**통계조사 방법론 과제 1**

2014150137 통계학과

박 정진

**A.**

(a)

= 0.5

= 0.57

= 0.61

= 0.64

= 0.67

(b)

S1=(6+8+9)/ 3= 7.67

S2=(6+8+10)/ 3= 8

S3=(6+8+12)/ 3= 8.67

S4=(6+9+10)/ 3= 8.33

S5=(6+9+12)/ 3= 9

S6=(6+10+12)/ 3= 9.33

S7=(8+9+10)/ 3= 9

S8=(8+9+12)/ 3= 9.67

S9=(8+10+12)/ 3= 10

S10=(9+10+12)/ 3= 10. 33

|  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **c** | 7.67 | | 8 | 8.33 | 8.67 | 9 | 9.33 | 9.67 | | 10 | 10.33 |
| **P(=c)** | 0.06 | | 0.07 | 0.09 | 0.08 | 0.10+0.11  =0.21 | 0.10 | 0.12 | | 0.13 | 0.14 |
| **c** | | **P(=c)** | | | | | | |
| 0 | | 0 | | | | | | |
| 1/3 | | p(S1)+p(S7)+p(S8) = 0.29 | | | | | | |
| 2/3 | | p(S2)+p(S3)+p(S4)+p(S5)+p(S9)+p(S10) = 0.61 | | | | | | |
| 1 | | p(S6) = 0.10 | | | | | | |

(c)

=

S1 : 0.2(6/0.5+8/0.57+9/0.62) = 8.11

S2 : 0.2(6/0.5+8/0.57+10/0.64) = 8.33

S3 : 0.2(6/0.5+8/0.57+12/0.67) = 8.79

S4 : 0.2(6/0.5+9/0.62+10/0.64) = 8.43

S5 : 0.2(6/0.5+9/0.62+12/0.67) = 8.89

S6 : 0.2(6/0.5+10/0.64+12/0.67) = 9.11

S7 : 0.2(8/0.57+9/0.62+10/0.64) = 8.84

S8 : 0.2(8/0.57+9/0.62+12/0.67) = 9.29

S9 : 0.2(8/0.57+10/0.64+12/0.67) = 9.51

S10 : 0.2(9/0.62+10/0.64+12/0.67) = 9.61

|  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **c** | 8.11 | 8.33 | 8.43 | 8.79 | 8.84 | 8.89 | 9.11 | 9.29 | 9.51 | 9.61 |
| **P(=c)** | 0.06 | 0.07 | 0.09 | 0.08 | 0.11 | 0.10 | 0.10 | 0.12 | 0.13 | 0.14 |

=

S1 : 0.2(1/0.5+0/0.57+0/0.62) = 0.40

S2 : 0.2(1/0.5+0/0.57+1/0.64) = 0.71

S3 : 0.2(1/0.5+0/0.57+1/0.67) = 0.70

S4 : 0.2(1/0.5+0/0.62+1/0.64) = 0.71

S5 : 0.2(1/0.5+0/0.62+1/0.67) = 0.70

S6 : 0.2(1/0.5+1/0.64+1/0.67) = 1.01

S7 : 0.2(0/0.57+0/0.62+1/0.64) = 0.31

S8 : 0.2(0/0.57+0/0.62+1/0.67) = 0.30

S9 : 0.2(0/0.57+1/0.64+1/0.67) = 0.61

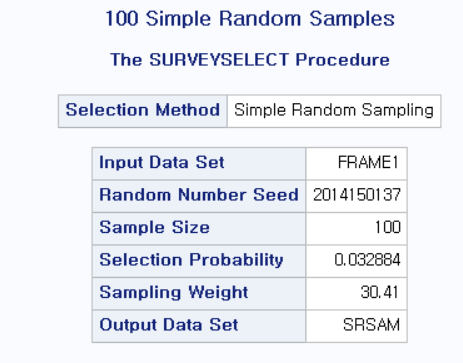
S10 : 0.2(0/0.62+1/0.64+1/0.67) = 0.61

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| **c** | 0.30 | 0.31 | 0.40 | 0.61 | 0.70 | 0.71 | 1.01 |
| **P(=C)** | p(S8)  =0.12 | p(S7)  =0.11 | p(S1)  =0.06 | p(S9)+p(S10)  =0.27 | p(S3)+p(S5)  =0.18 | p(S2)+p(S4)  =0.16 | p(S6)  =0.10 |

(d)

(c)에서의 추정량이 더 권유된다. 기댓값을 계산해보면, (c)의 추정량은 비편향성을 갖지만, (b)에서의 추정량은 편향되어있기 때문이다.

**B.**



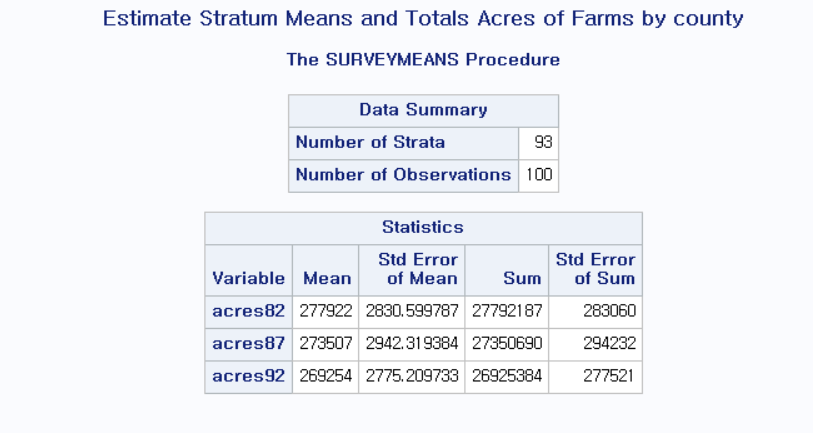
(a)

(i) n/N = 100/3041 = 0.032884

(ii) Selection Probability =

(iii) = = = 100/3041 = 0.032884

(b)



82년도는

평균이 277,922,

표준오차는 2,831 이었다.

87년도는

평균이 273,507,

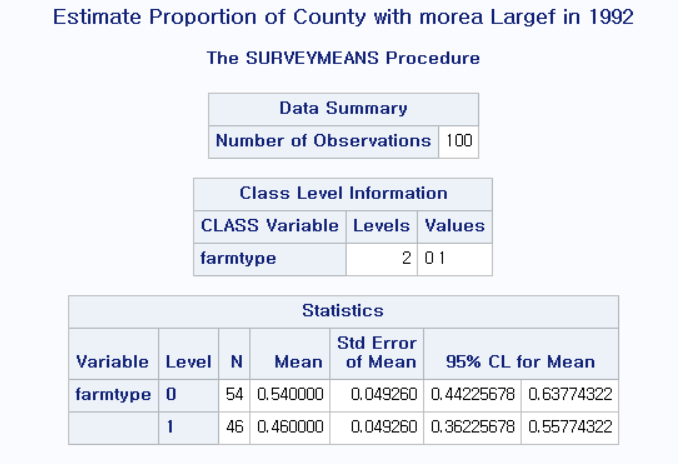
표준오차는 2,942 이었다.

92년도는

평균이 269,254,

표준오차는 2,775 이었다.

(c)

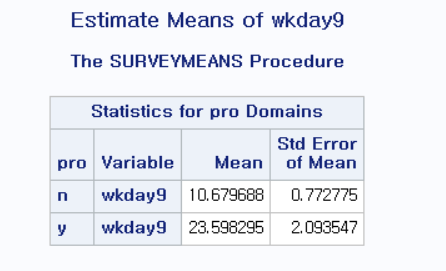


92년도 Large farm이 많은 County의

비율은 54퍼센트로 추정되며,

표준오차는 0.049 정도이다.

**C.**



1. Mean = 23.598

SD = 2.093

1. Mean = 10.680

SD = 0.773

**D.**

조건에 따라 주어진 수식을 정리해보면,

의 꼴이 된다.

Z=1.96, A=0.03 을 넣고 각각의 문제에 따른 CV값을 대입하면,

1. CV=0.5

n = 1067

1. CV = 1.0

n = 4268

1. CV = 1.5

n = 9604

의 값을 얻을 수 있다.