Development of the Macao Ageing Index: a response to the United Nations Economic and Social Commission for Asia and the Pacific

ORIGINAL ARTICLE

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BACKGROUND

In response to United Nations Economic and Social Commission for Asia and the Pacific (UNESCAP) call for policies to be enacted with reference to the Shanghai Implementation Strategy (SIS) developed to echo the Madrid International Plan of Action on Ageing, the Social Service Bureau of the Macao SAR government commissioned the Asia-Pacific Institute of Ageing Studies, Lingnan University, Hong Kong to develop an 'Ageing Index' as both a comprehensive indicator of policy implementation and a validated instrument for appraisal of life and service quality by end-users.

METHODOLOGY

The Macao Ageing Index consists of 2 sets of indicators that measure policy implementation and service performance. The Policy Implementation Index (PII) is developed from the 'instrumental indicators', as detailed in UNESCAP background paper in 2004.[1] The Ageing Service Index (ASI) is developed from the 'outcome indicators', as detailed in the same paper.[1] The SIS comprises 16 action areas under 4 priority areas (**Table 1**).

The PII is organised in a checklist of 88 items under 16 action areas (**Table 2**). The checklist is based on the UNESCAP 2005 survey for member countries' responses to the SIS, which is a standard for evaluating policy implementation in response to UNESCAP directives.

The procedures for development of the PII were:

1. Using the UNESCAP 2005 survey as a base, items related to national policies were extracted. 36 main questions and 119 sub-questions in English were selected and translated to 88 items in Chinese. The Chinese version was then passed on to senior officers for addition or deletion of items (and cross-checked by an independent consultant, Dr Edward Leung), and was finally approved by the chief investigator (Prof Alfred CM Chan), who was also a UNESCAP expert involved in the development of the SIS.

2. Items for demographics and relevant information about different departments were added (e.g. amount of old age grants, types of health services), so as to produce a full profile of all services provided for the older persons by the Macao SAR Government.

3. The final version had 88 questions under 16 action areas.

A checklist of 88 items with yes/no answers to "Has your department/unit such a provision?" was formed for department/unit self-evaluation. Department chiefs would rate their work against each instrumental indicator and award 1 for yes and 0 for no. Evidence or example for such a provision was required to attest any positive responses. The accumulated score as a percentage of the total score of 88 items formed the first set of results of the Macao Ageing Index (i.e. those pertaining to the PII). They indicated the proportion of policy domains being achieved. Apart from being indicative of what a government has done for its ageing policies, the PII served to echo directly with the UNESCAP member governments' implementation protocols for actions on ageing,

Table 1
The 16 action areas (AA) under the 4 priority areas (PA) of the Shanghai Implementation Strategy

Shanghai Implementation Strategy
PA-I: Ageing & development
AA-1: Challenges & mainstreaming ageing
AA-2: Protection & security
AA-3: Alleviation of poverty
AA-4: Older persons and emergencies
AA-5: Positive attitudes toward ageing
AA-6: Employability & workability
AA-7: Gender specific issues: concerns of older women
PA-II: Health & well-being
AA-8: Quality of life at all ages
AA-9: Quality health & long-term care
PA-III: Enabling supportive environments
AA-10: Older persons & the families
AA-11: Social services & community support
AA-12: Housing & living environment
AA-13: Care and support to caregivers
AA-14: Protection of the rights of older persons
PA-IV: Implementation & monitoring (national capacity)
AA-15: National mechanisms
AA-16: Regional & international cooperation

Table 2
Policy Implementation Index

Action area	No. of indicator
Active participation of older persons	4
Productive ageing	5
Older persons and the family	7
Older persons and the market security	3
Social protection/social security	3
Poverty and old age	7
Social services and the community support	6
Health and nutrition	9
Access to health care services	4
Older persons and HIV/AIDS	5
Disability and mental health needs	6
Housing and living environment	6
Care and support for care-givers	7
Neglect, abuse and violence	4
Regional mechanism on ageing	6
Regional and international cooperation	5
Total	88

as it included all the priority and action areas prescribed by the SIS. Member governments like Macao could fill in the UNESCAP survey by simply extracting relevant results from the PII.

According to the UNESCAP 'bottom-up appraisal' involving the service users, the ASI was an outcome indicator reflecting the quality of services (and hence the efficiency and effectiveness of policies) rated by service users. The ASI was organised in the form of a questionnaire with 156 items under 6 core domains (**Table 3**). Adhering to the objective for public policies to enhance older persons' quality of life, the research team selected the World Health Organization measurement of Quality of Life Scale for Older Adults (WHOQoL-OLD) as the blueprint for the development of the ASI.

The procedures for the development of the ASI were:

1. A questionnaire was constructed to include 6 domains (i.e. general living, health, ageing services, social security, employment and training services, and personal finance) in an attempt to harmonise WHOQOL-OLD domains (i.e. physical health, psychological health, social interaction, environmental, spiritual and financial aspects) into the PII, as the ASI was meant to be a 'bottom-up appraisal' of the PII.

2. The questionnaire was then modified by all-grade officers in the Social Services Bureau (and cross-checked by the independent consultant, Dr Edward Leung). The first draft was accepted without much alteration.

3. A sample survey was carried out resulting in 519 successful interviews. Among these, 65% of the respondents were female and 35% male, with an average age of 77 years. Regarding their level of education, 83% had attained only primary education or below. Regarding work status, 85% were retirees, 7% were homemakers, 3% were working full time, 2% were in part time jobs, and 1% were unemployed. Regarding marital status, 51% were widowed, 34% were married, 12% were single, and the remaining 3% were either separated or divorced. Regarding living arrangement, 41% lived alone, 18% with a spouse, 16% with their children, 6% with their spouse and their children, 2% with relatives or friends, and 15% in elderly homes.

4. Respondents rated the items on a Likert scale from 0 to 5 (0=most dissatisfied, 5=most satisfied) to establish reliabilities and validity of the full scale (index) and its domains. Validities were established by using Pearson *r* correlation between individual item and scale or domain total scores, and between domain and scale total scores (**Table 4**).

5. The ASI was further attested for feedback by a focus group consisting of service users from various elderly services. A bottom-up methodology was advocated by UNESCAP to cross check and validate the initial result of the ASI (i.e. whether the item and total scores matched with what they would have rated).

6. Survey results and focus group checks showed a good match. Reliabilities and validities from the sample survey were acceptable, noting that the instrument was still to be refined with more varied and representative samples. A validated instrument consisting 156 items for 6 core domains for collecting user feedback was ready for use. The accumulated score as a percentage of total score formed the second set of results for the Macao Ageing Index (i.e. the ASI).

RESULTS

The items of PII had almost 100% agreement according to the consulting team's ratings (i.e. face validity), after verified by policy bureaus and piloted with the Social Services. Bureau Three items required further clarifications and were agreed upon after appropriate discussion. The ASI (68 appraised items) battery had an overall reliability of 0.7; the reliability of the domains ranged from 0.4 to 0.7 (general living=0.4, health=0.6, ageing services=0.5, social security=0.7, employment & training services=0.7, personal finance=0.7) [**Table 4**]. All 6 domains were significantly correlated with the ASI composite score, with the weakest being health (including the subjective appraisals on physical and mental health, habits and ability for daily living and social ability) and the strongest being personal finance (subjective appraisals on their income and

Table 3
Ageing Service Index

Domain	Facets and its corresponding items	
1. General living* (α=0.4)	1.1	Living condition
		Corresponding objective item(s): 12, 13, 14, 15, 16
		Corresponding subjective item(s): 17, 18, 19, 20
	1.2	Elder learning
		Corresponding objective item(s): 21, 25
		Corresponding subjective item(s): 22, 23, 24
2. Health (α=0.6)	2.1	Physical health
		Corresponding objective item(s): 30
		Corresponding subjective item(s): 27, 28R, 29R
	2.2	Mental health
		Corresponding subjective item(s): 32, 35, 36, 37, 38, 39
	2.3	Habits and activities of daily living
		Corresponding objective item(s): 40, 41, 42, 43, 44, 45
		Corresponding subjective item(s): 46, 47R, 48R, 49R
	2.4	Participation of social and interpersonal activities
		Corresponding objective item(s): 65, 66
		Corresponding subjective item(s): 50, 51, 52, 53, 55, 56, 57, 58, 59, 60, 61R, 62R, 63R, 64R
3. Ageing services (α=0.5)	3.1	Access to ageing services information
		Corresponding objective item(s): 67, 68
	3.2	Elderly homes services
		Corresponding subjective item(s): 71, 72, 73, 74, 75, 76, 77, 78, 79, 80, 81
	3.3	Community support services
		Corresponding objective item(s): 82, 83, 84, 85
	3.4	Home care services
		Corresponding objective item(s): 86, 87, 88, 89, 90, 94, 95, 100, 101, 102, 103, 104, 105
		Corresponding subjective item(s): 91, 92, 93, 96R, 97R, 98R, 99R
	3.5	Services and protections for abused and neglected elders
		Corresponding objective item(s): 106, 107, 108
		Corresponding subjective item(s): 109, 110, 111
4. Social security (α=0.7)	4.1	Social welfare
		Corresponding objective item(s): 113, 114, 115, 116, 117, 118, 119, 122, 123
		Corresponding subjective item(s): 120, 121, 124
	4.2	Health services
		Corresponding subjective item(s): 125, 126, 127, 128, 129, 130, 131, 132
		Corresponding subjective item(s): 133, 134, 135, 136, 137
	4.3	Community and family support
		Corresponding objective item(s): 139, 140
		Corresponding subjective item(s): 141, 142, 143
5. Employment and training services†	5.1	Employment and training
		Corresponding objective item(s): 144, 146, 147, 148, 149
		Corresponding subjective item(s): 145
6. Personal finance†	6.1	Income and expenditure
		Corresponding objective item(s): 150, 151, 153, 154, 155, 156
		Corresponding subjective item(s): 152

* Socio-demographic status contains objective figures (e.g. population demographics, employment statistics and finance) from current official records. Reliability is thus only relevant to those tapping on subjective appraisals. For items that are included in reliability test, please refer to the corresponding subjective item(s)

† Only one item in the domain, thus reliabilities are not computed separately. In any case the objective data (e.g. census median income) may be a more objective indicator to show adequacy. The 2 items are included to complete the subjective appraisal of a fuller aspect of life quality

expenditure) [**Table 5**]. Based on these results, it was concluded to be a validated instrument, consisting of 156 items for 6 core service domains on which to collect user feedback. The composite index of the PII/ASI was 77/71.3 (**Table 6**), indicating that Macao has done quite well both in policy implementation and in matching user feedback.

Putting the 2 indices side by side can highlight the discrepancies, if any, between policy implementation and service performance evaluated by the users. Different combinations and interpretations may be possible. High PII/high (or higher) ASI matching: the most ideal outcome, as both policy makers and users are viewing things eye-to-eye. In which government is doing things to meet user needs. Higher PII/high ASI discrepancy: policy directives and services are on the right track but indicate a mismatch between policy areas that could be improved to satisfy users better. In such a case, policy makers may need to get into the items causing the discrepancy (i.e. item analysis) and take corresponding actions. High PII/low ASI discrepancy: policy makers think they have achieved a fair amount, but users give a low rating. This also calls for detailed item-analysis. Low PII/low (or lower) ASI matching: both policy makers and users want improvements. Again, policy makers need to get into those items causing discrepancy and take necessary action. Low PII/high ASI discrepancy: when users are less demanding or have low expectations on social provisions, the users are satisfied with what they have when compared to previously lower living standards. In reality, new immigrants or older persons are likely to be such users as they do not expect or demand a lot from government. However, policy makers may also think that there are areas they could have covered but have not. For example, for universal design facilities for older persons in tourist sites (toilets, seats, etc), users rated good but tourists considered that there was a lot to be improved.

Table 4
Full scale (index) and domain reliability

Domain	Reliability	No. of cases	No. of items
General living	0.444	519	7
Health	0.614	519	27
Ageing services	0.536	519	21
Social security	0.652	519	11
Employment & training	0.705*	519	1
Personal finance	0.695*	519	1
Full scale	**0.7046**	**519**	**68**

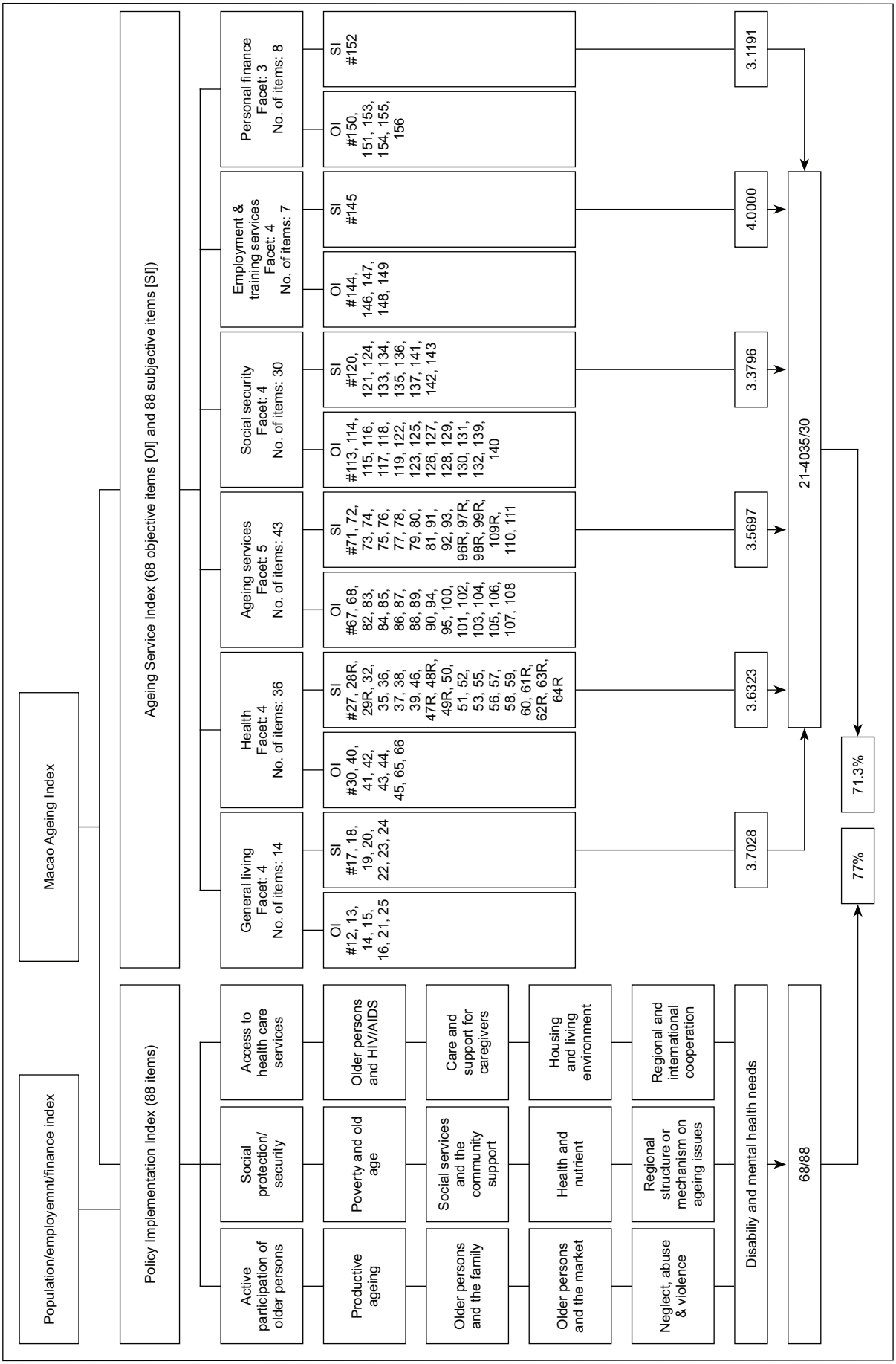
* Only one item in the domain; its reliability is ascertained to the alpha if item deleted

Table 5
Correlations (Pearson *r*) between composite Ageing Services Index (ASI) and domains

Domain	Composite ASI	General living	Health	Ageing services	Social security	Employment & training	Personal finance
Composite ASI	–						
General living	0.676†	–					
Health	0.400†	0.150†	–				
Ageing services	0.549†	0.312†	0.128†	–			
Social security	0.607†	0.361†	0.028	0.230†	–		
Employment & training	0.228	0.054	-0.158	0.577*	-0.400	–	
Personal finance	0.693†	0.236†	0.172†	0.056	0.229†	0.190	–

* $p<0.05$
† $p<0.01$

Table 6
Macao Ageing Index



CONCLUSION

With both indices attested by acceptable psychometric properties, the full Macao Ageing Index has 2 core components (PII and ASI). The discrepancy between the 2 scores (in % terms) may alert policy makers to probe further into individual items for the source of any discrepancy, and thus take sensitive policy actions to achieve improvements. The indices are themselves benchmarks for service performance for internal (within country or district) and external (compared to other governments in the region) uses. Nonetheless, further refinements are needed as more normative data become available.

ACKNOWLEDGEMENTS

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REFERENCE

1. United Nations Economic and Social Commission for Asia and the Pacific. Thematic background paper: Macao 2004 guidelines for the review and appraisal of the shanghai plan of action on ageing – protocol adopted in the Regional Seminar on Follow-up to the Shanghai Implementation Strategy for the Madrid and Macao Plans of Action on Ageing on 18-21 October 2004, Macao, China. ESCAP No. ESID/PSIS/AGEING/1. 18 October 2004/10/2.