Associations between physician supply levels and amenable mortality rates: An analysis of Taiwan over nearly four decades

Appendix Table A1: Amenable Mortality by Physician Supply Quartiles

(a) Males

| Cause | 1971-75 | 1976-80 | 1981-85 | 1986-90 | 1991-95 | 1996-2000 | 2001-05 | 2006-08 |
|-------|---------|---------|---------|---------|---------|-----------|---------|---------|
| All causes | 481.55  | 477.05  | 445.08  | 442.32  | 446.79  | 435.98    | 427.91  | 426.41  |
| Mortality amenable to medical care | 108.73  | 90.06   | 75.07   | 56.13   | 50.07   | 42.24     | 41.23   | 33.72   |
| Mortality amenable to public health | 116.30  | 139.66  | 149.75  | 169.30  | 160.34  | 145.96    | 118.28  | 110.71  |
| Mortality amenable to both | 5.46    | 6.80    | 7.98    | 9.16    | 12.78   | 11.11     | 12.56   | 13.15   |
| Mortality due to other causes | 366.31  | 358.80  | 328.68  | 325.03  | 335.19  | 336.32    | 341.88  | 347.62  |
| Appendicitis | 0.47    | 0.30    | 0.23    | 0.10    | 0.01    | 0.03      | 0.00    | 0.00    |
| Asthma | 1.88    | 1.96    | 0.86    | 0.92    | 0.90    | 0.92      | 0.41    | 0.69    |
| Gallbladder disease | 1.27    | 0.59    | 0.63    | 0.19    | 0.44    | 0.40      | 0.57    | 0.71    |
| Hernia | 0.06    | 0.05    | 0.22    | 0.00    | 0.03    | 0.00      | 0.00    | 0.00    |
| Hodgkin's disease | 0.36    | 0.37    | 0.18    | 0.00    | 0.07    | 0.11      | 0.33    | 0.08    |
| Hypertension and cerebrovascular disease | 133.42  | 141.71  | 127.91  | 103.21  | 91.87   | 77.55     | 83.70   | 72.40   |
| Injuries | 109.76  | 131.90  | 139.77  | 157.65  | 147.91  | 132.27    | 103.38  | 94.71   |
| Ischemic heart disease | 13.70   | 17.92   | 20.87   | 23.94   | 32.88   | 29.30     | 33.16   | 34.45   |
| Lung cancer | 17.17   | 20.23   | 26.62   | 31.40   | 33.28   | 36.92     | 40.58   | 42.64   |
| Tuberculosis | 36.83   | 22.46   | 15.10   | 9.64    | 8.37    | 7.19      | 5.05    | 2.40    |
| Ulcers | 20.01   | 10.56   | 7.81    | 4.90    | 5.32    | 4.65      | 3.30    | 2.95    |
| Cause                        | 1971-75 | 1976-80 | 1981-85 | 1986-90 | 1991-95 | 1996-2000 | 2001-05 | 2006-08 |
|------------------------------|---------|---------|---------|---------|---------|-----------|---------|---------|
| All causes                   | 519.10  | 529.70  | 520.90  | 486.73  | 491.62  | 478.26    | 478.97  | 461.47  |
| Mortality amenable to medical care | 126.98  | 108.53  | 93.75   | 70.58   | 64.65   | 54.59     | 51.36   | 43.24   |
| Mortality amenable to public health | 127.57  | 156.14  | 177.58  | 180.30  | 170.21  | 151.07    | 129.33  | 114.68  |
| Mortality amenable to both   | 5.07    | 7.48    | 9.30    | 12.24   | 16.00   | 13.50     | 13.32   | 15.13   |
| Mortality due to other causes | 389.29  | 393.63  | 380.59  | 355.17  | 366.20  | 368.68    | 381.97  | 374.94  |
| Appendicitis                 | 0.61    | 0.27    | 0.15    | 0.08    | 0.03    | 0.01      | 0.04    | 0.00    |
| Asthma                       | 2.36    | 1.16    | 1.40    | 0.59    | 1.33    | 1.14      | 1.27    | 0.72    |
| Gallbladder disease          | 0.77    | 0.74    | 0.58    | 0.62    | 0.51    | 0.39      | 0.58    | 0.44    |
| Hernia                       | 0.11    | 0.04    | 0.07    | 0.00    | 0.02    | 0.00      | 0.00    | 0.00    |
| Hodgkin's disease            | 0.19    | 0.36    | 0.17    | 0.13    | 0.10    | 0.07      | 0.18    | 0.58    |
| Hypertension and cerebrovascular disease | 162.81  | 176.47  | 166.25  | 131.82  | 116.74  | 94.36     | 100.99  | 89.48   |
| Injuries                     | 120.02  | 147.04  | 166.16  | 168.13  | 157.79  | 138.21    | 114.90  | 99.37   |
| Ischemic heart disease       | 13.28   | 19.02   | 23.74   | 31.70   | 42.09   | 35.28     | 34.83   | 40.45   |
| Lung cancer                  | 19.57   | 23.88   | 30.72   | 32.49   | 33.54   | 34.53     | 38.99   | 41.63   |
| Tuberculosis                 | 44.10   | 27.97   | 19.50   | 12.76   | 12.20   | 11.54     | 7.35    | 4.27    |
| Ulcers                       | 21.99   | 10.19   | 7.52    | 5.42    | 5.09    | 5.85      | 3.59    | 2.04    |

| Cause                        | 1971-75 | 1976-80 | 1981-85 | 1986-90 | 1991-95 | 1996-2000 | 2001-05 | 2006-08 |
|------------------------------|---------|---------|---------|---------|---------|-----------|---------|---------|
| All causes                   | 496.01  | 497.41  | 470.07  | 443.77  | 440.24  | 419.91    | 417.91  | 410.08  |
| Mortality amenable to medical care | 112.12  | 102.58  | 86.24   | 64.45   | 58.32   | 48.10     | 40.77   | 37.24   |
| Mortality amenable to public health | 112.51  | 135.03  | 150.30  | 155.88  | 141.16  | 124.84    | 110.71  | 100.85  |
| Cause                          | 1971-75 | 1976-80 | 1981-85 | 1986-90 | 1991-95 | 1996-2000 | 2001-05 | 2006-08 |
|-------------------------------|---------|---------|---------|---------|---------|-----------|---------|---------|
| All causes                    | 434.65  | 417.33  | 357.88  | 353.59  | 346.40  | 322.73    | 338.15  | 322.53  |
| Mortality amenable to medical care | 103.57  | 89.90   | 66.38   | 52.63   | 43.93   | 33.40     | 31.99   | 27.65   |
| Mortality amenable to public health | 99.78   | 111.27  | 107.17  | 116.25  | 107.75  | 92.36     | 85.84   | 77.61   |
| Mortality amenable to both    | 7.97    | 8.65    | 8.98    | 10.75   | 12.00   | 10.99     | 13.03   | 12.57   |
| Mortality due to other causes | 328.99  | 312.42  | 266.61  | 263.78  | 264.56  | 254.35    | 272.72  | 263.61  |
| Appendicitis                  | 0.29    | 0.15    | 0.16    | 0.05    | 0.03    | 0.01      | 0.08    | 0.05    |
| Asthma                        | 1.00    | 0.58    | 0.46    | 0.75    | 0.73    | 0.64      | 0.64    | 0.50    |
| Gallbladder disease           | 0.76    | 0.62    | 0.41    | 0.30    | 0.34    | 0.34      | 0.29    | 0.32    |

Quartile 4
| Cause                     | 1971-75 | 1976-80 | 1981-85 | 1986-90 | 1991-95 | 1996-2000 | 2001-05 | 2006-08 |
|--------------------------|---------|---------|---------|---------|---------|-----------|---------|---------|
| All causes               | 309.33  | 285.87  | 251.79  | 234.70  | 207.64  | 197.78    | 176.81  | 162.09  |
| Mortality amenable to medical care | 85.98   | 76.87   | 63.83   | 50.06   | 39.76   | 34.65     | 30.53   | 28.90   |
| Mortality amenable to public health | 45.53   | 52.72   | 57.61   | 64.14   | 57.26   | 55.22     | 41.40   | 38.26   |
| Mortality amenable to both | 3.96    | 4.77    | 4.16    | 4.36    | 5.79    | 3.99      | 3.91    | 3.87    |
| Mortality due to other causes | 241.59  | 218.69  | 188.99  | 175.42  | 156.23  | 150.86    | 138.89  | 126.57  |
| Appendicitis             | 0.47    | 0.07    | 0.05    | 0.01    | 0.06    | 0.03      | 0.06    | 0.04    |
| Asthma                   | 1.10    | 1.02    | 0.95    | 0.80    | 0.72    | 0.70      | 0.71    | 0.44    |
| Breast cancer            | 5.09    | 5.18    | 6.88    | 7.88    | 10.54   | 12.31     | 15.29   | 15.03   |
| Cervical cancer          | 5.89    | 8.27    | 6.56    | 7.16    | 8.48    | 8.84      | 6.92    | 4.56    |
| Gallbladder disease      | 0.85    | 1.04    | 0.60    | 0.44    | 0.60    | 0.84      | 0.11    | 0.45    |
| Hernia                   | 0.00    | 0.06    | 0.02    | 0.00    | 0.00    | 0.00      | 0.00    | 0.00    |
| Hodgkin's disease        | 0.08    | 0.26    | 0.12    | 0.00    | 0.00    | 0.06      | 0.05    | 0.13    |

(b) Females
| Cause                                      | 1971-75 | 1976-80 | 1981-85 | 1986-90 | 1991-95 | 1996-2000 | 2001-05 | 2006-08 |
|-------------------------------------------|---------|---------|---------|---------|---------|-----------|---------|---------|
| Hypertension and cerebrovascular disease  | 100.64  | 105.96  | 100.69  | 80.19   | 54.48   | 41.28     | 32.02   | 34.77   |
| Injuries                                  | 41.26   | 47.94   | 52.03   | 57.60   | 50.95   | 47.87     | 33.76   | 29.53   |
| Ischemic heart disease                    | 10.18   | 12.39   | 10.72   | 10.92   | 15.15   | 10.36     | 9.99    | 10.02   |
| Lung cancer                               | 10.84   | 11.96   | 13.40   | 16.85   | 16.25   | 19.74     | 20.40   | 23.31   |
| Maternal mortality                        | 4.24    | 2.43    | 0.85    | 0.54    | 0.47    | 0.30      | 0.14    | 0.14    |
| Tuberculosis                              | 20.39   | 11.76   | 5.80    | 3.72    | 2.16    | 1.66      | 1.23    | 0.37    |
| Ulcers                                    | 6.98    | 3.74    | 2.66    | 1.34    | 0.86    | 0.66      | 0.79    | 0.74    |
| Uterine cancer                            | 9.03    | 9.46    | 7.65    | 4.35    | 1.50    | 0.94      | 1.20    | 1.96    |
| All causes                                | 352.10  | 319.85  | 295.76  | 255.31  | 229.51  | 221.11    | 204.94  | 191.44  |
| Mortality amenable to medical care        | 102.38  | 87.46   | 78.85   | 60.34   | 47.22   | 42.02     | 36.76   | 31.68   |
| Mortality amenable to public health       | 51.14   | 58.62   | 69.41   | 65.97   | 60.15   | 57.81     | 47.28   | 42.41   |
| Mortality amenable to both                | 3.37    | 4.34    | 5.09    | 6.98    | 6.78    | 4.69      | 5.04    | 3.78    |
| Mortality due to other causes             | 273.66  | 244.64  | 219.08  | 188.66  | 172.43  | 168.85    | 160.40  | 152.51  |
| Appendicitis                              | 0.39    | 0.11    | 0.17    | 0.06    | 0.03    | 0.02      | 0.02    | 0.00    |
| Asthma                                    | 2.04    | 1.17    | 1.28    | 0.91    | 0.66    | 0.53      | 0.50    | 0.76    |
| Breast cancer                             | 5.04    | 7.51    | 6.45    | 8.57    | 10.31   | 13.17     | 15.32   | 16.56   |
| Cervical cancer                           | 6.00    | 6.60    | 7.57    | 7.37    | 9.66    | 8.44      | 7.60    | 6.10    |
| Gallbladder disease                       | 1.30    | 1.04    | 0.86    | 0.24    | 0.41    | 0.25      | 0.35    | 0.16    |
| Hernia                                    | 0.01    | 0.00    | 0.01    | 0.00    | 0.00    | 0.00      | 0.00    | 0.00    |
| Hodgkin's disease                         | 0.06    | 0.12    | 0.10    | 0.02    | 0.04    | 0.04      | 0.07    | 0.04    |
| Hypertension and cerebrovascular disease  | 114.87  | 127.75  | 133.07  | 98.17   | 66.19   | 56.69     | 45.78   | 38.58   |
| Cause                        | 1971-75 | 1976-80 | 1981-85 | 1986-90 | 1991-95 | 1996-2000 | 2001-05 | 2006-08 |
|------------------------------|---------|---------|---------|---------|---------|-----------|---------|---------|
| All causes                   | 312.52  | 292.78  | 257.31  | 228.03  | 205.83  | 195.01    | 179.47  | 173.31  |
| Mortality amenable to medical care | 84.74   | 78.46   | 65.04   | 51.98   | 41.27   | 35.53     | 33.12   | 33.21   |
| Mortality amenable to public health | 41.59   | 49.64   | 52.50   | 55.04   | 53.57   | 47.90     | 40.25   | 38.28   |
| Mortality amenable to both | 3.37    | 4.38    | 5.32    | 5.70    | 5.13    | 3.69      | 4.46    | 3.61    |
| Mortality due to other causes | 247.68  | 226.54  | 195.88  | 171.67  | 155.84  | 151.45    | 140.56  | 135.76  |
| Appendicitis                 | 0.22    | 0.09    | 0.18    | 0.19    | 0.04    | 0.01      | 0.02    | 0.02    |
| Asthma                       | 2.35    | 0.72    | 0.88    | 0.36    | 0.95    | 0.82      | 0.39    | 0.90    |
| Breast cancer                | 5.31    | 6.62    | 7.72    | 8.38    | 10.75   | 13.63     | 15.77   | 19.34   |
| Cervical cancer              | 6.35    | 7.75    | 6.67    | 7.02    | 8.40    | 8.15      | 7.08    | 6.02    |
| Gallbladder disease          | 0.72    | 0.57    | 0.55    | 0.28    | 0.25    | 0.20      | 0.18    | 0.20    |
| Hernia                       | 0.00    | 0.02    | 0.00    | 0.00    | 0.00    | 0.00      | 0.00    | 0.00    |
| Hodgkin's disease            | 0.69    | 0.16    | 0.19    | 0.11    | 0.05    | 0.06      | 0.06    | 0.00    |
| Hypertension and cerebrovascular disease | 104.87  | 111.44  | 103.76  | 84.34   | 58.31   | 43.20     | 38.11   | 36.97   |
| Cause                      | Year 1971-75 | Year 1976-80 | Year 1981-85 | Year 1986-90 | Year 1991-95 | Year 1996-2000 | Year 2001-2005 | Year 2006-2008 |
|----------------------------|--------------|--------------|--------------|--------------|--------------|----------------|----------------|----------------|
| Injuries                   | 31.87        | 35.33        | 35.99        | 37.94        | 34.36        | 30.36          | 25.46          | 21.59          |
| Ischemic heart disease     | 8.86         | 11.45        | 13.99        | 14.91        | 13.67        | 9.64           | 11.94          | 9.65           |
| Lung cancer                | 10.62        | 13.06        | 15.99        | 13.82        | 14.57        | 23.37          | 21.10          | 21.35          |
| Maternal mortality         | 3.46         | 1.98         | 0.97         | 0.85         | 0.24         | 0.16           | 0.35           | 0.23           |
| Tuberculosis               | 18.53        | 11.63        | 6.59         | 4.23         | 2.44         | 2.11           | 1.28           | 0.65           |
| Ulcers                     | 5.26         | 5.66         | 2.07         | 1.21         | 0.88         | 0.66           | 0.60           | 0.53           |
| Uterine cancer             | 7.07         | 7.22         | 5.30         | 3.49         | 1.83         | 1.03           | 1.45           | 1.64           |

Quartile 4

| Cause                      | Year 1971-75 | Year 1976-80 | Year 1981-85 | Year 1986-90 | Year 1991-95 | Year 1996-2000 | Year 2001-2005 | Year 2006-2008 |
|----------------------------|--------------|--------------|--------------|--------------|--------------|----------------|----------------|----------------|
| All causes                 | 272.08       | 249.10       | 211.65       | 190.65       | 173.24       | 156.92         | 149.93         | 132.16         |
| Mortality amenable to      | 83.03        | 73.90        | 57.92        | 45.40        | 37.20        | 29.66          | 29.00          | 23.98          |
| Medical care               | 36.28        | 40.69        | 41.86        | 44.36        | 40.78        | 37.08          | 33.59          | 29.38          |
| Mortality amenable to      | 4.35         | 4.92         | 4.56         | 4.35         | 4.19         | 3.14           | 3.45           | 3.14           |
| Public health              |              |              |              |              |              |                |                |                |
| Mortality amenable to both |              |              |              |              |              |                |                |                |
| Mortality due to other     | 210.25       | 189.34       | 159.47       | 143.60       | 132.15       | 121.98         | 116.90         | 103.91         |
| causes                     |              |              |              |              |              |                |                |                |
| Appendicitis               | 0.36         | 0.12         | 0.19         | 0.03         | 0.02         | 0.03           | 0.03           | 0.05           |
| Asthma                     | 1.24         | 0.80         | 0.66         | 0.55         | 0.81         | 0.35           | 0.44           | 0.22           |
| Breast cancer              | 7.30         | 8.69         | 9.11         | 11.84        | 14.04        | 16.37          | 19.06          | 19.99          |
| Cervical cancer            | 8.27         | 8.90         | 8.62         | 7.89         | 8.15         | 7.49           | 6.23           | 4.50           |
| Gallbladder disease        | 0.85         | 0.71         | 0.38         | 0.19         | 0.17         | 0.09           | 0.25           | 0.12           |
| Hernia                     | 0.03         | 0.01         | 0.02         | 0.01         | 0.02         | 0.02           | 0.00           | 0.00           |
| Hodgkin's disease          | 0.10         | 0.10         | 0.06         | 0.09         | 0.03         | 0.03           | 0.05           | 0.03           |
| Hypertension and           | 116.99       | 120.55       | 94.41        | 69.18        | 49.15        | 30.89          | 28.08          | 19.55          |
| cerebrovascular disease    |              |              |              |              |              |                |                |                |
| Injuries                   | 31.87        | 35.33        | 35.99        | 37.94        | 34.36        | 30.36          | 25.46          | 21.59          |
| Condition         | 11.33 | 12.92 | 12.12 | 11.54 | 11.04 | 8.37 | 9.26 | 8.45 |
|-------------------|-------|-------|-------|-------|-------|------|------|------|
| Ischemic heart    | 11.47 | 14.25 | 15.62 | 16.91 | 17.01 | 17.84| 21.63| 20.67|
| Lung cancer       | 2.09  | 1.31  | 0.81  | 0.31  | 0.24  | 0.26 | 0.15 | 0.11 |
| Maternal mortality| 13.70 | 7.39  | 3.83  | 2.02  | 1.40  | 0.99 | 0.67 | 0.32 |
| Tuberculosis      | 3.93  | 1.77  | 1.86  | 1.10  | 0.91  | 0.70 | 1.08 | 0.46 |
| Ulcers            | 8.47  | 6.44  | 4.52  | 2.90  | 1.64  | 1.32 | 1.51 | 1.61 |
### Appendix Table B1: Associations between age-standardized amenable deaths and supply of clinic physicians

| VARIABLES                        | Men          | Women        |
|----------------------------------|--------------|--------------|
|                                  | (1)          | (2)          | (3)          | (4)          | (5)          | (6)          |
| Clinic physicians per 1,000      | -8.762*      | -3.616       | -1.295       | -3.601**     | -1.908       | -1.187       |
|                                  | (2.069)      | (2.499)      | (1.560)      | (1.025)      | (1.280)      | (0.833)      |
| Mean income                      | -0.0245      | -0.0148      | -0.00828     | -0.00967     |              |              |
|                                  | (0.0125)     | (0.0188)     | (0.00613)    | (0.00934)    |              |              |
| Rural 1 (most rural)             | 2.571        |              |              | 2.937        |              |              |
|                                  | (5.087)      |              |              | (2.559)      |              |              |
| Rural 2                          | -2.907       | -0.522       |              |              |              |              |
|                                  | (3.775)      | (1.804)      |              |              |              |              |
| Rural 3                          | 5.118        |              |              | 2.868        |              |              |
|                                  | (5.323)      |              |              | (2.696)      |              |              |
| Percent > junior high            | -36.02       |              |              | 8.545        |              |              |
|                                  | (19.51)      |              |              | (10.79)      |              |              |
| Decade (2001-2008)               | -1.282       | -0.341       |              |              |              |              |
|                                  | (0.586)      | (0.541)      |              |              |              |              |
| Constant                         | 61.09*       | 77.40*       | 97.52*       | 41.27**      | 46.85**      | 39.70**      |
|                                  | (1.346)      | (7.808)      | (12.18)      | (0.697)      | (3.898)      | (6.459)      |
| Observations                     | 4,271        | 4,271        | 4,252        | 4,271        | 4,271        | 4,252        |
| R-squared                        | 0.015        | 0.048        | 0.068        | 0.006        | 0.016        | 0.024        |

Robust standard errors in parentheses

** p<0.01, * p<0.05
Appendix Table B2: Associations between age-standardized amenable deaths and supply of hospital physicians

| Amenable SMR | Men          |         |         | Women        |         |         |
|--------------|--------------|---------|---------|--------------|---------|---------|
|              | (1)          | (2)     | (3)     | (4)          | (5)     | (6)     |
| Hospital physicians per 1,000 | -1.914*  | -0.759  | -0.649  | -0.769**  | -0.376  | -0.373  |
|              | (0.610)      | (0.833) | (0.655) | (0.289)     | (0.419) | (0.345) |
| Mean income  | -0.0243      | -0.0135 | -0.00824| -0.00902    |         |         |
|              | (0.0135)     | (0.0198)| (0.00663)| (0.00981)   |         |         |
| Rural 1 (most rural)  | 2.739      |         |         | 3.156       |         |         |
|              | (4.908)      |         |         | (2.517)     |         |         |
| Rural 2      | -2.859       |         |         | -0.420      |         |         |
|              | (3.594)      |         |         | (1.736)     |         |         |
| Rural 3      | 5.193        |         |         | 2.975       |         |         |
|              | (5.143)      |         |         | (2.597)     |         |         |
| Percent > junior high | -35.61   |         |         | 8.699       |         |         |
|              | (18.97)      |         |         | (10.51)     |         |         |
| Decade (2001-2008) | -1.254    |         |         | -0.317      |         |         |
|              | (0.583)      |         |         | (0.540)     |         |         |
| Constant     | 58.30*       | 76.07*  | 96.02*  | 40.10**     | 46.18** | 38.71** |
|              | (1.180)      | (8.952) | (12.53) | (0.624)     | (4.444) | (6.723) |
| Observations | 4,271        | 4,271   | 4,252   | 4,271        | 4,271   | 4,252   |
| R-squared    | 0.016        | 0.048   | 0.069   | 0.006        | 0.016   | 0.024   |

Robust standard errors in parentheses
** p<0.01, * p<0.05
### Appendix Table C1: Associations between select causes of death amenable to medical care and supply of clinic physicians

| VARIABLES                                  | Men          | Women       |
|--------------------------------------------|--------------|-------------|
|                                            | (1)          | (2)         | (3) | (4) | (5) | (6) | (7) | (8) | (9) |
| Clinic physicians per 1,000                | -1.118*      | 2.904*      | -0.0702 | -0.605 | -0.696** | 2.159* | -0.750 | -0.127 | 0.421 |
|                                            | (0.287) | (1.021) | (0.456) | (0.278) | (0.165) | (0.940) | (0.384) | (0.344) | (0.312) |
| Mean income                               | 5.75e-06     | -0.0163*    | -0.00715* | -0.00166 | -0.00040 | -0.00777 | -0.00564 | 0.000430 | 0.000209 |
|                                            | (0.00133) | (0.00462) | (0.00223) | (0.00104) | (0.00127) | (0.00560) | (0.00312) | (0.00159) | (0.00183) |
| Rural 1 (most rural)                       | -1.083       | 25.71*      | 3.056*   | -0.192   | 0.374    | 13.56** | 3.194*   | 3.194*   | -1.428* |
|                                            | (0.567) | (2.268) | (0.921) | (0.528) | (0.484) | (2.252) | (1.278) | (0.579) | (0.634) |
| Rural 2                                    | -1.120*      | 17.93*      | 0.979    | -0.759   | 0.0933   | 8.457** | 1.133    | -0.759* | -1.024* |
|                                            | (0.422) | (1.553) | (0.655) | (0.374) | (0.338) | (1.465) | (0.684) | (0.380) | (0.429) |
| Rural 3                                    | 0.517        | 10.89*      | 3.031*   | 0.208    | 0.503    | 5.477** | 1.745    | 0.128    | 0.0855 |
|                                            | (0.443) | (1.585) | (0.729) | (0.356) | (0.389) | (1.782) | (0.941) | (0.477) | (0.532) |
| Percent > junior high                      | -9.136*      | -51.83*     | -5.391   | -2.495   | -2.278   | -18.09  | 4.688    | 0.758    | 5.103  |
|                                            | (2.188) | (8.989) | (3.500) | (2.068) | (2.084) | (9.224) | (4.807) | (2.520) | (2.684) |
| Linear trend                               | 0.0463       | -1.395*     | -0.365*  | 0.210*   | -0.0456* | -0.877** | -0.404** | 0.139** | 0.250** |
|                                            | (0.0307) | (0.123) | (0.0509) | (0.0286) | (0.0191) | (0.0807) | (0.0333) | (0.0245) | (0.0338) |
| Constant                                   | 15.69*       | 104.9*      | 29.77*   | 12.90*   | 6.112**  | 48.39** | 14.08**  | 6.550**  | 3.448  |
|                                            | (1.664) | (6.776) | (2.618) | (1.614) | (1.496) | (6.430) | (3.258) | (1.783) | (1.937) |
| Observations                               | 8,504        | 8,504       | 8,504    | 8,504    | 4,252    | 4,252   | 4,252    | 4,252    | 4,252  |
| R-squared                                  | 0.011        | 0.171       | 0.044    | 0.014    | 0.018    | 0.131   | 0.063    | 0.011    | 0.051  |

Robust standard errors in parentheses

** p<0.01, * p<0.05
## Appendix Table C2: Associations between select causes of death amenable to medical care and supply of hospital physicians

| VARIABLES                        | (1)       | (2)       | (3)       | (4)       | (5)       | (6)       | (7)       | (8)       | (9)       |
|----------------------------------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|
|                                  | Men       | Women     |           |           |           |           |           |           |           |
|                                  | IHD       | Injuries  | Hypertension/CVD | Lung Cancer | IHD       | Injuries  | Hypertension/CVD | Lung Cancer | Breast Cancer |
| Hospital physicians per 1,000    | -0.188*   | -0.0788   | -0.279    | -0.0145   | -0.0783   | -0.119    | -0.219    | -0.0213   | -0.0574   |
|                                  | (0.0719)  | (0.256)   | (0.112)   | (0.0683)  | (0.0690)  | (0.241)   | (0.125)   | (0.0871)  | (0.0838)  |
| Mean income                      | 0.000204  | -0.0154*  | -0.00646* | -0.00178  | -0.00038  | -0.00694  | -0.00527  | -0.00041  | 0.000458  |
|                                  | (0.00139) | (0.00489) | (0.00235) | (0.00109) | (0.00132) | (0.00590) | (0.00322) | (0.00169) | (0.00192) |
| Rural 1 (most rural)             | -0.825    | 24.87*    | 2.990*    | -0.0254   | 0.547     | 12.91**   | 3.338**   | -0.253    | -1.565*   |
|                                  | (0.551)   | (2.221)   | (0.894)   | (0.516)   | (0.481)   | (2.230)   | (1.251)   | (0.576)   | (0.624)   |
| Rural 2                          | -0.978    | 17.40*    | 0.914     | -0.658    | 0.193     | 8.046**   | 1.202     | -0.743*   | -1.114**  |
|                                  | (0.411)   | (1.511)   | (0.634)   | (0.366)   | (0.332)   | (1.418)   | (0.656)   | (0.377)   | (0.416)   |
| Rural 3                          | 0.650     | 10.43*    | 2.989*    | 0.296     | 0.593     | 5.125**   | 1.816*    | 0.144     | 0.0102    |
|                                  | (0.433)   | (1.555)   | (0.711)   | (0.350)   | (0.381)   | (1.754)   | (0.897)   | (0.471)   | (0.512)   |
| Percent > junior high            | -9.154*   | -51.19*   | -5.111    | -2.597    | -2.336    | -17.51    | 4.773     | 0.755     | 5.252*    |
|                                  | (2.179)   | (8.962)   | (3.472)   | (2.063)   | (2.080)   | (9.177)   | (4.734)   | (2.493)   | (2.650)   |
| Linear trend                     | 0.0406    | -1.383*   | -0.367*   | 0.207*    | 0.0490**  | -0.868**  | -0.408**  | 0.139**   | 0.251**   |
|                                  | (0.0306)  | (0.122)   | (0.0506)  | (0.0285)  | (0.0189)  | (0.0800)  | (0.0328)  | (0.0245)  | (0.0335)  |
| Constant                         | 15.09*    | 105.5*    | 29.28*    | 12.72*    | 5.810**   | 48.72**   | 13.53**   | 6.483**   | 3.453     |
|                                  | (1.677)   | (6.812)   | (2.635)   | (1.617)   | (1.529)   | (6.549)   | (3.326)   | (1.799)   | (1.964)   |
| Observations                     | 8,504     | 8,504     | 8,504     | 8,504     | 4,252     | 4,252     | 4,252     | 4,252     | 4,252     |
| R-squared                        | 0.01      | 0.17      | 0.045     | 0.013     | 0.016     | 0.13      | 0.064     | 0.011     | 0.051     |

Robust standard errors in parentheses

** p<0.01, * p<0.05