

抽樣調查作業一

(模擬資料)

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模擬類別資料

```
DM'LOG; CLEAR; OUTPUT; CLEAR;';
OPTIONS NODATE NOCENTER LS=78;
/* SIMULATE A POPULATION */
DATA POP; /*資料名稱*/
N = 1000; /*母體個數*/
SEED = 2345;
SEED2 = 3456; /*亂數讀始值*/
DO I = 1 TO N; /*迴圈*/
X = RANUNI(SEED); /*產生標準常態的觀察值*/
IF X < 0.5 THEN X=1;
ELSE X=0; /*如果X<0.5 則X=1 不然就X=0*/
U = RANUNI(SEED2); /*產生均勻分配的觀察值*/
OUTPUT; /*輸出*/
END; /*迴圈結束*/
*PROC PRINT; *VAR X; /*PRINT 變數X*/
/* OBTAIN THE POPULATION MEAN AND VARIANCE */
PROC MEANS NOPRINT; VAR X; /*對變數X做計算*/
OUTPUT OUT = OUTPOP MEAN=MX VAR=VX; /*輸出指派outpop 平均
數為MX 變異數為VX*/
TITLE' POPULATION MEAN AND VARIANCE'; /*命名輸出檔population
mean and variance*/
PROC PRINT; VAR MX VX; /*print MX VX*/

PROC RANK DATA= POP OUT=RPOP; VAR U; /* 將母體資料以變數U由小
到大排序,並指派輸出檔rpop*/
RANKS RU; /*排序結果存入RU*/
PROC SORT DATA=POP; BY I; /*以母體資料按照i由小到大排序*/
PROC SORT DATA=RPOP; BY I; /*以rpop資料按照i由小到大排序*/
DATA SAMPLE1; MERGE POP RPOP; BY I; /*資料名稱sample1 將母體資
料與rpop合併*/
SN=60; /*樣本數為60*/
IF RU <=SN; /*merge資料只留RU<=SN*/
TITLE' SRS BASED ON PERMUTATION'; /*命名輸出檔srs based on
permutation*/
PROC PRINT; /*print出合併結果*/
PROC MEANS NOPRINT; VAR X; /*對變數X做計算*/
```

```
OUTPUT OUT = OUTSAM MEAN=SMX VAR=SVX STDERR=SSTDERR;
/*輸出指派OUTSAM 平均數為SMX 變異數為SVX 樣本標準差為SSSTDERR*/
DATA DSAMPLE(KEEP=UCBM LCBM SMX SVX); /* 資料名稱DSAMPLE+
宣告變數*/
SET OUTSAM; /*存入OUTSAM*/
MSTDERR=1.96*SSTDERR; /*邊際誤差*/
LCBM=SMX-MSTDERR; /*下界*/
UCBM= SMX+MSTDERR; /*上界*/
SMX=SMX; /*樣本平均*/
SVX=SVX; /*樣本平均變異數*/
TITLE' SAMPLE DATA'; /*命名輸出檔 SAMPLE DATA*/
PROC PRINT;
/*用survey select直接從母體以SRS方式抽60個樣本,並指派輸出為sample2*/
PROC SURVEYSELECT DATA=POP
METHOD=SRS n=60 OUT=SAMPLE2;
TITLE 'SRS BASED ON SURVEY SELECT'; /*命名輸出檔srs based on survey
select */
PROC PRINT; /*print 出結果*/
RUN;
```

輸出結果(類別資料)

POPULATION MEAN AND VARIANCE

Obs	MX	VX
1	0.499	0.25025

Obs	N	SEED	SEED2	I	X	U	RU	SN
1	1000	2345	3456	49	1	0.057714	57	60
2	1000	2345	3456	50	1	0.036046	31	60
3	1000	2345	3456	57	1	0.041872	34	60
4	1000	2345	3456	78	1	0.003651	2	60
5	1000	2345	3456	91	0	0.046034	38	60
6	1000	2345	3456	95	1	0.052680	48	60
7	1000	2345	3456	98	1	0.055608	51	60
8	1000	2345	3456	119	0	0.044922	36	60
9	1000	2345	3456	159	0	0.034995	30	60
10	1000	2345	3456	168	1	0.034323	29	60

SAMPLE DATA

Obs	SMX	SVX	LCBM	UCBM
1	0.63333	0.23616	0.51037	0.75630

模擬數值資料

```
DM'LOG; CLEAR; OUTPUT; CLEAR;';
OPTIONS NODATE NOCENTER LS=78;
/* SIMULATE A POPULATION */
DATA POP; /*資料名稱*/
N = 1000; /*母體個數*/
SEED = 2345;
SEED2 = 3456; /*亂數讀始值*/
DO I = 1 TO N; /*迴圈*/
Y = 170+RANNOR(SEED)*2; /*產生標準常態的觀察值*/
U = RANUNI(SEED2); /*產生均勻分配的觀察值*/
OUTPUT; /*輸出*/
END; /*迴圈結束*/
*PROC PRINT; *VAR Y; /*PRINT 變數Y*/
/* OBTAIN THE POPULATION MEAN AND VARIANCE */
PROC MEANS NOPRINT; VAR Y; /*對變數Y做計算*/
OUTPUT OUT = OUTPOP MEAN=MY VAR=VY; /*輸出指派outpop 平均數為
MY 變異數為VY*/
TITLE' POPULATION MEAN AND VARIANCE'; /*命名輸出檔population mean and
variance*/
PROC PRINT; VAR MY VY; /*print my vy*/

PROC RANK DATA= POP OUT=RPOP; VAR U; /* 將母體資料以變數U由小到大排
序,並指派輸出檔rpop*/
RANKS RU; /*排序結果存入RU*/
PROC SORT DATA=POP; BY I; /*以母體資料按照i由小到大排序*/
PROC SORT DATA=RPOP; BY I; /*以rpop資料按照i由小到大排序*/
DATA SAMPLE1; MERGE POP RPOP; BY I; /*資料名稱sample1 將母體資料與
rpop合併*/
SN=60; /*樣本數為60*/
IF RU <=SN; /*merge資料只留RU<=SN*/
TITLE' SRS BASED ON PERMUTATION'; /*命名輸出檔srs based on permutation*/
PROC PRINT; /*print出合併結果*/
PROC MEANS NOPRINT; VAR Y; /*對變數Y做計算*/
OUTPUT OUT = OUTSAM MEAN=SMY VAR=SVY STDERR=SSTDERR; /*輸出
指派OUTSAM 平均數為SMY 變異數為SVY 樣本標準差為SSTDERR*/
DATA DSAMPLE(KEEP=UCBM LCBM SMY SVY); /* 資料名稱DSAMPLE+宣告變
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```
數*/  
SET OUTSAM; /*存入OUTSAM*/  
MSTDERR=1.96*SSTDERR; /*邊際誤差*/  
LCBM=SMY-MSTDERR; /*下界*/  
UCBM= SMY+MSTDERR; /*上界*/  
SMY=SMY; /*樣本平均*/  
SVY=SVY; /*樣本平均變異數*/  
TITLE 'SAMPLE DATA'; /*命名輸出檔 SAMPLE DATA*/  
PROC PRINT;  
PROC SURVEYSELECT DATA=POP /*用survey select直接從母體以SRS方式抽60個  
樣本,並指派輸出為sample2*/  
METHOD=SRS n=60 OUT=SAMPLE2;  
TITLE 'SRS BASED ON SURVEY SELECT'; /*命名輸出檔srs based on survey select */  
PROC PRINT; /*print 出結果*/  
RUN;
```

輸出結果(數值資料)

POPULATION MEAN AND VARIANCE

Obs	MY	VY
1	169.949	3.95050

Obs	N	SEED	SEED2	I	Y	U	RU	SN
1	1000	2345	3456	33	173.861	0.040734	37	60
2	1000	2345	3456	38	171.671	0.041872	38	60
3	1000	2345	3456	52	168.992	0.003651	4	60
4	1000	2345	3456	63	166.973	0.004707	7	60
5	1000	2345	3456	106	168.849	0.034995	33	60
6	1000	2345	3456	112	171.054	0.034323	32	60
7	1000	2345	3456	129	171.203	0.018873	21	60
8	1000	2345	3456	145	166.610	0.018265	19	60
9	1000	2345	3456	154	166.791	0.011627	12	60
10	1000	2345	3456	155	171.365	0.021440	24	60

SAMPLE DATA

Obs	SMY	SVY	LCBM	UCBM
1	169.486	4.83350	168.929	170.042