 0,00 (0,00) | 1,93e ⁻²⁰ (0,00)* |
| Age | 4,17e ⁻⁷ (0,00)** | 3,33e ⁻³⁰ (0,00)* | -0,18 (0,03)* | -1,03e ⁻²⁰ (0,00)*** | 0,00 (0,00) | 3,48e ⁻²⁰ (0,00)* |
| Gender | -1,09e ⁻⁷ (0,00)*** | 8,50e ⁻³⁰ (0,00)* | 0,35 (0,05)* | 1,05e ⁻²⁰ (0,00) | 0,00 (0,00) | -1,42e ⁻²⁰ (0,00)* |
| Income | 1,36e ⁻⁸ (0,00) | 3,26e ⁻³¹ (0,00) | 0,05 (0,02)** | -4,79e ⁻²¹ (0,00)*** | 0,00 (0,00) | -1,03e ⁻²¹ (0,00) |

* Significant at the 0,01 level, ** at the 0,05 level, *** at the 0,1 level

Table 6. Ex-post segmentation based on CPV (descriptive statistics calculated for CPV)

| | | |
|------------------------------|-----------|-----------|
| High potential value segment | Mean | 10.402,55 |
| | Std. Dev. | 31.609,39 |
| | N | 1.094 |
| Low potential value segment | Mean | -2.838,01 |
| | Std. Dev. | 16.463,04 |
| | N | 1.093 |

Table 7. Ex-post segmentation based on current profit and CPV (descriptive statistics calculated for CPV)

| | | High current profitability | Low current profitability |
|------------------------------|-----------|----------------------------|---------------------------|
| High potential value segment | Mean | 10.447,86 | 533,31 |
| | Std. Dev. | 31.674,84 | 107,92 |
| | N | 1.089 | 5 |
| Low potential value segment | Mean | 349,59 | -2.852,66 |
| | Std. Dev. | 0,74 | 16.499,43 |
| | N | 5 | 1.088 |