

**Supplementary Table 2. Frequency of foods on school lunch by subset of school age**

| No | Elementary school          |           |        | Middle school         |           |        | High school                  |           |        |
|----|----------------------------|-----------|--------|-----------------------|-----------|--------|------------------------------|-----------|--------|
|    | Menu                       | Frequency | TF-IDF | Menu                  | Frequency | TF-IDF | Menu                         | Frequency | TF-IDF |
| 1  | Milk                       | 1,113,450 | 0.858  | Milk                  | 108,694   | 0.350  | Milk                         | 154,095   | 0.324  |
| 2  | Apple                      | 187,647   | 0.145  | Liquid yogurt         | 79,981    | 0.257  | Liquid yogurt                | 120,374   | 0.253  |
| 3  | Liquid yogurt              | 160,359   | 0.124  | Apple                 | 52,226    | 0.168  | Apple                        | 79,639    | 0.168  |
| 4  | Pineapple                  | 128,212   | 0.099  | Cucumber salad        | 50,645    | 0.163  | Yogurt                       | 75,105    | 0.158  |
| 5  | Cucumber salad             | 107,464   | 0.083  | Ssam-jang             | 48,722    | 0.157  | Ketchup                      | 72,714    | 0.153  |
| 6  | Beef and seaweed soup      | 106,029   | 0.082  | Pineapple             | 44,342    | 0.143  | Cucumber salad               | 71,523    | 0.150  |
| 7  | Cherry tomato              | 101,184   | 0.078  | Tteokbokki            | 44,253    | 0.142  | Grilled laver                | 71,273    | 0.150  |
| 8  | Ssam-jang                  | 97,538    | 0.075  | Beef and seaweed soup | 41,630    | 0.134  | Pickled radish               | 68,649    | 0.144  |
| 9  | Melon                      | 94,833    | 0.073  | Yogurt                | 39,786    | 0.128  | Ssam-jang                    | 64,547    | 0.136  |
| 10 | Banana                     | 94,158    | 0.073  | Seasoned bean sprout  | 38,322    | 0.123  | Seasoned bean sprout         | 61,799    | 0.130  |
| 11 | Tteokbokki                 | 93,382    | 0.072  | Sausage stew          | 37,437    | 0.120  | Fishcake soup                | 60,297    | 0.127  |
| 12 | Watermelon                 | 87,822    | 0.068  | Fishcake soup         | 36,721    | 0.118  | Stir-fried rice cake         | 59,078    | 0.124  |
| 13 | Seasoned bean sprout       | 87,563    | 0.067  | Grilled laver         | 35,403    | 0.114  | Beef and seaweed soup        | 55,377    | 0.116  |
| 14 | Seasoned spinach           | 83,559    | 0.064  | Pickled radish        | 33,432    | 0.108  | Fruit and vegetable beverage | 54,650    | 0.115  |
| 15 | Seasoned mung bean sprout  | 80,611    | 0.062  | Green onion egg soup  | 31,975    | 0.103  | Pineapple                    | 54,198    | 0.114  |
| 16 | Fishcake soup              | 78,591    | 0.061  | Seasoned spinach      | 30,890    | 0.099  | Green onion egg soup         | 54,182    | 0.114  |
| 17 | Grilled laver              | 77,699    | 0.060  | Pork back-bone stew   | 30,858    | 0.099  | Sausage stew                 | 51,475    | 0.108  |
| 18 | Yukgaejang                 | 77,549    | 0.060  | Yukgaejang            | 30,729    | 0.099  | Banana                       | 50,903    | 0.107  |
| 19 | Stir-fried dried anchovies | 76,318    | 0.059  | Braised chicken       | 30,655    | 0.099  | Seasoned mung bean sprout    | 46,930    | 0.099  |

|    |                            |        |       |                              |        |       |                            |        |       |
|----|----------------------------|--------|-------|------------------------------|--------|-------|----------------------------|--------|-------|
| 20 | Kiwi                       | 76,009 | 0.059 | Seasoned mung bean sprout    | 30,566 | 0.098 | Seasoned spinach           | 46,332 | 0.097 |
| 21 | Strawberry                 | 75,195 | 0.058 | Bugeot-guk                   | 30,433 | 0.098 | Fried egg                  | 46,065 | 0.097 |
| 22 | Beef and radish soup       | 70,822 | 0.055 | Spaghetti                    | 30,423 | 0.098 | Pork cutlet                | 45,267 | 0.095 |
| 23 | Auk-doengjangguk           | 70,770 | 0.055 | Pork cutlet                  | 29,484 | 0.095 | Stir-fried kimchi          | 43,134 | 0.091 |
| 24 | Stir-fried potatoes        | 70,437 | 0.054 | Fruit and vegetable beverage | 29,385 | 0.094 | Bugeot-guk                 | 42,647 | 0.090 |
| 25 | Orange                     | 69,994 | 0.054 | Auk-doengjangguk             | 29,368 | 0.094 | Stir-fried potatoes        | 42,368 | 0.089 |
| 26 | Japchae                    | 67,701 | 0.052 | Cherry tomato                | 29,239 | 0.094 | Steamed eggs               | 41,490 | 0.087 |
| 27 | Sausage stew               | 67,625 | 0.052 | Stir-fried dried anchovies   | 28,814 | 0.093 | Fruit salad                | 40,829 | 0.086 |
| 28 | Bugeot-guk                 | 67,238 | 0.052 | Stir-fried potatoes          | 27,380 | 0.088 | Braised chicken            | 40,606 | 0.085 |
| 29 | Grape                      | 66,746 | 0.051 | Ketchup                      | 27,245 | 0.088 | Spaghetti                  | 40,527 | 0.085 |
| 30 | Pork back-bone stew        | 65,574 | 0.051 | Banana                       | 27,049 | 0.087 | Cabbage soybean paste soup | 39,665 | 0.083 |
| 31 | Yogurt                     | 65,108 | 0.050 | Japchae                      | 26,664 | 0.086 | Bulgogi                    | 39,592 | 0.083 |
| 32 | Spaghetti                  | 64,279 | 0.050 | Melon                        | 26,181 | 0.084 | Rolled omelet              | 39,440 | 0.083 |
| 33 | Green onion egg soup       | 62,717 | 0.048 | Soft bean curd stew          | 26,116 | 0.084 | Cherry tomato              | 39,049 | 0.082 |
| 34 | Braised chicken            | 60,219 | 0.046 | Watermelon                   | 26,040 | 0.084 | Bean sprout soup           | 39,020 | 0.082 |
| 35 | Geundae-doengjangguk       | 59,804 | 0.046 | Beef and radish soup         | 25,315 | 0.081 | Stir-fried dried anchovies | 38,836 | 0.082 |
| 36 | Lettuce wraps              | 56,794 | 0.044 | Lettuce wraps                | 25,046 | 0.081 | Soft bean curd stew        | 38,541 | 0.081 |
| 37 | Soft bean curd stew        | 55,284 | 0.043 | Cabbage soybean paste soup   | 25,013 | 0.080 | Beef and radish soup       | 37,750 | 0.079 |
| 38 | Cabbage soybean paste soup | 54,643 | 0.042 | Fruit salad                  | 24,563 | 0.079 | Auk-doengjangguk           | 36,486 | 0.077 |
| 39 | Korean melon               | 54,491 | 0.042 | Geundae-doengjangguk         | 24,339 | 0.078 | Pork back-bone stew        | 36,309 | 0.076 |
| 40 | Pork cutlet                | 53,690 | 0.041 | Ssammu                       | 23,951 | 0.077 | Lettuce wraps              | 36,071 | 0.076 |
| 41 | Soybean paste stew         | 52,311 | 0.040 | Steamed eggs                 | 23,858 | 0.077 | Yukgaejang                 | 35,770 | 0.075 |

|    |                   |        |       |                             |        |       |                             |        |       |
|----|-------------------|--------|-------|-----------------------------|--------|-------|-----------------------------|--------|-------|
| 42 | Braised pork rib  | 51,903 | 0.040 | Kiwi                        | 23,799 | 0.077 | Tteok-guk                   | 34,945 | 0.074 |
| 43 | Tteok-guk         | 50,934 | 0.039 | Rolled omelet               | 23,098 | 0.074 | Scorched rice soup          | 34,901 | 0.073 |
| 44 | Dotorimung-muchim | 50,618 | 0.039 | Stir-fried kimchi           | 23,020 | 0.074 | Fresh fruit ade             | 34,867 | 0.073 |
| 45 | Bean sprout soup  | 50,545 | 0.039 | Soybean paste stew          | 22,980 | 0.074 | Tuna and kimchi stew        | 34,688 | 0.073 |
| 46 | Pork bulgogi      | 50,339 | 0.039 | Orange                      | 22,941 | 0.074 | Ssammu                      | 34,409 | 0.072 |
| 47 | Steamed eggs      | 49,438 | 0.038 | Bean sprout soup            | 22,917 | 0.074 | Sujebi-guk                  | 34,242 | 0.072 |
| 48 | Sujebi-guk        | 48,950 | 0.038 | Kimchi and bean sprout soup | 22,720 | 0.073 | Kimchi and bean sprout soup | 34,081 | 0.072 |
| 49 | Rolled omelet     | 48,907 | 0.038 | Dotorimung-muchim           | 22,522 | 0.072 | Pickled Radish Salad        | 33,623 | 0.071 |
| 50 | Tangsuyuk         | 47,177 | 0.036 | Strawberry                  | 22,031 | 0.071 | Soybean paste stew          | 33,468 | 0.070 |

TF-IDF, Term Frequency-Inverse Document Frequency. Only frequencies of top 50 are listed.