**Data Documentation**

**ISMS Durables Dataset 1**

**1. Overview**

1. There are 19,936 households who made 173,262 transactions involving durable goods purchases and related services from 1176 different stores of a major U.S. electronics chain. The transactions took place between December 1998 and November 2004.

2. There are a total of 292 product categories, ranging from big ticket items such as televisions, cameras, and PDAs, to small ticket items such as CDs, batteries and accessories, and include services such as installation and extended service contracts.

**2. Variable Descriptions**

|  |  |
| --- | --- |
| **Variables** | **Explanation** |
| **HOUSEHOLD\_ID** | Household ID |
| **TRANSACTION \_NBR** | Transaction number for the household, from 1 to total number of transactions for the household. |
| **TRANSACTION\_TOTAL** | The total number of transactions for the household. |
| **TRANSACTION\_DATE** | Date of transaction in the format of Day/Month/Year |
| **TRANSACTION\_LOCATION** | Store ID where the transaction took place |
| **ON-LINE TRANSACTION** | Dummy variable indicating whether this transaction was made online. These correspond to store IDs 4407, 4417, 4427, 4437, 4447, 4457, 4467, and 4477. |
| **ORIGINAL\_TICKET\_NBR** | Unique identifier of each single transaction or receipt. All the items on the same receipt have the same original ticket number. |
| **TRANSACTION\_TYPE** | Type of transaction:  1 = product purchase  2 = product return  3 = service contract purchase  4 = service contract return  5 = product purchase that included a sales discount  6 = miscellaneous. |
| **PRODUCT\_ID**[[1]](#footnote-1) | ID of product involved in the transaction, similar to a UPC code for consumer packaged goods. |
| **CATEGORY\_DESCRIPTION** | Description of the product category (e.g., “Television”, see Appendix 1 for complete list). Note: Blank means missing/no category assigned. |
| **SUB\_CATEGORY\_DESCRIPTION** | Description of the subcategory (e.g., subcategory 100 is a “9-16” Color TV”, see Appendix 1 for complete list). |
| **TRANSACTION\_TYPE DESCRIPTION** | Short description of the transaction. Most of these are the brand names if a purchase or return was made. E.g., Transaction\_Type might be 1 (product purchase) and Transaction\_Type\_Description might be “SON” (Sony). Following is a summary of the major non-brand codes:   * ESP=extended service plan (Note: usually the observation preceding an ESP transaction is the purchase associated with the ESP) * GFT or VLK=gift card either purchased or acquired through a trade-in. * SVL=service and labor * INS= installation (including roadshop, antenna, retailer DSS installation, etc.) * SHI=e-commerce shipping and Kiosk ship & handling fee * SAL(/PRM/DLV)=salvage haul away (only 132 obs in total) * CIN=pc upgrade installation (just 5 obs) * PAG=pager activation fee (just 42 obs) |
| **EXTENDED\_PRICE** | Total price paid for the same product calculated as UNIT\_PRICE\*QUANTITY  (e.g. buy 2 TVs at unit price of $350 and extended price of $350x2=$700) |
| **RETURN\_BINARY** | Dummy variable indicating return. “1” indicates that the transaction is or becomes a return. “0” indicates it does not. |
| **AGE\_H.HEAD** | Age of the household head in increments of two years |
| **CHILDREN\_PRESENCE** | Whether there are children living in the household |
| **INCOME** | Income level of the household (1-9 scale where larger number indicates higher income. (We don’t have information on income levels numbers 1-9 correspond to.) |
| **GENDER\_H.HEAD** | Gender of household head (M: Male; F: Female; U: Unknown) |

**Sample Household Transaction Histories**

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **HOUSEHOLD ID** | **TRANSACTION DATE** | **TRANSACTION TYPE** | **PRODUCT ID** | **SUB\_CATEGORY NBR** | **CATEGORY**  **DESCRIPTION** | **SUB-CATEGORY**  **DESCRIPTION** | **TRANSACTION\_TYPE**  **DESCRIPTION** | **UNIT**  **PRICE** | **RETURN**  **IND** |
| 100022945 | 30JAN2001 | 1 | 545443 | 285 | MOBILE | CAR ACCESS. | DC | 14.99 | N |
| 100022945 | 01FEB2001 | 1 | 602695 | 285 | MOBILE | CAR ACCESS | DC | 9.99 | N |
| 100022945 | 03NOV2001 | 1 | 747057 | 371 | PC HDWR | COMPUTER PRINTERS | HP | 149.99 | N |
| 100022945 | 03NOV2001 | 1 | 726130 | 393 | P\*S\*T | SOHO CABLES/  SURGE/UPS | BLK | 34.99 | N |
| 100022945 | 03NOV2001 | 1 | 743907 | 341 | P\*S\*T | PAPER | PBF | 3.99 | N |
| 100022945 | 05JAN2002 | 1 | 750997 | 389 | IMAGING | DIGITAL CAMERAS – SOHO | HP | 259.99 | N |
| 100022945 | 05JAN2002 | 1 | 758444 | 366 | P\*S\*T | MEMORY UPGRADES | SDK | 89.99 | N |
| 100022945 | 05JAN2002 | 1 | 729284 | 361 | P\*S\*T | INK | HP | 29.99 | Y |
| 100022945 | 05JAN2002 | 2 | 729284 | 361 | P\*S\*T | INK | HP | -29.99 | Y |
| 100022945 | 05JAN2002 | 1 | 729245 | 361 | P\*S\*T | INK | HP | 34.99 | N |
| 100022945 | 05JAN2002 | 1 | 729250 | 361 | P\*S\*T | INK | HP | 29.99 | N |

Household 100022945 has 11 transactions over a one-year period. The customer purchases a printer on November 3, 2001, and buys ink on January 5, 2002. The customer returns that ink on the same day but then purchases two additional types of ink. Note the transaction type indicator for the first ink purchase indicates a purchase, but the Y for that purchase indicates that the purchase was eventually returned.

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **HOUSEHOLD**  **ID** | **TRANSACTION DATE** | **TRANSACTION TYPE** | **PRODUCT**  **ID** | **CATEGORY**  **NBR** | **CATEGORY**  **DESCRIPTION** | **SUB-CATEGORY**  **DESCRIPTION** | **BRAND OR SERVICE DESCRIPTION** | **UNIT**  **PRICE** | **RETURN IND** |
| 100024909 | 13JAN1999 | 1 | 591815 | 298 | MOBILE | RADAR DETECTORS | UND | 179.99 | N |
| 100024909 | 23DEC1999 | 1 | 561263 | 274 | MOBILE | CD PLAYER – AUTO | KEN | 178.99 | N |
| 100024909 | 20JAN2000 | 1 | 568957 | 608 | MOBILE | ROADSHOP HARNESSES | MET | 14.99 | N |
| 100024909 | 20JAN2000 | 6 |  | 950 | MOBILE | ROADSHOP INSTALLATION | INS | 40.00 |  |
| 100024909 | 28JUL2000 | 1 | 559494 | 278 | MOBILE | CD CHANDERS – AUTO | JVC | 179.97 | N |
| 100024909 | 12OCT2000 | 1 | 594845 | 363 | P\*S\*T | PHONE-CORDLESS | UND | 89.99 | N |
| 100024909 | 12OCT2000 | 1 | 591846 | 363 | P\*S\*T | PHONE – CORDLESS | UND | 149.99 | N |
| 100024909 | 12OCT2000 | 1 | 570238 | 132 | TELEVISION | VIDEO CABLE MISC ACCESS | MOC | 16.99 | N |
| 100024909 | 12OCT2000 | 1 | 580985 | 132 | TELEVISION | VIDEO CABLE MISC ACCESS | RCA | 1.99 | N |
| 100024909 | 23DEC2000 | 1 | 545773 | 601 | MOBILE | ROADSHOP PARTS | DEI | 39.99 | N |
| 100024909 | 23DEC2000 | 1 | 545679 | 283 | MOBILE | AUTOMOTIVE SECURITY | DEI | 109.99 | N |
| 100024909 | 31DEC2000 | 6 |  | 950 | MOBILE | ROADSHOP INSTALLATION | INS | 10.99 |  |
| 100024909 | 31DEC2000 | 6 |  | 950 | MOBILE | ROADSHOP INSTALLATION | INS | 80.99 |  |
| 100024909 | 04FEB2001 | 1 | 596383 | 102 | TELEVISION | 8-13’ COLOR TV | ZEN | 159.99 | N |
| 100024909 | 07JUL2001 | 6 |  | 860 | WIRELESS | INTERNET SERVICE | ISP | 0 |  |
| 100024909 | 07JUL2001 | 1 | 749046 | 370 | PC HDWR | DESKTOP COMPUTERS | HP | 899.99 | Y |
| 100024909 | 07JUL2001 | 1 | 721558 | 373 | PC HDWR | COMPUTER MONITOR | HP | 549.99 | N |
| 100024909 | 07JUL2001 | 1 | 555980 | 371 | PC HDWR | COMPUTER PRINTERS | HP | 98.99 | N |
| 100024909 | 07JUL2001 | 1 | 748990 | 395 | P\*S\*T | COMPUTER MEDIA | STI | 19.99 | N |
| 100024909 | 07JUL2001 | 1 | 747760 | 504 | MUSIC | LIFESTYLE SOFTWARE | DVO | 39.99 | N |
| 100024909 | 07JUL2001 | 3 |  | 370 | PC HDWR | DESKTOP COMPUTERS | ESP | 199.99 | Y |
| 100024909 | 10JUL2001 | 2 | 749046 | 370 | PC HDWR | DESKTOP COMPUTERS | HP | -30.00 | Y |
| 100024909 | 12JUL2001 | 2 | 749046 | 370 | PC HDWR | DESKTOP COMPUTERS | HP | -869.99 | Y |
| 100024909 | 12JUL2001 | 4 |  | 370 | PC HDWR | DESKTOP COMPUTERS | ESP | -199.99 | Y |
| 100024909 | 12JUL2001 | 1 | 749046 | 370 | PC HDWR | DESKTOP COMPUTERS | HP | 869.99 | N |
| 100024909 | 12JUL2001 | 3 |  | 370 | PC HDWR | DESKTOP COMPUTERS | ESP | 199.99 | N |
| 100024909 | 12DEC2001 | 1 | 569900 | 600 | MAJORS | MONSTER CABLE CAR AUDIO | MOC | 6.99 | N |
| 100024909 | 13FEB2002 | 1 | 794249 | 321 | AUDIO | PORTABLE DIG AUDIO PLAYER | RCA | 179.99 | Y |
| 100024909 | 14FEB2002 | 2 | 794249 | 321 | AUDIO | PORTABLE DIG AUDIO PLAYER | RCA | -179.99 | Y |
| 100024909 | 11JUN2002 | 1 | 763930 | 600 | MAJORS | MONSTER CABLE CAR AUDIO | MOC | 19.99 | N |

This household has 30 transactions between January 1999 and June 2002. The customer buys automobile equipment and has it installed for $40 on January 20. The household buys additional automotive equipment and has this installed on December 31, for a total of $90. The customer buys a computer system for $899.99 on July 7, along with an extended service contract (ESP). Note the desktop computer and the ESP will be returned. That return takes place on July 12, listed as two entries –$30 and $869.99 – for the computer and one entry for the returned ESP. The customer then purchases the computer again for $869.99, along with a new ESP for $199.99. It isn’t clear *why* the computer and ESP are returned and re-purchased. Perhaps the computer included an extra item (worth $30) that the customer determined was not really needed. Finally, the customer purchases and then returns a digital audio player, on the 13th and 14th of February.

1. Note that 41,163 out of 173,262 observations are missing the Product ID. Note also that there may be several Product\_IDs for a given brand and sub-category, identified by Transaction\_Type\_Description and Sub\_Category\_Description respectively. For example, Sony may have several Product\_IDs corresponding to Sub\_Category\_Description = 19-20” TV. [↑](#footnote-ref-1)