Well-being dynamics among poor children and young people in Taiwan: Capability approach-based investigation

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ABSTRACT

In this paper, the well-being dynamics of Taiwanese poor children are analyzed by utilizing the 'Taiwanese Panel Data of Poor Children and Young People'. Guided by the capability approach, children could be deprived in terms of the interplay of functionings and capabilities. Our findings show that capability deprivation affect more poor children than other forms of deprivation do. Also, compared to the transitions of the other deprivation categories, there is a persistent nature in capability deprivation among poor children and young people. Moreover, changes in some resource factors (e.g., computers and pocket money) and conversion factors (e.g., gender, school transfer, child relationship with teachers or classmates) are found to have a significant relationship with their well-being dynamics. Based on the research findings, a proactive approach is proposed to expand the capabilities and freedoms of poor children. In addition, the research limitations that need addressing in future studies are considered.

1. Introduction

Due to a decades-long reduction in the fertility rate, there has been shrinkage of child population (age between 0 and 17) in Taiwan. Specifically, its child population has gradually declined from 5.87 million (26.57% of the total population) in 1999 to 3.90 million (16.5% of the total population) in 2017 (Ministry of Health and Welfare, 2018). In order to tackle low fertility, Taiwan's government has set an agenda for child welfare reforms, covering child poverty, child health, early child education and child protection (Executive Yuan, 2013). Among vulnerable child groups, poor children have been a major concern of policy-makers (Liou, 2017; Wang & Chen, 2012). For public officials, they have often identified income shortage as the main disadvantage of this child group. Owing to this underlying assumption, the majority of policy support has revolved around income support to these children and their families (Ministry of Health and Welfare, 2018). However, international child well-being scholarship has criticized such an income-centric perspective for failing to notice other equally important aspects regarding child development (Ben-Arieh & Frønes, 2011). In particular, as the proponents of capability approach (CA) have argued, the objective of this development is the promotion of human well-being, while household income represents one of the means for achieving this (Sen, 1999). When turning to child well-being, extant studies have identified it as consisting of multiple dimensions, such as

health, education and care (Ben-Arieh, Casas, Frønes, & Korbin, 2014). In fact, CA proponents have contended that children face challenges in these aspects in addition to household income deficit (Ridge, 2002). Having acknowledge this, we propose the adoption of CA as a framework for studying the well-being of poor children in Taiwan. Moreover, we have observed that there have been few attempts of CA researchers to investigate human well-being over time due to the lack of analytical data (Addison, Hulme, & Kanbur, 2009; Muffels & Headey, 2013). Undoubtedly, how child well-being evolves can have profound impact on adulthood (Graf & Schweiger, 2015; Peruzzi, 2014) and yet, there is scant understanding of this process.

In order to demonstrate the analytical potential of CA, the purpose of this paper is to study five waves of the 'Taiwanese Panel Data of Poor Children and Young People'. In this regard, we first investigate how poor children are distributed in different well-being states. And then, we attempt to examine whether poor children suffer from the same pattern of well-being deprivation over time. After that, our endeavor is to identify the predictors of entry into the focal deprived situations as well as the exiting from each of them. The remainder of the paper is structured as follows. Section 2 discusses the new insights CA could provide regarding a more comprehensive understanding of child well-being than income-centric methods have achieved. Subsequently, how to introduce time into a CA based well-being measurement is explicated. In Section 3, we explain and justify the methods and database

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employed. In Section 4, we discuss all the research findings, whilst in Section 5, we conclude with a proactive attitude towards to the development of poor children as well as discussing the research limitations that need to be addressed in future CA-based studies of child well-being.

2. Literature

2.1. The capability approach to evaluating child well-being

In contrast to traditional poverty researchers defining child well-being purely in income terms, the proponents of the CA have argued for its multidimensionality, including such matters as being healthy, being educated and being safe (Fegter & Richter, 2014). They also contend that all these aspects directly concern the ends of child development. As to household income, it merely functions as means to achieve such goals (Sen, 1999). In the face of multiple aspects of child well-being, under CA, they are classified into the following two constituents.

(a) Functionings: this refers to what a child can do and be for the time being. In order to meet his/her basic needs for survival, CA researchers have contended that each child should be helped to achieve minimum levels in basic functionings, such as being healthy, being educated and being cared for by family members (Biggeri, Ballet, & Comim, 2011).
(b) Capabilities: this concerns whether a person has a wide range of freedom and exerts his/her own agency in the pursuit of the life he/she values (Sen, 1999). In relation to children, CA proponents argue that child population should develop the necessary freedom and agency appropriate to their age (i.e., basic capabilities), for these capabilities are believed to be beneficial for the child's future well-being (i.e., well-becoming) (Ballet, Biggeri, & Comim, 2011). For example, each child should have opportunities to develop the needed skills (Hart & Brando, 2018), be given chances to take part in a meaningful social life (Baraldi & Iervese, 2014) and be helped in fostering aspiration and hope for the future (Ballet et al., 2011).

In addition to identifying these two cores of child well-being, CA explicates two other factors with significant impact on child flourishing.

(a) Resource factors: under CA, it is not denied that some resources function as preconditions for child development. However, the resource effects might not be as straightforward as some expect (Sen, 1999). The reason for this has lot to do with the conversion factors as discussed next.
(b) Conversion factors: According to CA, these factors affect whether a child can fully convert the resources he/she possesses into the desired capabilities and functionings. Inspired by the ecological model, CA proponents have proposed that these factors can range from the micro level (e.g., gender, disability) to the meso level (e.g., family and community) and to the macro level (e.g., geography and state policy) (Robeyns, 2005).[1]

Since the CA was proposed for evaluating child well-being, it has been gradually applied to empirical studies of childhood. Regarding its major empirical findings, multiple deprivation seems to result in a picture of child impoverishment different from that of income poverty (Roelen, 2017). The research has also found only a modest or even limited overlap between capability-poor and income poor children

(Chzhen & Ferrone, 2017; Kim, 2019). In addition, even for some children without an income shortage, it is possible for them to experience multidimensional disadvantages due to social exclusion and discrimination (Qi & Wu, 2016). Moreover, with external support and parental sacrifice, some poor children seem to be able to secure functionings and capabilities for their development (Roelen, 2018). Furthermore, these studies have found that some conversion factors seem to exert a more significant impact on child development than resource ones (Wüst & Volkert, 2012). With insight from the CA, we use a Venn diagram to show four states of child well-being, as shown in Fig. 1.

(a) Secured well-being state: This child group has secured a decent level of basic functionings and capabilities. In other words, these children have secured their well-being both for the present as well as the future (Ben-Arieh et al., 2014).
(b) Fucntionings deprivation: Such a group is unable to meet basic needs. For example, children may suffer from physical health problems, they might drop out of school during primary education and or they might grow up without appropriate parental care. All these are the signs of child ill-being (Robeyns, 2005).
(c) Capability deprivation: Many of this group are deprived of opportunities to exert choice and control over their environment (Graf & Schweiger, 2015). For example, some authoritarian parents may severely restrict their children's freedom to take part in extracurricular activities. Undoubtedly, this would limit their future prospects (Kim, Wang, Orozco-Lapray, Shen, & Murtuza, 2013).
(d) Double deprivation: This group suffers from severe deprivation of both functionings and capabilities and compared to the previous ones, they could be regarded as the most disadvantaged among children.

Given this typology, it has provided a more nuanced profile of child well-being than previously. Our perspective is that, if poor children are provided the full range of basic functionings and capabilities, it would help them to flourish in future life.

2.2. The dynamics of child well-being

When reviewing the poverty dynamics literature, even though many people are poor for some period of time, there is considerable movement into and out of income poverty (Bane & Ellwood, 1986). Hence, this triggers the decision to bring time into CA to study child well-being (Addison et al., 2009). Some researchers have hypothesized that well-being deprivation could exhibit a greater amount of inertia than income poverty over time. However, their perspective is yet to be confirmed by further study (Günther & Klasen, 2009). In addition, the CA studies have yet to identify the predictors of child deprivation dynamics (Wüst & Volkert, 2012). In this study, the aim is to enhance our understanding of the well-being dynamics of poor children in capability terms by taking a temporal dimension into account.

3. Data and methods

In this section, we consider methodological issues in relation to the analysis of child well-being dynamics, including the database, the measuring domains and indicators as well as the analytical techniques employed.

3.1. Database

As aforementioned, for this paper, the 'Taiwanese Panel Study of Poor Children and Young people' (TPSPCY) was selected as the analytical database. The TPSPCY was initiated by the Taiwan Fund for Children and Families (TFCF), with the aim of surveying children and young people receiving assistance by its organization. All the clients of TFCF come from families with an income of less than the official

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[1] The capability approach and ecological theory emphasize child agency and the ecological system, respectively (Ballet, Biggeri, & Comim, 2011; Bronfenbrenner, 2005). In spite of this, in some CA studies, combining these two concerns so as to understand child development better has been proposed (e.g., Trani, Bakhshi, Bellanca, & Marchetta, 2011).
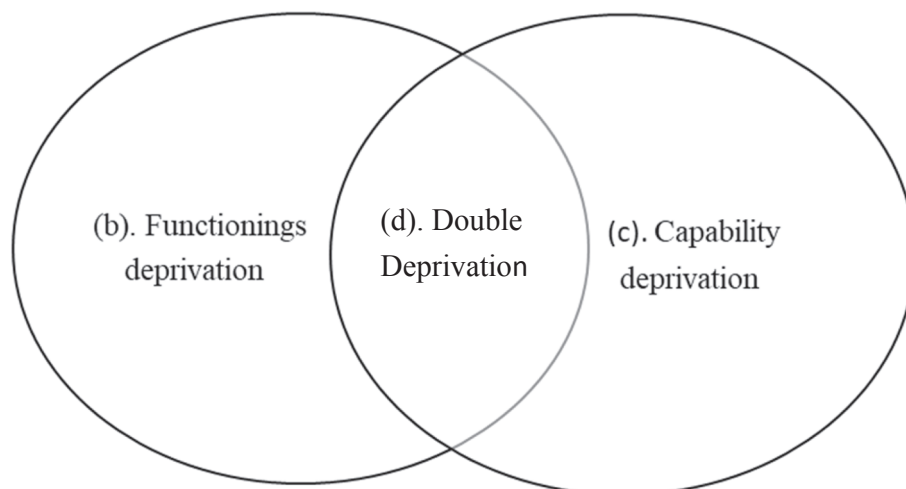
(a). Secured well-being

Fig. 1. Child well-being states.

poverty threshold. This implies that they are all the beneficiaries of government's social assistance programs (TFCF, 2010). In 2009, with the adoption of a systematic sampling technique, TFCF first sampled 8291 out of its 32,000 clients around the island. Similar samples were interviewed in the subsequent surveys (TFCF, 2018). For this research, we have selected the recently available five waves of panel data (2009–2017) for further analysis. However, it should be noted that due to shifts in the economic status of clients, not all appeared in the organization's panel data. Owning to this fact, the samples under our study will be limited to those with all the needed information in any two consecutive surveys. In addition, in order to cover samples from primary school to senior high school, the age range chosen was from 8 to 24 years old. Through such sampling, we eventually included 8278 observations for subsequent study.[2]

3.2. Measuring domains and indicators

After considering the extant literature and data availability, we selected priority domains and indicators for measuring basic functionings and capabilities.[3] In terms of the basic functionings under measurement, this encompasses three domains of essential importance to child well-being: physical health, education and care (Moore et al., 2008; Ridge, 2002). For each domain, we identified appropriate indicators for measurement (see Table 1). As to the measurement for basic capabilities, we have taken up Gasper (2007) suggestion for operationalizing those for the children for the following domains.

(a) Skill-based capabilities: this refers to the opportunities available for children to prepare hard and soft skills for their future development (Hart & Brando, 2018). According to data availability, we selected two indicators, namely, a child's academic performance and learning difficulty, for measurement.
(b) Opportunity-based capabilities: in addition to the needed skills, children should be provided chances to participate in social and community life (Wüst & Volkert, 2012). For this type of capability,

we chose the opportunities for a child to play, participation in school services and events (Ridge, 2002) along with on-line activities (Hatakka & Lagsten, 2012) as the three measuring indicators.
(c) Goal-based capabilities: these stand for the goals, aspirations and agency of the investigated children (Ballet et al., 2011). For this paper, both child's educational and occupational aspirations were selected for measurement of their agency (Burchardt, 2009).
(d) Potentiality-based capabilities: this relates to a child's self-assessment of his/her own endowments (Nussbaum, 2011). If he/she felt these were sufficient in his/her life, there would be more options in terms of choice in the future.

3.3. The analysis of child deprivation transitions

After selecting the measuring domains and indicators, we used the Alkire-Forster method (A-F method) to identify whether the investigated samples suffered from either functionings or capability deprivation in each wave of the surveys. Regarding the A-F method, it was first developed by CA researchers to measure multidimensional deprivation (Alkire & Foster, 2011). Guided by this, we applied the equal weighting system in aggregating each domain and indicator into the deprivation indexes (i.e., functionings and capabilities) (see Table 1). Moreover, we adopted an intermediate approach to set deprivation thresholds (i.e., K value) for functionings and capabilities (Alkire & Roche, 2011).[4] That is, we assumed that each domain is indispensable for child development. This explains why we defined 1/3 and 1/4 of the relevant domains as the thresholds for functionings and capability derivation, respectively. For each child, their deprivations in the relevant indicators were first aggregated into the deprivation scores for each dimension. And then, their deprivation scores of each dimension are aggregated into the deprivation indexes for functionings and capabilities. Through comparing each child's deprivation indexes with the K values in these two well-being aspects, this helped in identifying whether they suffered from different deprivations in each wave.

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[2] Regarding the differences between the investigated and excluded sample, these are shown in Appendix Table A1. In brief, the excluded sample has more females, older age and higher parental background than studied one. This could be partly attributed to the predictors of deprivation entrance and exit, as considered later.

[3] For both information source and scale of measuring indicators, the details have been provided in Table A2 in the Appendix A.

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[4] There are three major approaches to setting the threshold of multidimensional deprivation. The intersection approach defines the deprivation of all measuring domains as the condition for multidimensional deprivation, while under the union approach, it is contended that the deprivation of any measuring domain would be counted as deprivation (De Neubourg, De Millian, & Pavgo, 2014). Since both approaches are either too restricted or too inclusive for deprivation estimation, in the paper, the middle way has been employed to set the deprivation threshold in between these two extremes.

Table 1
The measuring domains and indicators of basic functionings and capabilities.

Basic functionings and capabilities	Threshold	Weights
Physical health		
Three meals a day	If a child reported he/she never or rarely had three meals a day, he/she would be regarded as being deprived for this indicator.	1/12
Body Mass Index (BMI)	If a child's BMI was outside the normal range, as defined by the government, he/she would be regarded as being deprived for this indicator.	1/12
Chronic serious illness	If a child was reported as having chronic serious illness, he/she would be regarded as being deprived for this indicator.	1/12
Unhealthy habits	If a child reported that he/she had consumed unhealthy items (e.g. cigarettes, alcohol or chewing betel nuts), he/she would be regarded as being deprived for this indicator.	1/12
Education		
School enrolment	If a child reported he/she was not enrolled in school during the survey, he/she would be regarded as being deprived for this indicator.	1/9
Dropout	If a child reported that he/she had dropped out for at least a third of the current semester, he/she would be regarded as being deprived for this indicator.	1/9
School life satisfaction	If a child reported being extremely dissatisfied with school life, he/she would be regarded as being deprived for this indicator.	1/9
Care		
Parental talks with children	If a child reported that his/her parents never or rarely talked with them, he/she would be regarded as being deprived for this indicator.	1/12
Parents knowing children's whereabouts	If a child's parents never knew his/her whereabouts, he/she would be regarded as being deprived for this indicator.	1/12
Parents knowing children's best friends	If a child's parents did not know his/her best friends, he/she would be regarded as being deprived for this indicator.	1/12
Parental care about children's academic performance	If a child's parents never or rarely cared about their children's academic performance, he/she would be identified as being deprived for this indicator.	1/12
Skill-based capabilities		
Academic performance	If a child reported that he/she often failed in important exams, he/she would be identified as being deprived for this indicator.	1/8
Learning difficulty	If a child reported that he/she had a learning difficulty in any of three major courses (i.e. Chinese, math or English), he/she would be termed deprived for this indicator.	1/8
Opportunity-based capabilities		
Play	If a child reported that he/she had never had the chance of playing with friends, he/she would be identified as being deprived for this indicator.	1/12
Participation in school services and events	If a child reported that he/she never took part in any school services and events, he/she would be identified as being deprived for this indicator.	1/12
On-line experience	If a child reported that he/she never had on-line experience, he/she would be identified as being deprived for this indicator.	1/12
Goal-based capabilities		
Educational aspiration	If a child reported being without a plan for a complete compulsory education, he/she would be identified as being deprived for this indicator.	1/8
Occupational aspiration	If a child reported having no occupational aspiration, he/she would be identified as being deprived for this indicator.	1/8
Potentiality-based capabilities		
Self-felt endowments	If a child reported that he/she had no endowments, he/she would be identified as being deprived for this indicator.	1/4

Moreover, through the comparison of each individual's well-being status in any two consecutive surveys, we classified different pathways into two categories: (a) moving into and (b) moving out of the three identified deprivations. In this paper, we aim to ascertain whether poor children face similar changing patterns of the three deprivations investigated. After investigating change in different forms of deprivation, we move on to identify the predictors of well-being dynamics of the poor samples. In this regard, two groups of events are selected for examination.[5]

(a) Resource events: These refer to any change in a child's resource ownership. One thing that needs to be noted here, is that our database does not provide a family income variable. So, based on a review of the literature, four material resources that are of importance to child development are selected for analyses, including: pocket money (Ridge, 2002), mobile phone (Mascheroni & Ólafsson, 2016), home computer (Chzhen & Ferrone, 2017) and housing conditions (Bradshaw, Hoelscher, & Richardson, 2007). In order to identify whether these items are highly related to the socioeconomic status of parents, we have correlated parental education with the four items selected. The results show that a mobile phone might act as a proxy of parental resource (Toledano et al., 2018) (see Table A4 in the Appendix A). However, we will be

cautious about presenting its relationships with the dynamics of child well-being from a capabilities perspective.

(b) Conversion factor events: In this study, we track any changes to a poor child's family and/or school life. Based on the extant literature, the events for analysis include: whether there are shocks and adverse events in a child's family, such as the occurrence of unemployment, sickness or death of family members (Cueto, Escobal, Penny, & Ames, 2011). In addition, we also explored whether house moving, school transfer (Montserrat, Dinisman, Bălţătescu, Grigoraş, & Casas, 2015) or a change in the relationship with the teacher or classmates for the investigated samples took place (Lee & Yoo, 2015; Montserrat et al., 2015).

In order to identify whether the above events would affect well-being transitions, we included gender, age of child and parental education as control variables.

3.4. Statistical methods

We adopted multiple statistical methods to pursue four specific objectives. First, the ways the A-F method is employed for two analytical purposes is explained. This begins with eliciting how different forms of deprivation are distributed among poor children and young people. Next, we probe whether or not the three deprivation categories have an approximately similar transition pattern for all the sample. Regarding the determinants of child well-being dynamics, due to the

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[5] The details of the indicators of resource and conversion factors are provided in the Appendix in Table 3.

panel data structure, we identify the observations from the same child as sharing the same common random effect. To this end, multilevel random-effect logistic regression methodology (using Stata 13.0 SE version) is adopted to estimate the influences of different predictors on the individual level likelihood of moving into and out of the three deprivation categories (Rabe-Hesketh & Skrondal, 2012).

4. Results

In this section, three sets of analytical results of child well-being dynamics are presented and discussed. These include the shares of poor children and young people who experience different well-being states, the transitions into and out of different forms of deprivations and the associated factors of child well-being dynamics.

4.1. The distribution of different well-being states among poor children and young people

Since the analyzed sample covered a wide range of ages, we have classified them into three groups: childhood (age 8–11), adolescence (age 12–18) and younger adulthood (age 19–24). Regarding the distribution of the different well-being states among the three age groups, Fig. 2 shows the relevant results. From the figure, it can be seen that as poor children grow older, there is an increasing share of them successfully achieving both functionings and capabilities. In fact, the data show that when entering into younger adulthood about 40% of them are able to avoid deprivation of both aspects. When considering deprivation of basic functionings, there is a slight increase in the shares of poor children encountering this difficulty when they grow up. However, it should be noted that regardless of age group there is still a small minority of them being plagued by such a shortage. Compared to this, there are much larger shares of our samples suffering from capability deprivation, but the data do show a downward trend in this deprivation risk as poor children mature. When turning to double deprivation, we found that regardless of age group there is a relatively small share of poor children and young people falling into this most disadvantaged situation.

4.2. The movement into and out of the three deprivation categories

Table 2 presents the findings of movement into and out of the three forms of deprivation. From the table, it can first be seen that the entry rate to capability deprivation among our samples is much higher than

Table 2
Transition rates of the three types of child deprivation (%).

	Entry into deprivation	Exit from deprivation
Functionings deprivation	15.68	60.91
Capability deprivation	31.69	39.85
Double deprivation	9.57	67.34

those of the other two types. When turning to exit rates for the different types of deprivation, it can be observed that the capability-deprived samples have the lowest chance of leaving their poor condition (i.e., 40%). Of those who experienced functionings or double deprivation, at least 61% of them were not trapped with the same disadvantage in the next survey. Overall, the evidence presented reinforces the previous figure's indication that a much larger proportion of sample were suffering from capability deprivation than those subject to either of the other two types. The findings also suggest that basic capability deprivation is a more persistent form of suffering than the other deprivations for children and young people living in poverty.

4.3. The predictors of deprivation dynamics among poor children and young children

In this section, we report the results regarding how different types of factors and the related events investigated could be associated with the transitions of the different types of deprivation.

4.3.1. Multilevel regressions of the entry rates into the three deprivation categories

In this subsection, the aim is to identify the predictors of entry into the three forms of deprivation. Regarding this, Table 3 shows the results of multilevel regression models. From the table, it can be seen that there is a specific group of factors with a significant relationship to the entry into functionings deprivation. Among the resource events examined, we only uncovered two highly related to such moving into functionings deprivation. First, compared to children without pocket money in two consecutive surveys, those with it being cancelled in the second of two consecutive surveys were more likely to fall into this form of deprivation. Second, those who continually had their own computers were less likely to fall into functionings deprivation than their counterparts without.

Moreover, compared to resource events, our analysis shows that more conversion factors and events are highly associated with the entry
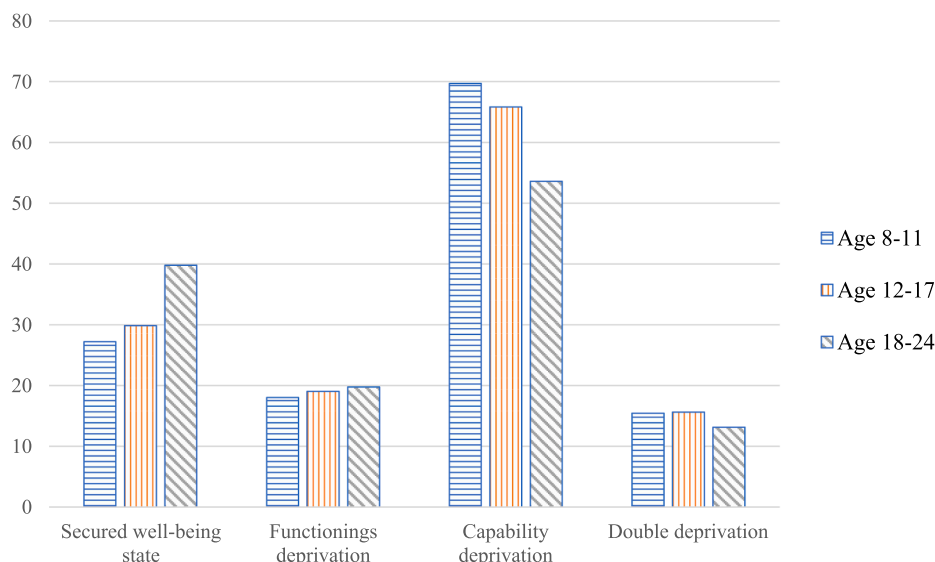

Fig. 2. The share of deprivation according to age group (%).

Table 3
Multilevel regressions of different deprivation entries for poor children from 2009 to 2015.

Variables	Deprivation entry											
	Functionings deprivation entries				Capability deprivation entries				Double deprivation entries			
	Coef.	SE	CI		Coef.	SE	CI		Coef.	SE	CI	
Age	0.022	0.020	−0.017	0.061	−0.0484*	0.021	−0.089	−0.008	0.022	0.021	−0.020	0.064
Female (ref: Male)	−0.384***	0.086	−0.552	−0.215	−0.240**	0.088	−0.413	−0.067	−0.494***	0.093	−0.677	−0.312
Parental education in college and above (ref: senior high school and low)	−0.223*	0.097	−0.413	−0.034	0.003	0.095	−0.184	0.189	−0.249*	0.105	−0.455	−0.043
Started to receive pocket money in the later survey (ref: Continued to lack pocket money during two consecutive surveys)	−0.107	0.146	−0.393	0.179	−0.100	0.157	−0.408	0.208	−0.023	0.158	−0.333	0.288
Started to lack pocket money in the later survey	0.399**	0.138	0.128	0.670	0.223	0.157	−0.085	0.532	0.439**	0.149	0.146	0.731
Continued to receive pocket money in the later survey	−0.152	0.115	−0.377	0.074	0.160	0.120	−0.076	0.395	−0.069	0.124	−0.312	0.174
Start to have a mobile phone in the later survey (ref: Continued to a lack mobile phone during two consecutive surveys)	0.140	0.122	−0.099	0.379	−0.043	0.136	−0.309	0.224	0.090	0.131	−0.167	0.347
Started to lack a mobile phone in the later survey	0.284	0.237	−0.181	0.749	0.378	0.255	−0.121	0.877	0.240	0.247	−0.245	0.725
Continued to have a mobile phone during two consecutive surveys	0.236	0.133	−0.024	0.496	−0.233	0.140	−0.507	0.041	0.136	0.142	−0.142	0.413
Started to have a home computer in the later survey (ref: Continued to have no home computer during two consecutive surveys)	−0.118	0.168	−0.446	0.211	−0.585**	0.218	−1.012	−0.159	−0.138	0.178	−0.488	0.212
Started to lack a home computer in the later survey	0.189	0.175	−0.153	0.531	−0.116	0.225	−0.557	0.326	0.287	0.183	−0.071	0.645
Continued to have a home computer during two consecutive surveys	−0.341*	0.142	−0.619	−0.064	−0.642***	0.179	−0.994	−0.291	−0.406**	0.150	−0.700	−0.111
Housing deteriorated (ref: no change)	0.163	0.098	−0.029	0.356	−0.040	0.109	−0.253	0.174	0.059	0.108	−0.153	0.271
Housing improved	−0.001	0.095	−0.186	0.185	−0.034	0.102	−0.234	0.166	0.069	0.101	−0.129	0.267
Family incidents (ref: non-occurrence)	0.066	0.085	−0.101	0.233	0.097	0.093	−0.084	0.279	−0.008	0.092	−0.188	0.173
Moving house (ref: non-moving)	0.244*	0.116	0.018	0.470	−0.063	0.134	−0.325	0.199	0.348**	0.120	0.112	0.584
School transfer (ref: non-transfer)	0.336	0.198	−0.051	0.724	−0.013	0.259	−0.520	0.494	0.558**	0.199	0.168	0.947
Relationship with classmates became worse (ref: no change)	0.375**	0.120	0.140	0.611	0.135	0.146	−0.150	0.421	0.505***	0.124	0.262	0.749
Relationship with teachers became worse (ref: no change)	0.893***	0.137	0.624	1.161	0.472**	0.175	0.128	0.815	1.032***	0.140	0.757	1.307
Number of observations	3523				1800				3601			

***p < 0.01; **p < 0.05; *p < 0.1.

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into such deprivation. For example, females had less likelihood of falling into this type of deprivation than their male counterparts. Also, the poor samples whose parents had a higher educational background had less possibility of moving into such deprivation than their counterparts whose parents had a lower one. Regarding changes to conversion factors, we found that poor children and young people who moved house in two consecutive surveys were more likely to fall into such deprivation than those without such an experience. Also, those whose relationship with either teachers or classmates became worse during any consecutive two surveys were found to be more vulnerable to functionings deprivation than their counterparts who did not.

When considering entry into capability deprivation, only two resource events are significantly identified with this deprivation transition. That is, poor children and young people who started to have their own computer in the second of two consecutive surveys or continued to have this item in two such surveys, were less likely to fall into such deprivation than those who did not. As to conversion factors, as poor children mature, they are found to be less likely to be capability deprived. Also, females had less chance of falling into capability deprivation than their male counterparts. Moreover, poor children whose relationships with their teachers became worse during two consecutive surveys, were more likely to fall into such a disadvantage than those without such an experience.

Finally, regarding the predictors of entrance into double deprivation, two resource events are found to be related to such a transition. First, poor children whose pocket money was cancelled between two consecutive surveys, were more likely to fall into this disadvantaged condition than those who continually lacked it. However, those who owned a home computer in two consecutive surveys, were less likely to move into such a poor situation than their counterparts who had never owned one. As to the results of the conversion factors, females are still identified as being less likely to fall into double deprivation than their male counterparts. Also, the poor children and young people who experienced either moving house or transferring schools during any two consecutive surveys were more likely to suffer from such deprivation than those who did not. Moreover, those whose relationship with teachers or classmates deteriorated in consecutive two surveys, had a much higher chance of falling into such deprivation than those for whom this did not occur.

4.3.2. Multilevel regressions of exit rates for the three investigated deprivation categories

In this subsection, our focus is on moving out of the three deprivation categories. Table 4 presents three multilevel regression models relating to exits from the focal deprived situations. Regarding the findings of functionings-deprivation exit, we identified some conversion factors with a significant relationship with such transition. First, as functionings-deprived children grow up, they would appear to have more difficulty in escaping such an adverse condition. Also, females who were functionings-deprived were more likely to exit from such ill-being than their male counterparts. In addition to these individual features, our analysis also uncovered that the functionings-deprived who experienced specific events would appear to have had a lower likelihood of escaping from their deprived situation than those who did not. These events include school transfer and bad relationships with teachers or classmates.

In relation to the results for capability deprivation exit, three resource changes were identified for their significant relationship with leaving such deprivation. First, those children who had started to have pocket money and had lost it by the time of the consecutive survey as well as those who had had it continually, were more likely to move out of this deprivation than those who had never had it. Second, compared to the capability-deprived who did not have their own computers in two consecutive surveys, those who continued to have this resource item had a higher likelihood of escaping from it. As to the outcomes of the conversion factors, the analysis led to the finding that capability-

deprived females were more likely to exit such deprivation than their male counterparts. Also, those capability-deprived who experienced school transfer during the surveys emerged as having more difficulty in exiting from such deprivation than their counterparts who did not. Moreover, a decreasing possibility of exiting from capability deprivation has been elicited for when capability-deprived children and young people started to have a bad relationship with their teachers or classmates during two consecutive surveys.

Finally, when considering the results of exiting from double deprivation, we discovered only one resource event with a significant relationship to such an exit. That is, those who started to have pocket money in the second of two consecutive surveys were found to have a much higher chance of escaping from such a disadvantage than those who continually lacked this resource item. As to conversion factors, we found that as poor children mature they had greater difficulty in escaping from this impoverished situation. Also, compared to males suffering from double deprivation, their female counterparts had a much higher likelihood of exiting from this poor situation. When considering the impact of conversion factor events, our analysis has uncovered that a deteriorating relationship between a child and his/her classmates is negatively associated with a reduced likelihood of these children exiting from such a deprived condition.

5. Discussion

Through the application of the capability approach to human well-being, our analysis has helped explicate how poor children and young people fared in capability terms in the following meaningful ways.

First, as our results have shown, the three categories of deprivation did not affect all the poor children and young people. Moreover, from our data analysis, it was elicited that a much larger proportion of the sample were suffering from capability deprivation than either functionings deprivation or double deprivation. This pattern holds true regardless of age group.

Our data also shows considerable movement of child deprivation over time. In particular, in terms of the entrance into different forms of deprivation, more poor children fell into capability deprivation than the other two categories. Making things even more challenging, once having fallen into capability deprivation, they have more difficulty in escaping from such a disadvantage than their counterparts with other forms of deprivation. Given these outcomes, this indicates that poor children and young people face an even greater risk of ill-becoming (i.e., capability deprivation) than of ill-being (i.e., functionings deprivation).

Turning to the multilevel regression findings, we have identified a specific set of resource items with close association with child well-being dynamics. For example, having a personal computer would appear to be highly related to a lower possibility of moving into the three forms of deprivation investigated. Continually having one would also increase a child's possibility of moving out of capability deprivation. As to pocket money, our study found that the withdrawal of such an item would increase the likelihood of children falling into double deprivation. However, if parents continue to give or ever give pocket money to their children, this would appear to help increase their likelihood of exiting capability or double deprivation.

Regarding the effect of conversion factors on well-being dynamics, our results first demonstrate that females are less likely to fall into any of the investigated deprivations than their male counterparts. Also, they are more likely to exit them than males. Regarding the age effect, as poor children mature, they have been found to be less likely to fall into capability poverty. However, older children have more difficulties in moving out of either functionings or double deprivation than younger ones. For the consideration of parental education, the children whose parents have undertaken higher education would appear to have less likelihood of falling into functionings or double deprivation than those whose parents have had a low educational experience. As to the

Table 4
Multilevel regressions of different deprivation exits for poor children from 2009 to 2015.

Variables	Deprivation exit											
	Functionings poverty exits				Capability poverty exits				Double poverty exits			
	Coef.	SE	CI		Coef.	SE	CI		Coef.	SE	CI	
Age	0.173***	0.035	0.105	0.241	0.007	0.017	−0.026	0.040	0.150***	0.038	0.075	0.225
Female (ref: Male)	−0.685***	0.154	−0.988	−0.383	−0.429***	0.071	−0.567	−0.290	−0.707***	0.173	−1.047	−0.368
Parental education in college and above (ref: senior high school or lower)	−0.286	0.169	−0.618	0.046	−0.027	0.080	−0.184	0.129	−0.216	0.190	−0.589	0.156
Started to receive pocket money in the later survey (ref: Continued to lack pocket money during two consecutive surveys)	−0.493	0.253	−0.989	0.003	−0.187	0.122	−0.427	0.052	−0.693*	0.284	−1.249	−0.136
Started to lack pocket money in the later survey	0.237	0.255	−0.263	0.738	−0.252*	0.126	−0.499	−0.006	0.128	0.285	−0.430	0.687
Continued to receive pocket money in the later survey	−0.317	0.198	−0.705	0.070	−0.218*	0.097	−0.409	−0.028	−0.419	0.222	−0.854	0.016
Started to have a mobile phone in the later survey (ref: Continued to lack a mobile phone during two consecutive surveys)	0.113	0.220	−0.318	0.545	−0.114	0.103	−0.316	0.087	−0.089	0.240	−0.559	0.382
Started to lack a mobile phone in the later survey	0.006	0.396	−0.770	0.782	0.239	0.226	−0.204	0.682	0.058	0.449	−0.822	0.938
Continued to have a mobile phone during two consecutive surveys	0.325	0.232	−0.128	0.779	−0.195	0.111	−0.413	0.023	0.055	0.253	−0.441	0.550
Started to have a home computer in the later survey (ref: Continued to have no home computer during two consecutive surveys)	0.340	0.280	−0.209	0.888	−0.256	0.144	−0.537	0.025	0.309	0.296	−0.272	0.890
Started to lack a home computer in the later survey	0.359	0.303	−0.236	0.953	−0.042	0.158	−0.351	0.268	0.202	0.328	−0.442	0.846
Continued to have a home computer during two consecutive surveys	−0.033	0.236	−0.495	0.429	−0.347**	0.123	−0.587	−0.106	−0.081	0.249	−0.569	0.408
Housing deteriorated (ref: no change)	0.241	0.176	−0.103	0.585	0.032	0.085	−0.134	0.198	0.187	0.194	−0.194	0.567
Housing improved	0.273	0.166	−0.052	0.598	0.098	0.080	−0.058	0.254	0.163	0.186	−0.201	0.527
Family incidents (ref: non-occurrence)	0.079	0.148	−0.211	0.369	0.026	0.073	−0.117	0.168	0.171	0.164	−0.151	0.492
Moving house (ref: non-moving)	0.192	0.189	−0.178	0.562	0.074	0.102	−0.126	0.274	0.168	0.206	−0.236	0.572
School transfer (ref: non-transfer)	0.613*	0.304	0.018	1.208	0.582**	0.196	0.197	0.967	0.545	0.322	−0.086	1.177
Relationship with classmates became worse (ref: no change)	1.049***	0.201	0.656	1.442	0.323**	0.109	0.109	0.536	1.042***	0.223	0.606	1.479
Relationship with teachers became worse (ref: no change)	0.446*	0.211	0.032	0.860	0.317*	0.131	0.059	0.575	0.346	0.229	−0.102	0.794
Number of observations	1121				3145				897			

***p < 0.01; **p < 0.05; *p < 0.1.

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changes to some conversion factors, our data show that experiencing moving house or school transfer would increase a poor child's chance of falling into either functionings deprivation or double deprivation. Also, the school transfer experience would make it more difficult for them to move out of functionings or capability deprivation. Moreover, a deterioration in the teacher-child relationship, not only increases their likelihood of falling into one of the three investigated deprivations, for it also would not be beneficial for children moving out of either fundctionings or capability deprivation. Regarding the deterioration of peer relationships for poor children and young people, it was found to increase the likelihood of entering into functionings or double deprivation. Meanwhile, such experience would increase the difficulty of moving out any of three focal deprivations.

6. Conclusion

In this paper, working within a capability framework, we have provided a dynamic picture of the well-being of poor children in Taiwan. In this last section, we summarize important suggestions for helping poor children grow as well as some research limitations to be addressed in future studies.

Our research findings have shown that capability deprivation poses a more persistent threat to poor children than other forms. This implies that capability development should be on the services agenda for this child group. In addition, the CA framework has helped us identify specific conjunctures of factors for the deprivation dynamics of poor children. Based on these findings, we suggest that, in future, services for poor children should deal with these issues in addition to income support, where required. By so doing, it would effectively help them reach an adequate level of functionings and capabilities.

Appendix A

See Tables A1–A4.

When considering the research limitations of our study, the database employed is not a national-representative child sample in that it is confined to the clients of a given child service organization. In addition, due to the movement of clients, the investigated children and young people did not constitute all the waves of the panel data, which significantly reduced the sample size available for analysis. Moreover, there remain other important aspects of children's lives not considered by TPSPCY. In the face of these limitations, we suggest further improvements in future studies, both in the context of Taiwan and other Asian societies. For example, more child well-being aspects, such as quality of community environment and civic engagement, as emphasized by ecological theorists, should be incorporated into surveys of children's lives. In particular, a national-representative child sample is a matter of great urgency. If made available, it would allow for investigation of the well-being dynamics of non-poor children in addition to those of the poor ones examined in this paper.

Overall, based on the capability approach, this exploratory study has provided a broader picture of how poor children have fared over time than an income poverty approach could. Also, it has been proven that there are some life conditions to be tackled so as to help poor children have flourishing lives and reach their full potential.

Declaration of Competing Interest

The authors declared that there is no conflict of interest.

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Table A1
Descriptive statistics of investigated and non-investigated samples.

Wave of surveys	Variables	Investigated	Non-investigated	P-value
W 1	Female (%)	51.185	59.024	0.000***
W 2	Female (%)	51.657	58.229	0.000***
W 3	Female (%)	49.967	58.590	0.000***
W 4	Female (%)	50.000	55.422	0.000***
W 5	Female (%)	53.411	56.146	0.286
W 1	Average Age	14.239	21.247	0.000***
W 2	Average Age	15.096	21.934	0.000***
W 3	Average Age	15.781	22.458	0.000***
W 4	Average Age	15.047	22.856	0.000***
W 5	Average Age	18.241	23.511	0.000***
W 1	Parental education in college and above (%)	19.425	32.195	0.000***
W 2	Parental education in college and above (%)	24.891	31.782	0.000***
W 3	Parental education in college and above (%)	30.315	33.114	0.066*
W 4	Parental education in college and above (%)	12.783	34.940	0.000***
W 5	Parental education in college and above (%)	26.622	39.233	0.000***

***$p < 0.01$; **$p < 0.05$; *$p < 0.1$.

Table A2
The measurement indicators.

	Information source	Measurement scale
Physical health		
Three meals a day	C-R	Binary
Body Mass Index (BMI)	C-R	Binary
Chronic serious illness	P-R	Binary
Unhealthy habits	C-R	Binary
Education		
School enrolment	C-R	Binary
Dropout	C-R	Likert
School life satisfaction	C-R	Likert
Care		
Parental talks with children	C-R	Likert
Parents knowing children's whereabouts	C-R	Likert
Parents knowing children's best friends	C-R	Likert
Parental concern about children's academic performance	C-R	Likert
Skill-based Capabilities		
Academic performance	C-R	Likert scale
Learning difficulty	C-R	Binary
Opportunity-based capabilities		
Play	C-R	Likert scale
Participation in school services and events	C-R	Binary
On-line experience	C-R	Likert
Goal-based capabilities		
Educational aspiration	C-R	Likert scale
Occupational aspiration	C-R	Binary
Potentiality-based capabilities		
Self-felt endowments	C-R	Binary

C-R: child self-report; P-R: parental report.

Table A3
Variables to measure change to resource and conversion factors.

Resource and conversion factors	Information source	Measurement scale	Measurement of change
Pocket money	C-R	Binary	Comparison between the ownership status in two consecutive surveys
Mobile phone	C-R	Binary	Comparison between the ownership status in two consecutive surveys
Home computer	C-R	Binary	Comparison between the ownership status in two consecutive surveys
Housing	C-R	Binary	Retrospective answer given in the second of two consecutive surveys
Family incident	C-R	Binary	Retrospective answer given in the second of two consecutive surveys
Moving house	C-R	Binary	Retrospective answer given in the second of two consecutive surveys
School transfer	C-R	Binary	Retrospective answer given in the second of two consecutive surveys
Child's relationship with teachers	C-R	Binary	Retrospective answer given in the second of two consecutive surveys
Child's relationship with classmates	C-R	Binary	Retrospective answer given in the second of two consecutive surveys

C-R: child self-report.

Table A4
Correlation coefficient between parental education and four resource items by different survey wave.

Wave of surveys		Pocket money	Mobile phone	Home computer	Housing
W 1	Parental education	0.021	0.219	−0.053	−0.071
W 2	Parental education	−0.008	0.202	−0.109	−0.041
W 3	Parental education	0.006	0.182	−0.093	−0.073
W 4	Parental education	−0.011	0.189	−0.094	−0.018
W 5	Parental education	−0.033	0.115	−0.092	0.092

Appendix B. Supplementary material

Supplementary data to this article can be found online at https://doi.org/10.1016/j.childyouth.2019.104592.

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