**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\_NUMBER** | Number indicating the subcategory of the product category involved in the transaction. E.g., “Television” might be the category, and the subcategory number might be 100. See Appendix 1 for complete list. “0” signifies unknown. |
| **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) |
| **QUANTITY** | Number of items sold of the product. Note that a negative number indicates return. |
| **UNIT\_PRICE** | Unit price of the purchased product. Note that a negative number indicates return. |
| **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\_IND** | Dummy variable indicating return. “Y” indicates that the transaction is or becomes a return. “N” indicates it does not. |
| **RETURN\_LOCATION** | Store ID where the product return was made if it is different  from the store where it was purchased. |
| **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) |
| **GENDER\_INDIVIDUAL** | Gender of household member who made the purchase (same as above) |
| **MALE\_CHILD\_0-2** | Dummy variable indicating whether there is boy aged between 0 to 2 in the household |
| **MALE\_CHILD\_3-5** | Dummy variable indicating whether there is boy aged between 3 to 4 in the household |
| **MALE\_CHILD\_6-10** | Dummy variable indicating whether there is boy aged between 6 to 10 in the household |
| **MALE\_CHILD\_11-15** | Dummy variable indicating whether there is boy aged between 11 to 15 in the household |
| **MALE\_CHILD\_16-17** | Dummy variable indicating whether there is boy aged between 16 to 17 in the household |
| **FEMALE\_CHILD\_0-2** | Dummy variable indicating whether there is girl aged between 0 to 2 in the household |
| **FEMALE\_CHILD\_3-5** | Dummy variable indicating whether there is girl aged between 3 to 4 in the household |
| **FEMALE\_CHILD\_6-10** | Dummy variable indicating whether there is girl aged between 6 to 10 in the household |
| **FEMALE\_CHILD\_11-15** | Dummy variable indicating whether there is girl aged between 11 to 15 in the household |
| **FEMALE\_CHILD\_16-17** | Dummy variable indicating whether there is girl aged between 16 to 17 in the household |
| **UNKNOWN\_CHILD\_0-2** | Dummy variable indicating whether there is kid of unknown gender between 0 to 2 in the household |
| **UNKNOWN\_CHILD\_3-5** | Dummy variable indicating whether there is kid of unknown gender between 3 to 5 in the household |
| **UNKNOWN\_CHILD\_6-10** | Dummy variable indicating whether there is kid of unknown gender between 6 to 10 in the household |
| **UNKNOWN\_CHILD\_11-15** | Dummy variable indicating whether there is kid of unknown gender between 11 to 15 in the household |
| **UNKNOWN\_CHILD\_16-17** | Dummy variable indicating whether there is kid of unknown gender between 16 to 17 in the household |

**Appendix 1.**

**Categories and Sub-Categories in Database 1**

|  |  |  |
| --- | --- | --- |
| **CATEGORY\_DESCRIPTION** | **SUB\_CATEGORY\_NBR** | **SUB\_CATEGORY\_DESCRIPTION** |
| OTHER | 0 |  |
| MUSIC | 1 | ROCK CD |
| MUSIC | 2 | ROCK CASSETTE |
| MUSIC | 9 | RHYTHM&BLUES CD |
| MUSIC | 11 | COUNTRY CD |
| MUSIC | 12 | COUNTRY CASSETTE |
| MUSIC | 13 | JAZZ CD |
| MUSIC | 15 | EASY LISTENING CD |
| MUSIC | 17 | CLASSICAL CD |
| MUSIC | 19 | MOVIE SOUNDTRACK CD |
| MUSIC | 20 | MOVIE SOUNDTRACK CASSETTE |
| MUSIC | 21 | SPECIAL INTEREST CD |
| MUSIC | 22 | SPECIAL INTEREST CASSETTE |
| MUSIC | 24 | VIEDO CASSETTE |
| MUSIC | 38 | NEW AGE CD |
| MUSIC | 41 | RAP CD |
| MUSIC | 43 | MISCELLANEOUS CD |
| MUSIC | 45 | INTERNATIONAL CD |
| MUSIC | 47 | LATIN CD |
| MUSIC | 56 | RELIGIOUS CD |
| MUSIC | 58 | CHILDRENS CD |
| OTHER | 60 | MUSIC OTHER |
| MUSIC | 65 | VIDEO GAMES |
| MUSIC | 74 | SACD/DCD AUDIO |
| MUSIC | 77 | DVD SOFTWARE |
| TELEVISION | 100 | 9-16" COLOR TV |
| TELEVISION | 102 | 19-20" COLOR TV |
| TELEVISION | 103 | 25" TELEVISION |
| TELEVISION | 104 | 27" TELEVISIONS |
| TELEVISION | 105 | PLASMA INTANGIBLE |
|  | 106 | HOME SECURITY |
| OTHER | 107 | DIRECTV NEW SUBSCRIBER |
| DVS | 108 | SATELLITE DISHES |
| DVS | 110 | DIRECTV ACCESSORIES |
| DVS | 111 | DIRECTV SYSTEM |
| DVS | 113 | HIGH DEFINITION STB |
| TELEVISION | 114 | LIGHTING |
| TELEVISION | 115 | PTV-SCREEN PROTECTORS |
| TELEVISION | 116 | STANDS FOR 103 |
| TELEVISION | 117 | TV BASE 121-125 |
| TELEVISION | 118 | MOTION UPHOLSTERY |
| TELEVISION | 120 | LCD TELEVISION |
| TELEVISION | 121 | 31" AND LARGER TV'S |
| DVS | 123 | DIGITAL VIDEO RECORDERS |
| DVS | 124 | SET-TOP DECODERS |
| TELEVISION | 125 | TV PROJECTION |
| TELEVISION | 126 | ADVANCED TECHNOLOGY TV |
| TELEVISION | 127 | LCD&PLASMA TV ACCESSORIES |
| AUDIO | 128 | AUDIO FOR VIDEO |
| AUDIO | 129 | POWERED SUBWOOFERS |
| TELEVISION | 130 | TV ANTENNA |
| TELEVISION | 132 | VIDEO CABLE MISC ACCESS |
| VIDEO HDWR | 134 | UNIVERSAL REMOTE CONTRLS |
|  | 135 | ANTENNA INSTALLS |
|  | 136 | PC REPAIRS |
| VIDEO HDWR | 142 | DIGITAL VIDEO |
| VIDEO HDWR | 143 | DIVX-DVD |
| VIDEO HDWR | 170 | VCR HOME |
| TELEVISION | 172 | TELECORDER |
| TELEVISION | 174 | 25"& UP TV/VCR COMBI |
| VIDEO HDWR | 177 | DISNEY ELECTRONICS |
| P\*S\*T | 178 | SCOOTER |
| IMAGING | 179 | CAMCORDER |
| IMAGING | 181 | PROMO CAMCORDER ACCESSORIE |
| IMAGING | 182 | CAMCORDER BAG |
| IMAGING | 184 | TRIPODS/TV MOUNTS |
| IMAGING | 185 | CAMCORDER ACCESSORIES |
| IMAGING | 186 | CAMCORDER SATTERIES |
|  | 189 | PC INSTALLATIONS |
| VIDEO HDWR | 190 | BLANK VCR/CAMCORDER TAPE |
|  | 193 | FLAT PANEL INSTALLATION |
| TELEVISION | 195 | MXX TV/VCR |
| HOME INS | 196 | HOME INSTALLATION |
| TELEVISION | 198 | INSTALED SCREEN PROTECTOR |
| AUDIO | 200 | PRE AMP |
| AUDIO | 210 | RECEIVER |
| AUDIO | 215 | EQUALIZER |
| AUDIO | 219 | DIGITAL AUDIO RECORDING |
| AUDIO | 220 | ANALOG COMPONENTS |
| AUDIO | 221 | COMPACT DISC PLAYER |
| AUDIO | 230 | TURNTABLE |
| AUDIO | 232 | SHARPER IMAGE |
| AUDIO | 233 | TURNTABLE BASE |
| AUDIO | 234 | DUST COVER |
| AUDIO | 235 | CARTRIDGE |
|  | 237 | HEALTH / FITNESS |
| AUDIO | 239 | IN\_WALL LOUD SPEAKERS |
| AUDIO | 240 | SPEAKER |
| AUDIO | 250 | RACK SYSTEM |
| AUDIO | 253 | MINI COMPONENT SYSTEMS |
| AUDIO | 254 | LIFESTYLE SYSTEMS |
| AUDIO | 259 | ESP AUDIO MIX AND MATCH |
| TELEVISION | 260 | COMPONENT FURNITURE |
| AUDIO | 262 | SPEAKER STANDS & BRACKETS |
| TELEVISION | 263 | A/V CENTERS |
| TELEVISION | 264 | PREASSEMBLED HOME ENT CTRS |
| AUDIO | 265 | AUDIO TAPE,CDR,MD |
|  | 268 | WIRELESS ACTIVATION |
|  | 269 | WIRELESS DEPOSIT |
| AUDIO | 270 | RECORD/TAPE/CD CARE |
| AUDIO | 271 | AUDIO STORAGE |
| AUDIO | 272 | AUDIO CABLE, MISC ACCES |
| AUDIO | 273 | BULK SPEAKER CABLE |
| MOBILE | 274 | CD PLAYER - AUTO |
| MOBILE | 275 | STEREO - AUTO |
| MOBILE | 276 | SATELLITE RADIO |
| MOBILE | 277 | MOBILE VIDEO & NAVIGATION |
| MOBILE | 278 | CD CHANDERS - AUTO |
| MOBILE | 279 | GPS AND TELEMATICS |
| MOBILE | 280 | MOBILE VIDEO/NAV ACCESSORIES |
| MOBILE | 281 | PERFORMANCE AND STYLING |
| MOBILE | 282 | POWER AMP - AUTO |
| MOBILE | 283 | AUTOMOTIVE SECURITY |
| MOBILE | 284 | CAR LIGHTING |
| MOBILE | 285 | CAR ACCESSORIES |
| WIRELESS | 286 | FRS RADIOS |
| WIRELESS | 287 | FRS ACCESSORIES |
| MOBILE | 288 | LOADED ENCLOSURES |
| MOBILE | 289 | UNLOADED ENCLOSURES |
| MOBILE | 290 | SPEAKER - AUTO |
| MOBILE | 291 | WOOFERS/SUBWOODERS |
| WIRELESS | 292 | PCS WIRELESS PHONES |
| WIRELESS | 293 | HANDHELD GPS |
| WIRELESS | 294 | WIRELESS PREPAID PHONE |
| WIRELESS | 295 | WIRELESS PHONE |
| WIRELESS | 296 | WIRELESS PHONE ACCESSORIES |
| WIRELESS | 297 | FRS&GPS ACCESSORIES |
| MOBILE | 298 | RADAR DETECTORS |
| WIRELESS | 299 | LONG DISTANCE SERVICE |
| WIRELESS | 304 | WIRELESS MISC INTANGIBLES |
| AUDIO | 305 | POWERED LOUDSPEAKERS - PAIRS |
| AUDIO | 306 | KEYBOARDS |
| AUDIO | 307 | KEYBOARD ACCESSORIES |
| MUSIC | 308 | KID'S ELECTRONICS |
| WIRELESS | 309 | PREPAID WIRELESS CARD |
| WIRELESS | 311 | WIRELESS PROMOTIONAL |
| AUDIO | 312 | CD BOOMBOXES |
| AUDIO | 313 | PORTABLE MUSIC ACCESSORIES |
| AUDIO | 315 | PORTABLE MINI DISCS |
| AUDIO | 318 | PERSONAL PORTABLES |
| AUDIO | 319 | PORT, COMPACT DISC |
| P\*S\*T | 320 | RECODERS |
| AUDIO | 321 | PORTABLE DIG AUDIO PLAYER |
| WIRELESS | 323 | INTERNET HARDWARE |
| AUDIO | 328 | PORTABLE RADIO |
| AUDIO | 329 | CLOCK/TABLE RADIO |
| AUDIO | 330 | IMPULSE |
| P\*S\*T | 332 | UNNAMED |
| IMAGING | 334 | FILM/DISPOSABEL CAMERAS |
|  | 335 | CCC MONITORS |
| WIRELESS | 337 | INTERENT ACTIVATION KIT |
| IMAGING | 338 | FLASH MEMORY |
| WIRELESS | 339 | WIRELESS INTANGIBLES |
| AUDIO | 340 | BATTERIES |
| P\*S\*T | 341 | PAPER |
|  | 342 | SEASONAL AREA PRODUCT |
| TELEVISION | 347 | SPECIALTY TV |
| P\*S\*T | 350 | CALCULATORS |
| P\*S\*T | 351 | ORGANIZERS |
| P\*S\*T | 353 | OFFICE & STATIONERY ACC. |
| AUDIO | 355 | HEADPHONES |
| P\*S\*T | 360 | PHONE ANSWERING DEVICES |
| P\*S\*T | 361 | INK |
| P\*S\*T | 362 | PHONE-STD |
| P\*S\*T | 363 | PHONE-CORDLESS |
| P\*S\*T | 364 | FASCIMILES |
| P\*S\*T | 365 | PHONE&FAX ACCESSORIES |
| P\*S\*T | 366 | MEMORY UPGRADES |
| P\*S\*T | 367 | SPECIALTY TELECOM |
| PC HDWR | 369 | NOTEBOOK COMPUTERS |
| PC HDWR | 370 | DESKTOP COMPUTERS |
| PC HDWR | 371 | COMPUTER PRINTERS |
| P\*S\*T | 372 | PC UPGRADES |
| PC HDWR | 373 | COMPUTER MONITOR |
| TELEVISION | 374 | COMPUTER FURNITURE |
| P\*S\*T | 375 | MISC COMPUTER ACCESSORIES |
| MUSIC | 376 | ENTERTAINMENT SOFTWARE |
| MUSIC | 377 | COMPUTER BOOKS |
| IMAGING | 378 | PHOTO FINISHING PRINTS |
| P\*S\*T | 379 | PERIPHERALS |
| MUSIC | 380 | ELECTRONIC GAMES |
| MUSIC | 381 | GAME ACCESSORIES |
| P\*S\*T | 382 | PCC ACCESSORRIES |
| PC HDWR | 383 | SCANNERS |
| MUSIC | 384 | VIDEO GAME PUBLICATIONS |
| PC HDWR | 386 | PCC'S |
| P\*S\*T | 387 | COMPUTER INPUT DEVICES |
| IMAGING | 388 | DIGITAL PHOTOS |
| IMAGING | 389 | DIGITAL CAMERAS-SOHO |
| IMAGING | 390 | CAMERAS |
| IMAGING | 391 | CAMERAS ACCESSORIES |
| MUSIC | 392 | BUDGET SOFTWARE |
| P\*S\*T | 393 | SOHO CABLES/SURGE/UPS |
| IMAGING | 394 | LAPTOP/CAMERA CASES&ACCESS |
| P\*S\*T | 395 | COMPUTER MEDIA |
| PC HDWR | 397 | BTO NOTEBOOK PC'S |
| PC HDWR | 398 | BTO DESKTOP PC'S |
| AUDIO | 399 | ACE PROMO GOOD'S |
| MAJORS | 400 | REFERIGERATORS-TOP MOUNT |
| MAJORS | 401 | REFRIDG 7-14 CF; NO DEFROST |
| MAJORS | 402 | REFRIGERATOR SIDE-BY-SIDE |
| MAJORS | 405 | ICE MAKER |
| MAJORS | 406 | REFRIGERATOR ACCESSORIES |
| MAJORS | 407 | REF DOOR PANELS |
| MAJORS | 410 | REFRIFERATORS-COMPACT |
| MAJORS | 415 | FREEZERS |
| MAJORS | 420 | WASHERS |
| MAJORS | 425 | DRYERS-ELECTRIC |
| MAJORS | 427 | DRYERS-GAS |
| MAJORS | 428 | LAUNDRY ACCESSORIES |
| MAJORS | 430 | DISHWASHERS |
| MAJORS | 432 | DISHWASHERS ACCESSORIES |
| MAJORS | 435 | RANGE-ELECTRIC |
| MAJORS | 440 | RANGE-GAS |
| MAJORS | 442 | RANGE ACCESSORIES |
| MAJORS | 443 | RANGE HOODS |
| MAJORS | 445 | OVENS-WALL/GAS |
| MAJORS | 447 | OVERNS-WALL/ELETRIC |
| MAJORS | 449 | COOKTOPS-GAS |
| MAJORS | 450 | COOKTOPS-ELETRIC |
| MAJORS | 452 | MODULAR ACCESSORIES |
| MAJORS | 475 | MICROWAVE-OVENS |
| MAJORS | 476 | MICRO BRACKETS/TRIMKITS |
| MAJORS | 477 | MICROWAVE ACCESSORIES |
| MAJORS | 480 | VACUUM CLEANERS |
| MAJORS | 482 | VACUUM CLEANERS ACCESS |
| MAJORS | 484 | ESP COMBO WASHER/DRYER SLS |
|  | 491 | DIGITAL IMAGING PRINTERS |
| MAJORS | 498 | MERCH CARDS |
| MAJORS | 499 | GIFT CARDS |
| MAJORS | 500 | SOFT DRINKS |
| MUSIC | 501 | MAGAZINES |
| MUSIC | 502 | INTERNET/UTILITY SOFTWARE |
| MUSIC | 503 | KIDS SOFTWARE |
| MUSIC | 504 | LIFESTYLE SOFTWARE |
| MUSIC | 505 | MACINTOSH SOFTWARE |
| MUSIC | 506 | PRODUCTIVITY SOFTWARE |
| MUSIC | 507 | PUBLISHING SOFTWARE |
| MUSIC | 508 | EDUCATION SOFTWARE |
|  | 509 | BOTTLED WATER |
|  | 510 | SOFT DRINK DEPOSITS |
|  | 520 | CANDY |
|  | 522 | CANDY / GUM |
| MUSIC | 524 | CONVEYABLE A/C |
| MAJORS | 525 | AIR CONDITIONERS |
| MAJORS | 526 | AIR CONDITIONERS ACCESS |
|  | 530 | DIGITAL MUSIC SERVICES |
| AUDIO | 555 | MOBILE-REFURBISHED |
| MOBILE | 556 | ACE-REFURBISHED |
| MAJORS | 585 | DEHUMIDIFIERS |
|  | 590 | OPTICAL DRIVES |
|  | 591 | PORTABLE USB DRIVES |
|  | 596 | DIGITAL SERVICE PROMOS |
|  | 597 | CABLE VIDEO |
|  | 598 | CABLE VIDEO KITS |
|  | 599 | INTERNET SERVICES PROMO |
| MAJORS | 600 | MONSTER CABLE CAR AUDIO |
| MOBILE | 601 | ROADSHOP PARTS |
| MOBILE | 602 | ROADSHOP ANTENNA |
| MOBILE | 603 | RETAIL PRICE GUIDE/IVE |
| MOBILE | 604 | ROADSHOP KITS |
| MOBILE | 605 | BULK WIRE |
| MOBILE | 608 | ROADSHOP HARNESSES |
| MOBILE | 609 | SMART CABLES-RADIOS |
| AUDIO | 702 | SURROUND AOUND SYSTEMS |
| GIFT CARDS | 710 | SITYADVANTAGE KITS |
| EXPRESS | 740 | FANS |
| MOBILE | 780 | MXX SUBBOX |
| HOME INS | 800 | SERVICE LABOR & PARTS |
| OTHER | 802 | CELLULAR PHONE ACTIVATION |
| INTABGIBLE | 806 | MISSING ACCESSORIES |
| OTHER | 807 | USSB PROGRAMMING |
| OTHER | 809 | DTV PROGRAMMING |
| OTHER | 811 | Retailer DSS INSTALL |
| OTHER | 812 | DSS PUBLICATIONS |
| WIRELESS | 817 | PAGER ACTIVATION FEE |
| OTHER | 822 | PC UPGRADE INSTALLATION |
| OTHER | 827 | KIOSK SHIP & HANDLING FEE |
| OTHER | 828 | E-COMMERCE SHIPPING |
| OTHER | 829 | SALVAGE HAUL-AWAY CHARGE |
| OTHER | 830 | CELLULAR MA TAX LIABILITY |
| WIRELESS | 860 | INTERNET SERVICE |
| WIRELESS | 861 | INTERNET SERVICE II |
| WIRELESS | 862 | INTERNET SERVICE PLANS |
| OTHER | 880 | GIFT CARD ONLINE |
|  | 906 | SERVICE SHIPPING |
| INTABGIBLE | 907 | INSTAL LABOR |
| INTABGIBLE | 910 | SERVICE LABOR & PARTS |
| MOBILE | 950 | ROADSHOP INSTALLATION |
| MOBILE | 951 | OTHER INSTALLATION |
| OTHER | 952 | MOBILE SECURITY CERT INSTL |
| MOBILE | 981 | MXX CAR STEREO |
|  |  |  |

**Appendix 2**

**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)