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Multiple Family SES Indices: Variations between Middle Class and Lower Social Class Undergraduate Samples

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1 Introduction

1.1 Social work and the middle class

Social work programs and services for youth target diverse outcomes such as addressing protective and risk factors associated with alcohol and drug use (Hawkins et al. 1992), preventing school failure through provisions of social support (Richman et al. 1998), and fostering self-determination and social commitment among youth (Catalano et al. 2004). Given various detrimental effects of poverty on youth and their families (American Psychological Association Task Force on Socioeconomic Status 2007; Moore 2005), it is important for these programs and services to be widely available to socioeconomically disadvantaged youth (Haig 2014).

Certainly, not all aspects of youth's development are compromised by low family socioeconomic status (SES; e.g., Vyverman and Vetternburg 2009). Many studies have shown, however, that low family SES elevates the risk posed by individual, familial, and environmental factors for youth disorders (Fraser et al. 1999). These studies necessarily would include a measure of family SES, whether the study's coverage is poor youth or youth from a wider range of family SES. In the case of the latter, data about youth coming from middle low and upper low social classes (not necessarily poor) and from the middle class can be included to serve as baseline or comparative data. Yet, studies can also examine youth with higher family SES for the disadvantages that they themselves are experiencing.

The recent recessions and rising unemployment in several countries (Pressman 2007) have led to a sizeable sector of the middle class being incorporated in the lower social classes (the "missing middle") and, thus, being now regarded as the "new poor" (Iversen et al. 2011). The youth have not been spared from the consequences of their families' economic difficulties. Even as middle-class families are able to strategically manage their financial downfall, they are unable to secure the capital needed for their and their children's future financial security (Iversen et al. 2001). The possible increasing inclusion of middle-class youth in social work and financial assistance programs (e.g., Dynarski 2000), as well as the needed research for examining the consequences of financial difficulties even among better-off youth, warrants a nuanced socioeconomic profiling of this sector.

1.2 Multiple indicators and indices of family SES

The conventional SES indicators of educational attainment, income, and occupational prestige (Diemer et al. 2012; Shahabudin and Low 2013) have been shown to be correlates of youth well-being and development. Low parental educational attainment and low household income, for instance, are associated with high adolescent perceived stress (Glasscock et al.

2013). Family stress induced by low income also has detrimental effects on children's learning (Haig 2014). Employment, household income, and educational background are predictors of literacy development (D'Angiulli et al. 2004).

Yet, other authors would argue that education, income, and occupational prestige are limited SES indicators. For one, financial and material wealth come not only from income, but also from savings, investments, extra income, and the like; for another, debts and liabilities reduce wealth (Shanks 2007). Income should also be calibrated vis-à-vis expenditure as, for example, when measuring income inequality (Deininger and Squire 1996). Consumption patterns are likely to be useful SES indicators, specially in developing countries such as China and India where a larger and consumer-oriented middle class is borne out of economic development (Kharas 2010). Indicators that also suggest consumption (or the lack of it) are housing structures and amenities (National Statistics Office 2010, 2012) and various forms of deprivation (e.g., food, health, consumer durables, access to information, leisure activities; Qi and Wu 2013). Other SES indicators that have been used and studied are subjective social status or self-rated poverty (Diemer et al. 2012; Mangahas 1995) and recent experiences of economic hardship (Scharoun-Lee et al. 2009).

The abovementioned alternative indicators have also been shown to be correlates of youth well-being and development. Over and above what objective SES indicators predict, health is predicted by financial assets (Robert 1998; Robert and House 1996) and subjective social status (Jeon et al. 2013); subjective social status also better predicts postpartum smoking among young women (Reitzel et al. 2007). A better predictor of high school students' stressors than the conventional SES measures is material capital (i.e., daily pocket money, reading materials and computer at home) along with social and human capital (Shahabudin and Low 2013). Children's reports of what items they lack and want (e.g., pocket money, electronic gadgets, access to car, family holiday) predict subjective well-being better than does parental income poverty (Main and Bradshaw 2012).

If multiple family SES indices are in place, it is possible to determine which type of socioecomic adequacy contributes to youth development or, likewise, which socioeconomic deprivation detracts from these. On a practical aspect, the availability of various family SES indices would contribute to a comprehensive and accurate profiling of prospective program beneficiaries. Moreover, if a program's target outcome is known to be at risk given a particular socioeconomic deprivation, then, including this deprivation index in the participant selection criteria would ensure that those who need the program most get to be selected as beneficiaries. The construction of multiple family SES indices thus becomes a critical methodological issue in social work research.

1.3 Construction of family SES indices from youth's self-reports

The negative effects of low SES on youth development and well-being indicate the importance of monitoring family SES among youth beneficiaries of social work programs even as these programs target outcomes other than poverty alleviation. As informants of their family SES, however, the youth do not know all the intricacies of their families' finances, so only questions about information they know would be useful. Thus, for example, the family affluence scale for children (Levin et al. 2007) have only four questions: whether the family owns a car, van, or truck; whether the respondent has a bedroom for himself or herself; how many times they travelled on family holiday in the past 12 months; and, how many computers their family owns.

Arguably, more questions can be asked from youth as they are likely to be more aware of their family's situation and are more capable of answering longer surveys. In the same way that the family affluence scale, as a scale for children, was constructed differently from standard SES surveys for adults, youth scales may still have to be made distinct from adult scales. It has in fact been acknowledged that the appropriate measurement of SES with adolescent respondents still has to be fully addressed (Wardle et al. 2002).

1.4 The Philippines as the context for measuring family SES

The Philippines is a developing country with high poverty incidence and marked income inequality (Romulo 2014; Sicat 2014). Thus, social work programs frequently target people's empowerment against poverty (e.g., women and youth capacity-building; Tibon et al. 2015) and poverty research continues to focus on the socioeconomic profiles of communities (e.g., Arcilla et al. 2011) and their associations to human development profiles (e.g., Fillone et al. 2011).

In the Philippines, a community-based monitoring system is used to collect household- and community-level data on the different dimensions of poverty: health, nutrition, housing, water and sanitation, basic education, income, employment, and peace and order (Reyes 2002). With periodic, systematic data-gathering in place, poverty reduction programs can be planned around the assessed needs of the community and program effects can be routinely monitored (Reyes et al. 2004). Moreover, the available data can be used to identify individuals or households in need of the program benefits (Reyes 2002).

Periodic poverty monitoring has shown that Filipinos do not all remain at a state of poverty for long but that some experience movements in and out of poverty. Reyes' (2002) poverty study distinguished between the chronically poor and the transient poor, with the latter either having recovered from a financial fallback or having recently experienced one. Those who had not been in a state of poverty was also of interest in this study for how they were able protect themselves in the long term from economic threats.

Certainly, those who have not been in a state of poverty include the middle class. It is not unlikely, however, that the transient poor also includes a portion of the middle-class. The Philippine middle class, after all, is characterized by a large diversity of income and covers not only professional, administrators, and small employers, but also public school teachers and low- and mid-level government employees (Kimura 2003; Rivera 2001). To the extent that the Philippine middle class experiences financial difficulties, then it cannot be excluded from SES monitoring to inform social work and poverty alleviation. The middle class does not only serve as a comparison group to lower classes but is a potential beneficiary of social work programs as well as an object of poverty research.

2 Objectives of the Current Research

In this paper, youth's self-reports were used to construct family SES indices for the following *categories* of SES indicators (a) *assets*, (b) *housing and appliances*, (c) *perceived financial difficulties*, (d) *financially-draining life circumstances*, and (e) *financing*. Indices were constructed for two largely middle-class undergraduate samples and one socioeconomically disadvantaged working-student sample. Consistencies of solutions between the two middle-class samples would show which indicators are stable for the middle class, while consistencies of solutions between the middle class and the lower social class samples would show which indicators are useful for both classes. On the other hand, differences in solutions

between the middle class and the lower social class samples would show which indicators are unique to a social class.

3 Method

This paper used the family sociodemographic and socioeconomic characteristics data set of the Philippine Youth Development research (Phase 1) of the De La Salle University Department of Psychology (2011).

3.1 Participants

Largely middle-class undergraduate samples

Undergraduate sample 1 comprises 155 students from Philippine universities: a state university in Bulacan (40% of participants), a private university in Manila (43%), and another private university in Manila with a smaller student population and charging higher student tuition (17%). Sixty-seven percent of the participants are female. The participants' ages range from 16 to 22 (*mean* = 17.56, *standard deviation* = 1.23). Sixty-five percent of the fathers and 60% of the mothers are college graduates. Eighty-six percent of the fathers and 77% of the mothers are employed.

Undergraduate sample 2 comprises 156 students from the same universities where undergraduate sample 1 was obtained and with the same distributions of participants across universities. Sixty-seven percent of the participants are female. The participants' ages range from 15 through 22 (*mean* = 17.57, *standard deviation* = 1.22). Fifty-eight percent of the fathers and 65% of the mothers are college graduates. Eighty-eight percent of the fathers and 75% of the mothers are employed.

Lower social class working-student sample

This sample comprises 74 working students from the Philippines. Sixty-two percent live in two local government units in Ilocos Norte and 38% are enrolled in the state university in Bulacan from where some participants from undergraduate samples 1 and 2 were obtained. Fifty-four percent of the working-student sample are female. The participants' ages range from 14 to 21 (*mean* = 18.12, *standard deviation* = 1.38). Twenty-three percent of the fathers and 30% of the mothers are college graduates. Seventy-seven percent of the fathers and 69% of the mothers are employed.

At the time of data-gathering, all participants were enrolled in school except for one participant who had not enrolled for a year.

Participants from Ilocos Norte are engaged in office work (35%), farming (22%), sales and service (17%), utility or construction work (7%), nursing care (4%), or a combination of these (15%). On the other hand, all the participants from Bulacan are engaged in office work in the university. Participants indicated that they work to meet the financial needs of their education, of their families, or of both.

3.2 SES indicators

Five categories of indicators were examined and are here labeled as *assets, housing and appliances, perceived financial difficulties, financially-draining life circumstances, and financing*.

The indicators for *assets* are the number of color TVs; CD/VCD/DVD players; radios; computers; air conditioners; cars, vans, and trucks; motorcycles and jeepneys; landline phones; mobile phones; whether the family has cable TV; whether the family has internet connection.[1] While household help are not material assets but persons employed by the family, the number of household help is used as an indicator as the capacity to hire them suggests a relatively high SES.

The indicators for *housing and appliances* are: whether or not the house where the family lives is their own, the lot where it stands is their own, the house is made of durable materials; whether or not the family has running water, access to clean drinking water, and electricity; whether or not the family has their own toilet, a refrigerator, a stove that runs on liquefied petroleum gas, an electric stove, and a washer.[2]

The indicators for *perceived financial difficulties* are how often participants think their family has experienced lack of money in the past month for food, transportation to work or school, school allowance, and school supplies; and, in the past six months for clothes, medicine, tuition/school fees, and payment of utility bills (1: *never* to 5: *very often*).

The indicators for *family-draining life circumstances* are: whether or not in the past 12 months the family has experienced unemployment of a family member, involuntary eviction from residence, and severe or long-term sickness of a family member.

The indicators for *financing* are: whether the family has a bank account, credit card, access to big bank loans, access to big loans from relatives; whether the father is a college graduate, the mother is a college graduate, the father is earning regularly, the mother is earning regularly; the number of siblings who help pay family expenses, the number of relatives or friends who help pay family expenses, and the number of types of informal sources of loans.

3.3 Procedure

After signing informed consent forms, participants completed the SES questionnaire in groups either in their classroom or in a university or local government unit office. The pen-and-paper questionnaire format included both English and Filipino translation, with the Filipino version of each item in italics and typed directly below or beside the English version.

4 Results

The study proceeded in the manner of past studies (Wardle et al. 2002; Vyas & Kumaranayake 2006) that used factor or principal components analysis to establish the factor structure and dimensionality of an index, to remove indicators on the basis of low factor loadings, and to compute factor scores that served as SES indices. In the current research, however, nonlinear principal components analysis (NPCA) was done, because some of the indicators used are at a nominal (qualitative) or ordinal level of measurement.

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[1] Variations of these indicators are included in many surveys. Televisions, CD/VCD/DVD players, computers, air conditioners, motorcycles and jeepneys, and landline phones are included in the 2012 Family Income and Expenditure Survey of the Philippine National Statistics Office. Cars, vans, and trucks appear in the Family Affluence Scale (Currie et al. 2008).

[2] Variations of these indicators are included in many surveys. Own house and clean drinking water are included in the 2002 Annual Poverty Indicators Survey of the Philippine National Statistics Office. Electricity, own toilet, refrigerator, and washer are included in the 2012 Family Income and Expenditure Survey.

The top responses for count data with a frequency of at most 3 were recoded to the next highest response whenever there was a relatively large gap in between these top responses and the next response.

Only respondents who had responses to all indicators, except for one or two indicators, were included as participants in the study.

4.1 Nonlinear principal component analyses of SES indicators

One-dimensional solutions

A one-dimensional NPCA solution was obtained for each SES category and for each sample.

Excluded in the NPCA were indicators having limited variability in the responses, specifically, indicators where at least 90% of the participants have that asset, appliance, or financial capability; or where at least 90% do not have these.

Some indicators were excluded in the NPCAs for the middle class samples, because at least 90% have that resource (e.g., electricity, running water, toilet, access to big loans from relatives). Because of these exclusions, there are many more indicators of *housing and appliances* for the lower social class than for the middle class sample.

Some indicators were excluded in the analyses for the lower social class sample, because at least 90% do not have the resource (e.g., air conditioners, electric stove). Because of these, there are many more indicators of *assets* for the middle class than for the lower social class sample.

The indicators' component loadings and their respective ranks are shown in Tables 1 through 5 (one table per SES category). The Wilcoxon Matched Pair Tests conducted separately on the SES categories did not show significant rank differences between the component loadings of the two middle class samples.

Table 1. Component loadings of indicators for assets

	Middle Class Sample 1		Middle Class Sample 2		Lower Social Class Sample	
	Rank of Loading	Loading	Rank of Loading	Loading	Rank of Loading	Loading
Air conditioners	1	.84	2	.78	--	--
Landline phones	2	.82	8	.57	--	--
Computers	2	.82	6	.65	3	.65
CD/VCD/DVD players	4	.78	6	.65	4	.64
Color TVs	4	.78	3	.71	2	.71
Cars, vans, trucks	6	.76	1	.83	--	--
Househelp	7	.64	4	.69	--	--
Cable TV (with or without)	8	.56	5	.66	--	--
Mobile phones	9	.55	10	.44	5	.59
Radios	10	.51	11	.30	7	.44
Internet (with or without)	10	.51	9	.51	1	.80
Motorcycles, jeepneys	12	.01	12	.09	6	.55

Table 2. Component loadings of indicators for housing and appliances

	Middle Class Sample 1		Middle Class Sample 2		Lower Social Class Sample	
	Rank of Loading	Loading	Rank of Loading	Loading	Rank of Loading	Loading
Own lot	1	.90	1	.92	7	.27
Own house	2	.89	2	.91	8	.16
Has electric stove	3	.38	3	.37	--	--
Electricity	--	--	--	--	1	.72
Has washer	--	--	--	--	1	.72
Running water	--	--	--	--	3	.69
Has gas stove	--	--	--	--	4	.63
Strong house	--	--	--	--	5	.50
Toilet	--	--	--	--	6	.43
Clean drinking water	--	--	--	--	--	--
Has refrigerator	--	--	--	--	--	--

Table 3. Component loadings of indicators for perceived financial difficulties

	Middle Class Sample 1		Middle Class Sample 2		Lower Social Class Sample	
	Rank of Loading	Loading	Rank of Loading	Loading	Rank of Loading	Loading
Transportation	1	.94	1	.94	5	.77
School allowance	2	.92	5	.89	2	.88
Medicine	3	.91	3	.92	8	.72
Food	4	.90	2	.93	3	.87
School supplies	4	.90	3	.92	1	.89
Clothes	6	.84	6	.88	7	.74
Utility bills	7	.83	8	.79	4	.83
School tuition	8	.79	7	.81	6	.76

Table 4. Component loadings of indicators for financially-draining life circumstances

	Middle Class Sample 1		Middle Class Sample 2		Lower Social Class Sample	
	Rank of Loading	Loading	Rank of Loading	Loading	Rank of Loading	Loading
Unemployment	1	.80	1	.81	3	.62
Sickness	2	.79	2	.78	2	.75
Eviction from residence	--	--	--	--	1	.78

Table 5. Component Loadings of Indicators for financing

	Middle Class Sample 1		Middle Class Sample 2		Lower Social Class Sample	
	Rank of Loading	Loading	Rank of Loading	Loading	Rank of Loading	Loading
Bank account (with or without)	1	.61	2	.65	4	.58
Father college graduate	2	.60	4	.58	9	.21
Credit card (with or without)	3	.57	6	.51	3	.60
Mother college graduate	3	.57	1	.78	5	.34
Access to big bank loans	5	.50	4	.58	1	.76
Father earning regularly	6	.42	9	.24	10	.20
Mother earning regularly	10	.22	3	.59	2	.63
Siblings help in finances	9	-.29	10	.05	6	-.26
Relatives, friends help	8	-.35	7	-.42	11	.09
Informal sources of loan	7	-.37	8	-.34	6	-.26
Access to big loans from relatives	--	--	--	--	8	.22

An output of the NPCA is the object score (computed for each participant), which is a composite score of the indicators. Given an adequate NPCA solution, the object score can then serve as the index for the SES category. The indicators that are most highly correlated with the object score are those with the highest component loadings. For the middle class samples, for example, the indicators with high loadings in their respective SES category are the number of air conditioners, owning the lot on which the family house stands, and having a bank account. For the lower social class sample, on the other hand, the indicators with high loadings in their respective SES category are internet connection, electricity, and access to big bank loans.

Two-dimensional solutions

To determine whether an SES category reflects a second dimension, a two-dimensional NPCA was done for each SES category and for each sample. The adequacy of a one-dimensional solution is indicated by low loadings of the indicators on the second dimension (below .30) or, if some indicators load highly on the second dimension (at least .60), they also load highly on the first dimension.

The one-dimensional solution was shown to be adequate for all SES categories except for *housing and appliances* and *financing* categories for the lower social class sample. The two-dimensional solutions for these categories are considered further in the discussion section.

Construction of indices from the final solutions

To reduce the number of indicators for an SES category, final NPCA solutions were obtained that include only the indicators with high loadings (at least .60) in the initial NPCA solutions. These final solutions are one-dimensional except for the two abovementioned categories where the initial two-dimensional solutions were shown to be adequate. In the case of a final two-dimensional solution, indicators with high loadings on one dimension (at least .60) but with moderate loadings on the other dimension (at least .30) also were removed.

The final NPCA solutions all have adequate fit as evidenced by the eigenvalue greater than the reciprocal of the number of indicators.

As earlier mentioned, an output of the NPCA is the object score, computed for each participant, which is a composite score of the indicators. Given the adequacy of the final NPCA solutions, the resulting object scores are here considered as the family SES indices (one index for each SES category and with an index score for each participant). Higher object scores indicate higher family SES for *assets, housing and appliances, and financing*. Higher object scores indicate lower family SES for *financially-draining family circumstances* and *perceived financial difficulties*.

Listed in Table 6 are the indicators' component loadings in the final NPCA solutions. The indicators for the middle class samples are largely similar to each other and markedly differ from the indicators for the lower social class sample.

In the final two-dimensional solution for *housing and appliances* (lower social class sample), possession of a refrigerator and possession of a washer load highly on the first dimension; owning the family house loads highly on the second dimension. In the final two-dimensional solution for *financing*, access to big bank loans and the mother earning regularly load highly on the first dimension; and, the father being a college graduate loads highly on the second dimension.

Table 6. Indicators used in computing indices and the indicators' component loadings from the final NPCA solution

Indicator	Middle Class Sample 1	Middle Class Sample 2	Lower Social Class Sample
Assets			
Computers	.81	.65	.73
Color TVs	.79	.67	.77
Air conditioners	.86	.83	
Cars, vans, trucks	.77	.87	
Househelp	.68	.75	
Landline phones	.83		
Has cable TV		.71	
CD/VCD/DVD players	.79		.69
Has internet			.82
Housing and Appliances			
Own lot	.92	.87	
Has electric stove		.72	
Owns house	.92		.99 (dim 2)
Has refrigerator			.87 (dim 1)
Has washer			.87 (dim 1)

(table continued)

Table 6. (continued)

Indicator	Middle Class Sample 1	Middle Class Sample 2	Lower Social Class Sample
Financially-Draining Life Circumstances			
Unemployment	.79	.78	.62
Sickness	.80	.81	.75
Eviction from residence			.78
Financing			
Has bank account	.75	.83	
Pa college graduate	.76		.99 (dim 2)
Ma college graduate		.83	
Access to big bank loans			.84 (dim 1)
Ma earning regularly			.82 (dim 1)

Note. All indicators for perceived financial difficulties were included in the final list. The component loadings range from .70s to .90s.

4.2 Principal component analyses of SES indices

Shown in Table 7 are the correlations among the SES indices for the three samples. (Correlations involving indices for second dimensions are not included.) All correlation coefficients that are significantly different from zero are in the predicted directions.

Table 7. Correlations among the indices for the middle class and lower social class samples

	Assets	Housing and Appliances	Perceived Financial Difficulties	Financially-Draining Life Circumstances	Financing
Middle Class Samples[a]					
Assets		.31*	-.11	-.24	.46*
Housing	.19*		-.07	-.09	.12
Difficulties	-.09	.06		.38*	-.01
Circumstances	-.13	-.04	.34*		-.19*
Financing	.33*	.05	-.09	-.23*	
Lower Social Class Sample					
Assets					
Housing	.57*				
Difficulties	-.32*	-.38*			
Circumstances	-.23*	-.33*	.48*		
Financing	.40*	.42*	-.48*	-.27*	

[a]The lower diagonal and upper diagonals are the correlation matrices for middle class samples 1 and 2, respectively.

*$p < .05$, two-tailed.

For the two middle class samples, where a correlation is significantly different from zero in one sample, it also is in the other sample; where a correlation is not significantly different

from zero in one sample, it neither is in the other sample. For the lower social class sample, all correlations are significantly different from zero.

For each sample, a principal component analysis was done on the family SES indices to determine whether they form one or two factors. Table 8 shows the factor loadings for the two-dimensional solutions, the eigenvalues for the factors, and the percent of variance explained by each factor.

For the middle class samples, loading highly (.60s and .70s) on the first factor are *assets* and *financing* (positive loads) and *financially-draining life circumstances* (negative load). *Perceived financial difficulties* have the lowest loadings. On the other hand, the second factor is characterized by positive loadings on all indices with *perceived financial difficulties* having the highest loading. The second factor appears to capture the financial difficulties that the youth perceive the family to be experiencing, even when there may be sufficient socioeconomic resources.

For the lower social class sample, all loadings on the first factor are high. *Assets, financing,* and *housing and appliances* have positive loads, whereas *perceived financial difficulties* and *financially-draining life circumstances* have negative loads. It is not useful to retain the second factor as it has an eigenvalue lower than 1 and explains only 18% of the factor variance.

Table 8. Factor loadings of SES indices from two-dimensional solutions of principal components analyses

	Undergraduate Sample 1		Undergraduate Sample 2		Working-Student Sample	
	F1	F2	F1	F2	F1	F2
Possessions	.60	.56	.74	.40	.71	.52
Family Financing	.67	.46	.67	.54	.72	.05
Housing and Appliances[a]	--	--	--	--	.77	.35
Perceived Financial Difficulties	-.58	.62	-.49	.72	-.75	.41
Financially-draining life circumstances	-.69	.41	-.69	.45	-.63	.59
Eigenvalues	1.62	1.07	1.71	1.17	2.56	0.91
Percent of Variance Explained	41%	27%	43%	29%	51%	18%

[a]Because the housing index did not correlate significantly with any of the other indices for the undergraduate samples, it is not included in the principal components analyses for these samples.

5 Discussion

The current paper reports the construction of multiple family SES indices for two largely middle class undergraduate samples and a more socioeconomically disadvantaged working-student sample. Distinct SES dimensions have been shown in literature to predict developmental outcomes and well-being over and above what parental income, educational attainment, and occupational prestige predict and, thus, can be used for more precise targeting of beneficiaries of social work programs and services. While social work beneficiaries are typically from the lower social class, some of those from the middle class are potential beneficiaries, especially in the face of recently experienced financial setbacks. Constructing

SES indices and monitoring SES profiles for the middle class, therefore, would prove informative specially when done in comparison with the lower social class.

5.1 Differences between the SES indices of the lower and middle social classes

The current study has shown differences between the lower and middle social classes in the indicators that load highly on certain SES categories. These differences appear rooted in the adequate standard of living of the middle class and the less adequate standard of living of the lower social class. Thus, different SES indices are needed in discriminating between the less and more socioeconomically disadvantaged within the middle class, within the lower social class, or across the lower and middle social classes. The current research has shown how to compute separate SES indices for each social classes. Computing SES indices for the combined classes would entail parallel procedures.

The indicators included in the final NPCA solutions suggest distinct, particular ways by which the middle and lower social classes experience financial and material scarcity. In the case of the two middle-class samples, a good number of indicators have been removed across all SES categories, except for *perceived financial difficulties* where all indicators from food to school tuition have been retained. Interestingly, the category *perceived financial difficulties* is not correlated with the other SES categories, except with *financially-draining life circumstances*; this suggests that, for the middle class, *perceived financial difficulties* were a result of some recent financial setbacks. Moreover, *perceived financial difficulties* was the highest-loader in the second factor underlying the SES categories, suggesting that the perception of socioeconomic disadvantage is distinct from its more objective indicators (the first factor). How and why relatively more financially and materially endowed middle-class youth experience financial difficulties deserves closer scrutiny both in terms of the objective realities that brought about that experience as well as the subjective assessment of one's financial difficulties.

What is of interest in the case of the lower social class sample is the significant medium to large correlations across all SES categories that, as noted above, were not present in the middle-class samples. The correlated multiple SES indices suggest a less confined, more pervasive experience of poverty. Indeed, while the family SES indices have two underlying factors for the middle-class samples, they form only one factor for the working-student sample.

The more nuanced experience of poverty of the lower social class, as compared to the middle class, is also evident in the two-dimensional solutions for *housing and appliance* and for *financing*. It is not clear from the data, however, why having a refrigerator and a washer form a dimension separate from owning a house, and why access to big bank loans and the mother earning regularly form a dimension separate from the father being a college graduate. It is possible that the two dimensions constitute two tiers with which to distinguish the more from the less socioeconomically disadvantaged. For example, lower social class youth can be distinguished first in terms of their family's possession of the more readily acquired refrigerator and washer (first dimension) and then the youth with a similar profile on this dimension can then be distinguished in terms of the less easily acquired family home. Replicating the NPCA analyses with another sample is, of course, warranted before further examining the hypothesized two-tiered SES indices.

5.2 Periodic SES and poverty monitoring

The current study demonstrates how component loadings serve as bases for reducing the indicators that form a family SES index. Such reduction is necessary as gathering data on more than the necessary indicators would make periodic SES and poverty monitoring cumbersome. It will be to the advantage of social work programs to maintain a database of family SES indices of both target and actual beneficiaries and to analyze the indices' currency and usability.

One consideration in SES and poverty monitoring is determining the SES index most associated with the target program outcome. For example, in places where the majority of the population has access to education, family educational background, more than economic factors, explains children's educational activities, such as participation in cultural exchange programs (The European Commission Directorate General for Education and Culture 2000). In this context, an education-focused program therefore would do well to use an education-based rather than an economic-based index.

Because the relevant SES index may vary across program purposes, having a comprehensive database would be beneficial specially for comprehensive, large-scale social work initiatives. In such initiatives, it would help to identify subpopulations of target beneficiaries, profiling them along SES indices and target program outcomes. These data are helpful not only in selecting program beneficiaries but also in determining the subpopulation of beneficiaries that benefitted the most from the program.

5.3 Refinements in family SES indices

The current study has developed family SES indices by reducing indicators, examining the factors underlying an SES category, and comparing the indices of two largely middle-class undergraduate samples and one more socioeconomically disadvantaged working-student sample. The continued development of SES indices may proceed in various ways, as detailed below.

First, with multiple SES indices, it is possible to choose the index that can be easily subjected to international standardization, a procedure necessary for cross-country comparisons given country differences in SES indicators (Tolonen et al. 2002). SES indices may also have to be changed across time as consumption patterns and lifestyles change (Currie et al. 2008).

Second, it is important to document any idiosyncratic characteristics of SES indicators. For example, housing tenure and access to motor vehicles, although important, may not be permanent (Kolenikov & Angeles 2004), or ownership of assets does not capture the quality of the assets (Vyas & Kumaranayake 2006). The extent to which these idiosyncratic characteristics limit the stability or accuracy of the SES index is important to examine.

Third, there lies the question of identifying a cutting point between the beneficiaries and non-beneficiaries of programs and services. It is anticipated that the way cutting points splice the population into two varies across indices, such that some youth may be classified as beneficiaries under some indicators and as non-beneficiaries in some other indicators. The so-called dominance approach in multidimensional poverty measurement points towards examining combinations of poverty lines (Gravel 2010); this can be analogously applied when setting cutting points for purposes of selecting program beneficiaries.

Fourth, there remain nonmonetary resources for family economic well-being, such as access to education, health care, and informational resources. Population-specific indicators of these resources can also be analyzed using NPCA. The resulting indices can inform social work programming in that they point towards accessible nonmaterial resources for poverty alleviation.

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