Appendix A:
Supplementary Poverty Measure
“SPM is a more complex statistic incorporating additional items such as tax payments and work expenses in its family resource estimates on basic necessities (food, shelter, clothing and utilities) and will be adjusted for geographic differences in the cost of housing. The new measure will serve as an additional indicator of economic well-being and will provide a deeper understanding of economic conditions and policy effects”

– US Censure Bureau
Supplementary Poverty Measure (SPM)

It was originally created to supplement the official poverty line in the USA because of the many problems associated with it.

Thus, we have decided to apply the SPM to the Singaporean context in order to have a better economic measure of poverty.
<table>
<thead>
<tr>
<th>Measurement Units</th>
<th>All related individuals who live at the same address, (SPM Resource Units)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Poverty Thresholds</strong></td>
<td>The <em>21st to 40th percentile of expenditures</em> on food, clothing, housing, and utilities (FCHU)</td>
</tr>
<tr>
<td><strong>Threshold Adjustments</strong></td>
<td><strong>Geographic adjustments</strong> for differences in housing costs</td>
</tr>
<tr>
<td><strong>Updating Thresholds</strong></td>
<td><strong>Five year moving average</strong> of expenditures on FCHU</td>
</tr>
<tr>
<td><strong>Resource Measure</strong></td>
<td>Sum of cash income, plus in-kind benefits that families can use to meet their FCHU needs, minus taxes and other out-of-pocket expenses</td>
</tr>
</tbody>
</table>
Measurement of Poverty

The measurement of poverty involves two main components:

1. A budget or threshold below which people are considered poor
2. An estimate of resources available to people to compare with the threshold

It is important that they are defined in a consistent manner so that they can be analysed and statistically defendable
Data Sources

- Household Expenditure Report
- Key Household Trends Report by Department of Statistics
- Comcare Annual Report
Poverty Thresholds

• There are two main types of poverty thresholds discussed in academic literature: **Absolute and Relative**

• Both have their individual strengths and weaknesses.

• Therefore, the SPM employs a hybrid approach that **leverages the strengths of both** while **reducing the drawbacks of using them individually.** (Citro and Michaels, 1995)
Absolute Poverty Thresholds

• Fixed at a point in time
• Updated only for price changes
• Generally developed by “experts” with reference to basic needs (e.g. food) with reference to budget elements
• Based on notion of minimum standards go physical needs
Relative Poverty Thresholds

- Updated regularly for changes in real consumption
- Developed with reference to actual expenditures of the population
Criticism of Poverty Thresholds

- Often **criticised for being subjective** rather than reflecting an objective standard of economic deprivation

- Criticised for not providing a stable target to measure the effects of government efforts

- **Both not differ much in practice** because both thresholds have similar problems with subjectivity and relativity
Reducing Drawbacks

• Applying a multiplier reduces the number of specific decisions that must be made.

• However, it introduces new problems because there is no precise method of obtaining a multiplier.

• Thus, it is necessary to examine expenditures as a reference point to reduce the problems associated with independent determination.
Poverty Thresholds in SPM

• Represent a dollar amount spent on a basic set of goods

• Includes food, clothing, housing and utilities (FCHU)

• A multiplier is added to account for additional costs outside of the basic bundle.

• Calculated with five years of expenditure data for families with exactly two children using consumer expenditure data
- Food* (f)
- Clothing* (c)
- Utilities* (u)
- Housing* (h)
- Multiplier (m)

*Pegged at expenditure of 21st to 40th quintile according to HES 2012/2013

- No. of people in household (n)
- Disposable Income (i)
- Gov. Subsidies (s)
- Child Care Expenses (v)
- Work-related Expenses (w)
- Medical Out-of-Pocket Expenses (k)
- CPF (q)
- Tax payment (t)

---

**SPM Equation**

Let $x$ represent family resources

Let $y$ represent poverty threshold

$$SPM = x - y$$

$$x = i + s - v - w - k - q - t$$

$$y = m(h + nc + nf + u)$$

If $SPM < 0$, household is deemed to be in poverty
Basic Bundle (FCHU) for a 4-person Household

Average expenditure on basic bundle (FCHU) in the 21st to 40th income quintile / dollars

<table>
<thead>
<tr>
<th></th>
<th>Food</th>
<th>Clothing</th>
<th>Housing</th>
<th>Utilities</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Value</td>
<td>457.6</td>
<td>105.6</td>
<td>238.0</td>
<td>240.7</td>
<td>1041.9</td>
</tr>
</tbody>
</table>

Source: HES Report 2012/2013
Applying Multipliers

- A multiplier is applied to the calculation to account for additional expenses such as investments in human capital which are necessary for minimum social mobility.
Applying Multipliers

Additional expenditure outside of the basic bundle
at the 21st to 40th quintile/ dollars

<table>
<thead>
<tr>
<th></th>
<th>Health</th>
<th>Education</th>
<th>Transport</th>
<th>Household Maintenance</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>216.4</td>
<td>221.6</td>
<td>513.6</td>
<td>174.8</td>
<td>1126.4</td>
</tr>
</tbody>
</table>

Source: HES Report 2012/2013
Applying Multipliers

The multiplier is calculated as shown:

\[(1041.9 + 1126.4) ÷ 1041.9 = 2.08\]

Therefore, a value between 2.05 to 2.10 is concluded to be a suitable multiplier of use in the calculation of the poverty threshold.
Poverty Threshold for 4-person Household

$$2.10 \times 1041.9 = 2187.9$$

$$\approx \text{SGD2,190/month}$$
Defining Family Resources

- Defined as the value of disposable money or near-money income from all sources
- Includes the value of in-kind benefits that are available to buy the basic bundle of goods (FCHU)
- Deducts out-of-pocket expenses
- Deducts taxes
## Resource Estimates

**SPM Resources = Money Income From All Sources**

<table>
<thead>
<tr>
<th>Add</th>
<th>Deduct</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Disposable Income</td>
<td>• Child Care Expenses</td>
</tr>
<tr>
<td>• Government Subsidies (e.g. Workfare Income Scheme, Comcare, Edusave)</td>
<td>• Work-related Expenses</td>
</tr>
<tr>
<td></td>
<td>• Medical Out-of-Pocket Expenses</td>
</tr>
<tr>
<td></td>
<td>• CPF</td>
</tr>
<tr>
<td></td>
<td>• Tax payment</td>
</tr>
</tbody>
</table>
Sample Calculation of Family Resources for 4-member household

Total Gross Income
(Father: $3000, Mother: $2000) SGD 5,000/month

Government Subsidies SGD 800

Child Care Expenses SGD 1,500

Work-related Expenses SGD 900

Out-of-Pocket Medical Expenses SGD 170

*Inclusive of dental

Taxes: Father: 200 + 3.5% x 6000 = $410 SGD 490
       Mother: 2% x 4000 = $80

CPF Contributions: Father: $600 SGD 1,000
                 Mother: $400
Sample Calculation of Family Resources for 4-member household

SPM = (family resources) – (poverty threshold)

= \( x - y \)

\[ x = 5,000 + 800 - 1,500 - 900 - 170 - 490 - 1,000 \]

= \$1,740

\[ y = \$2,190 \text{ (calculated previously)} \]

\[ SPM = \$1,560 - \$2,190 \]

= \(-\$630\)

Since SPM < 0, household is in economic poverty
A note before we continue...

• The final decision as to **where the line is exactly is a political judgement that is not within our capacity to define**.

• The value that we offer is not intended to be in any way, precise or exact. **It is an approximation and a range is expected**.

• Finally, **it is not expected to be used to determine eligibility for assistance schemes but rather to offer a more nuanced and comprehensive gauge of poverty rates**
Advantages of using SPM

- Provides a fair and statistically defendable value (Each step in the calculation process is explained comprehensively with clear indication of data sources)

- Establishes transparent and multi-dimensional measurement that extends beyond the extreme poor.

- Additional factors can be added into the equation if deemed necessary

- Can be calculated accurately year on year to account for yearly changes in expenditure due to inflation and other factors.