Poverty and health status:
The differential dynamics of wellbeing in immigrant families
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ABSTRACT

This article concerns the differences in the effects of poverty on health between the native-born and immigrants.   Using longitudinal data from the Survey of Income and Program Participation 2001 panel, I examine the effects of poverty status and poverty transitions to test three competing hypothesis: (1) the absolute income hypothesis, (2) the permanent income hypothesis, and (3) the life course transition model.   Results show that only the permanent income hypothesis is supported, but the age gradation and health paradox unveils some impact on health of immigrants.

INTRODUCTION

Recent research has brought attention to the poverty and hardship faced by immigrants in the U.S.   Economic attainment and wellbeing are often the main concerns in immigrant families as well.   In the past, most poverty or wellbeing data come from studies conducted at one point in time, or from annual studies conducted on a different set of people every year.   With the burgeoning number of longitudinal surveys in social science, researchers can investigate and analyze information from a dynamic view. Studies based on such data show that a majority of poor individuals do not remain poor for very long periods of time and a relatively high proportion of people have experienced poverty at one point or another (Iceland 2003).   Longitudinal data provide a comprehensive and dynamic overview of individual and household poverty experiences.

McKernan and Ratcliffe (2002) summarized in detail the empirical poverty literature on poverty transitions.   Rank (2001) also addressed the negative effects and

consequences of poverty, especially in realm of health. There are many studies

contributing knowledge on the determinants of poverty, socioeconomic influences on

health, and childcare support in immigrant families. However, there are few previous

studies that address the following questions: how do the dynamic transitions of poverty

influence an individual's health status, and what is the difference in this relationship

between native-born and immigrants? These two research questions guide this research.

Based on debates of assimilation theory, Rumbaut (1999) raises the issue on the

hazardous effects of "assimilation" for infant and adolescent health in immigrant families.

By this, he means that the measured health status of the second generation is sometimes

actually worse than among the immigrants themselves. Through the process of

assimilation or accommodation, I believe the link between poverty and health should

differ between immigrant and nonimmigrant families. Furthermore, immigrants may

exercise their close networks and social support to buffer the impacts of poverty on their

health. Accordingly, I hypothesize that the influence of poverty transitions on health

status are different between immigrants and the native-born. Therefore, I will review

the literature on the causes of health and the effect of poverty transitions.

LITERATURE REVIEW

<u>The poverty dynamics and health status</u>

Research based on individual-level data has found a very robust positive relationship

between an adult's income and health, regardless of the measures of health status and

socioeconomic status used (Phipps 2003). Poverty can affect health in a number of

ways. "Income provides the prerequisites for health, such as shelter, food, warmth, and

the ability to participate in society; living in poverty can cause stress and anxiety which

can damage people's health; and low incomes limit peoples' choices and militates against desirable changes in behaviour (Benzeval et al. 1995: xxi)." The material conditions are not only the direct underlying root of ill health, but also the indirect detriment of mental health and care giving of children. Therefore, children in poverty raise huge concerns about their health condition.

Phipps (2003) concluded the dynamic effects of poverty on health as: (1) the relationship between individual income and health is non-linear, (2) long-term measures of average income have larger associations with health than measures of current income, (3) long-duration poverty has larger (negative) health consequences than occasional episodes of poverty, and (4) both income level and income changes are significant predictors of health status, but the income level is the most important of the two. These imply the timing, duration, and level of entering and exiting poverty really play different roles on individual's health.

The relationship between poverty and health among adults also holds for children. Using life course theory, McLeod and Shanahan (1996) conceptualize the relationship as interlocking trajectories or pathways defined by sequences of events and transitions. They argue "the poverty trajectory can be defined by three components: movements into and out of poverty, states of poverty, and the duration of time in poverty. Similarly, mental health trajectories can be defined in terms of the onset and offset of serious mental health problems or, alternatively, in terms of increases and decreases in symptom level over time (p. 208)." A family's poverty history will affect the children's health. Change in income as well as unstable economic circumstances will challenge family's functioning and its adaptive outcomes.

Phipps (2003) also discusses how ill health may limit an individual's ability to engage in paid work, and hence reduce his or her income, even if he or she comes from an affluent background. The "reverse causation" issue could be clarified by longitudinal survey with time-sequential data.

Theories on how health status is affected by socioeconomic status

From consumption function theories proposed by economists, I expect the following links between individual-level SES and health:

The absolute income hypothesis

If a positive and robust relationship exists between poverty and health, we could make an analogical argument from income and consumption in economics. Keynes (1936) developed a mathematical function to express consumer spending as one term called the "consumption function". For health, it considers only the direct effect of current income on the health of an individual and ignores potential future income, proposed as "permanent income hypothesis." One's health status improves with the level of personal income, but at a decreasing rate. In other words, the relationship is not linear: as income increases, health increases but not as much as the increase in income.

The permanent income hypothesis

On the other hand, Friendman (1957) argues the fallacy of absolute income hypothesis. He stated that the choice made by a consumers regarding their consumption patterns are determined not by current income but by their longer-term income expectations. Similarly, one's perceived health status is determined not by recent income but by a long-term estimated or real income. The theory suggests that individuals try to smooth out their health status based on their estimated income, and the

transitory changes in income do not affect long run health status.

Absolute and permanent income hypothesis show a clear picture of how long-term and short-term income affect consumption respectively. Health itself must be sustained by consuming nutrition, decent living environment, as well as health and medical care service. Therefore, consumption will link between poverty status and health and its theories will apply as well. If long-term effects dominate, it will support the permanent income hypothesis; otherwise, short-term effects will support the absolute income hypothesis vice versa.

<u>The life course hypothesis: transition out and into poverty</u>

In the life course perspective, time and transition are two dominant influences on individual's life. In the past, poverty and health are usually conceptualized and empirically investigated in static terms, however, life course theory challenges this approach and calls for heterogeneity, discontinuity, and contingency of life histories (McDonough and Berglund 2003). The "normal biography" may not exist, and individual's life cycle as well as life transition should be topics of concern.

By definition, a trajectory is the stable component of a direction toward a life destination and is characterized by a given probability of occurrence. The turning point is a change in direction in the life course, with respect to a previously established trajectory, that has the long-term impact of altering the probability of life destinations (Clausen 1995). In Clausen's study, some of the cited turning points were not dramatic or major events but instead subtly evolving changes in the roles or in the organization of life that had greater effects with time. Poverty is a good example to conceptualize this life course dynamic on health, and the temporalizing poverty may be experienced as

short-term, long-term, or recurrent condition.   The labeling effect and the culture of poverty view that cumulative psychosocial decay as a long-term process, while the states, trajectories, transitions, domains and duration shows that the nature of poverty are much more complex (McDonough and Berglund 2003).

Therefore, the spell-based approach is used to study the dynamics and duration of poverty.   Bane and Ellwood (1986) argued that previous analyses have examined either fluctuations in the male heads' earnings or the frequency of poverty periods over a fixed time frame. Instead, they developed a definition of spells of poverty to examines the dynamics of poverty and conclude that the seemingly inconsistent findings on permanent and transitory poverty from the sixties and seventies can indeed be reconciled.   Their primary finding is that although many people have very short spells of poverty, the few with very long spells account for the bulk of all poverty and represent the majority of the poor at any given time.   The episodic and spell approach help us explain the ways in which the poor slip into poverty and escape it (Bane and Ellwood 1986).

Finally, Benzeval and Judge (2001) argued that the significance of initial health status and the greater importance of average income reinforces the role of factors across the life course as determinants of health inequality.   The initial health status could be seen a marker for individuals' cumulative socioeconomic life experiences.   Initial health status will have a serious effect if we want to compare the dynamics between immigrant and non-immigrant poverty, since the health paradox among immigrants exists consistently in previous research findings.

In short, the life course transition hypothesis focuses on the importance of previous poverty history and transition on individuals' subsequent health outcomes.   If the

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numbers of spells and initial health status have impact on later health, it will support the life course transition hypothesis.

Poverty and health in immigrants

All immigrants and non-immigrants share the same basic needs, such as food, clothes, shelter, health care, and education, thus the pathway of how poverty effects on health seems similar.   However, the conditions associated with immigrant status have distinct consequences.   In 1990, children in immigrant families were more likely than native-born children to live in poverty (22% versus 17%).   The first-generation had 33% of poverty rate, while the second generation was slightly more likely (19%) to be poor than third- and later- generation (17%) (Hernandez et al. 1998).   Besides, they were also more likely to have many siblings, parents with very low educational attainments, and to live in overcrowded housing.   Among each dimension, second-generation children experienced substantially less risk than did first-generation children.

The socioeconomic and demographic risks of immigrant families, however, have reverse effects on health status and cause a paradoxical phenomenon.   Despite their lower SES, higher poverty rates, and racial or ethnic minority status, immigrants tend to have better health than the native-born population in U.S., and the relative advantage tends to decline with length of time in the U.S. and from one generation to another (Hernandez et al. 1998).   To date, however, researchers have not provided a systematic analysis of the paradox across a range of physical and mental health outcomes.   The most common explanation might be the selection effect, those who overcome harsh condition and obstacles coming to the U.S. have advantage of better health, and family bond as well as social support, which provides protection factor under their economic

enclaves and cultural environment.   This protective aspects of immigrant culture may

fade as they assimilated into the mainstream American culture, allows deleterious effects

to emerge.

Based on the literature, explanatory links of (1) how the dynamic transitions of

poverty influences individual's health status, and (2) the different patterns of poverty on

health between immigrant and nonimmigrant family will be examined.   I will test the

three competing theories that address the first question, i.e. absolute income hypothesis,

permanent income hypothesis, and life course transition hypothesis, to evaluate their

efficacy to predict the effects of poverty on health. Previous research highlights the

importance the dynamic poverty, and I will expand to its impact on health between

native-born and immigrants family.

DATA AND METHOD

<u>Data</u>

This research uses data from 2001 panel of the Survey of Income and Program

Participation (SIPP), administered between February 2001 and February 2003.   The

SIPP is a longitudinal survey in which respondents are interviewed every 4 months for 36

to 48 months.   Respondents provide monthly information on several core areas, such as

income and general demographic characteristics.   In addition, respondents provide

information on many other topics included in different modules.   While most poverty

and demographic data are contained in core data, the health and migration data are from

topical modules.   Thus, the design allows us to capture poverty and health dynamics.

In SIPP 2001 panel, there was a 9-wave panel covering 36 months, and the sample size is

56,816 after including only those cases with complete data on all of the variables in the

analysis.

A primary strength of SIPP is the monthly data, which allows for detailed analyses of short poverty spells. The SIPP also captures the current Hispanic and immigrant populations more precisely than PSID. These population may be particular important in measuring poverty. However, in contrast to the long panel length of the PSID, the SIPP can only track poverty for two to four years, making it impossible to examine long poverty spells (McKernan and Ratcliffe 2002).

Measure

Poverty dynamics: status, transitions, and duration

In his review on poverty dynamics, Rank (2001) examines several types of poverty transition. Most spells of poverty are relatively short, and the typical pattern is that the household are poor for one or two years and manage to get above the poverty line. However, a much smaller groups experience chronic poverty for several years which diminish their chance to get out of poverty. Therefore, long-term poverty and short-term poverty, similar to permanent poverty and transient poverty, should be distinguished according to one's status in poverty.

Iceland (2003) used several measures available in SIPP dataset to describe poverty. He notes that an advantage of the design of SIPP that it allows us to examine both the static and dynamic aspects of poverty, thereby providing a richer picture than the one drawn by the CPS, the survey currently used for official poverty rate. Most import, SIPP can provide not only into and out, spells and duration of poverty, but it can also distinguish short-term and long-term poverty. The data from the SIPP, which collects monthly data, provides a *dynamic view to capture the instant health outcomes*. Based

on the Census Bureau measures (Iceland 2003), I develop five indicators of poverty

measure as follows:

(1) *long-term and short-term poverty status.* I define individual's poverty status

based on *average monthly poverty* as "for each person, family income in a given

month is compared to the poverty threshold for the family composition in that

month." I code monthly poverty= 1 and non-poverty= 0. The long-term poverty

is the average monthly poverty in whole 36 months, and short-term poverty status is

the average in last half year. They represent the percent all of the months in a

given period in which people are poor.

(2) *long-term and short-term poverty transition.* I refine the *entries and exits*,

defined by difference of annual poverty status, as difference of monthly poverty

status. If one's poverty status is different in the consecutive month, I code the

transition as one, regardless entering or exiting poverty, and 0 if there is no

transition. Although the positive or negative effect might be observed by

separating these two transitions, the stability of individual's income dynamic could

be observed through a much simpler way. I code monthly poverty transition= 1

and non-transition= 0. The long-term poverty transition is the sum of all transitions

in whole 36 months, and short-term poverty transition is the sum in last half year.

They represent the poverty stability of all the months in a given period.

(3) *poverty duration.* I refine *episodic poverty*, defined as poor for two consecutive

months or more in a given year or panel, as the longest duration of poverty in 36

months. This measure will capture the time distribution and accumulation of

poverty status, thus it should be different if one is in poverty for twelve consecutive

months and the other is in poverty every other month in two years.

For example, one might encounter longer poverty duration but lower transition, regardless he is in long-term and short-term poverty, or vice versa. The long-term poverty and short-term effects are well documented in previous research, but the effects of income stability are confounding: more transitions shows income instability but will unnecessary influence the outcome, since the deprivation of necessity will not effect until accumulation of time.   Stevens (1994) reviewed previous studies and proposed the shortcoming of focusing on single spells, because it ignores individuals' repeated episodes of poverty.   This corresponds with my measure of multi-spell poverty transition.   I expect the poverty status, poverty transitions, and poverty duration will portrait the dynamic dimension of income poverty on health.

Health status

As in many household surveys, SIPP uses self-rated health status to evaluate subjective perception health.   In Idler and Benyamini's (1997) study on self-rated health (SRH) and mortality, SRH is considered a more inclusive and accurate measure of health status than other covariates used to predict mortality, and it captures the full arrays of illnesses a person has and possibly even symptoms undiagnosed as well.   More important, SRH is a dynamic evaluation reflecting both individual and family history and a judging trajectory, rather than only current level of health.   The SRH question of SIPP is identical to the one used over the years by the National Health Interview Survey (NHIS) and reads as: "*Would you say your health is excellent, very good, good, fair, or poor?*". Measured on an annual basis, it is coded from 1 to 5 where excellent = 5 and poor =1. The health status at the 12th month will act as a control variable of initial health status,

and the one at the 36th month will play an outcome dependent variable.

Immigrant status

Immigrant status is defined according to the country of birth: a person who was not US citizen at birth, left his/her country, and settled in the U.S. is called a first-generation immigrant; a person born in the U.S. is a second-generation immigrant if either of his/her parents is a first-generation immigrant.   I neglect the third- and later- generation immigrants since both their socioeconomic status and health status have assimilated as native-born in some respects.

Control variables

Control variables for analyses included age, sex, race (i.e. non-Hispanic white, non-Hispanic black, Hispanic and non-Hispanic Asian), number of family members and individual's education.   In order to control the partial effect of income, designated for evaluating the poverty status, I use total family income at the 36th month to eliminate its impact.   Besides, I also control initial health status to alleviate the influence of health paradox in immigrants and to adjust base-line health difference of each comparison groups.

Analysis

The unit of analysis is a person, rather than a household or a family, since the life course of individual is the main concern of this research.   Though the poverty status is judged by whether total family income is in excess of poverty threshold of family, individual still has different traits of health performance according to his age or education.   First I use descriptive statistics to compare the conditions of poverty dynamics, health status, and other socioeconomic status and familiar characteristics between native-born and

immigrants.   Second, detailed poverty dynamics will be explored under different age

and immigrant categories.   Finally, *ordered logit models* will be employed to test the

three competing hypothesis in different age-immigrant categories.

Results

Table 1. Descriptive statistics of poverty, health, and background variables for immigrants and non-immigrants

	Non-Immigrant		Immigrant		First-generation		Second-generation	
N	48211		8605		4758		3847	
	84.60%		15.40%		55.30%		44.70%	
	(Percentage)		(Percentage)		(Percentage)		(Percentage)	
Male	47.4		48.1		46.6		50.0	
Age								
18-	24.5		33.2		0.3		73.9	
18-45	35.8		39.5		51.5		24.6	
45+	39.7		27.3		48.1		1.5	
Race								
Non-Hispanic White	78.4		29.9		30.8		28.9	
Non-Hispanic Black	13.3		6.3		6.2		6.3	
Hispanic	6.1		43.9		41.4		47.0	
Asian	1.0		20.0		21.8		17.8	
Marital status								
Married, spouse prese	43.9		39.5		68.2		4.0	
Never married	39.2		48.0		11.4		93.3	
Ever Divorce	23.9		12.4		15.6		3.1	
Ever Widow	2.3		0.7		0.9		0.1	
Socioeconomic Status	(Mean)	(S.D)	(Mean)	(S.D)	(Mean)	(S.D)	(Mean)	(S.D)
Highest Education*	2.57	1.03	2.29	1.16	2.39	1.19	2.00	1.02
# of family members	3.15	1.65	4.00	1.94	3.38	1.84	4.76	1.77
Poverty threshold	1326	452	1563	529	1393	509	1772	476
Total family income	4983	4897	5070	5227	4852	5126	5341	5337
Poverty status								
First year	0.130	0.281	0.189	0.316	0.168	0.302	0.214	0.332
Second year	0.130	0.285	0.181	0.314	0.163	0.303	0.203	0.325
Third year	0.128	0.286	0.171	0.316	0.156	0.307	0.189	0.326
Short-term poverty	0.126	0.299	0.169	0.336	0.155	0.325	0.187	0.348
Long-term poverty	0.130	0.256	0.180	0.278	0.163	0.269	0.202	0.289
Poverty transition								
First year	0.425	0.977	0.697	1.251	0.620	1.165	0.792	1.344
Second year	0.390	0.944	0.667	1.249	0.569	1.142	0.788	1.359
Third year	0.311	0.838	0.447	1.044	0.391	0.963	0.517	1.131
Short-term transition	0.151	0.493	0.215	0.620	0.187	0.568	0.250	0.677
Long-term transition	1.121	2.072	1.802	2.675	1.571	2.453	2.088	2.902
*Poverty duration**								
	3.403	7.375	4.378	7.643	4.101	7.616	4.721	7.663
Health								
First year	2.86	1.10	2.87	1.07	2.61	1.11	3.20	0.90
Second year	2.82	1.09	2.87	1.07	2.56	1.11	3.24	0.88
Third year	2.81	1.10	2.88	1.06	2.59	1.12	3.24	0.87

* The Highest Education is coded from 1 to 4. ** The poverty duration are consecutive months in three years.
Source : Survey of Income and Program Participation, 2001 panel, waves 1-9.

Characteristics between native-born and immigrants

Table 1 presents the percentage and mean values of poverty for immigrants (N=48211)

and non-immigrants (N=8605), and the later was further explored by separating

first-generation (N=4758) and second-generation (N=3847) immigrants.   Immigrants are

relatively younger, less married, and having more stable marriage and larger family.

However, even in general they have higher total family monthly income (immigrant:

5070, native-born: 4983), much higher poverty threshold (immigrant: 1563, native-born:

1326) due to a larger family as well as lower education make them live in poverty.   This

phenomenon is similar to *health paradox*, i.e. the children of Mexican immigrants are

exceptionally healthy at birth, and they have lower birth weight in spite of lower

socioeconomics status and poor prenatal care compared with native-born (Ventura et al.

2000).   In short, differences exist between native-born and immigrants.

From the longitudinal data, both native-born and immigrants are less likely to be

poor by the end of the panel, likely reflecting declines in the official U.S. poverty rate

from 2001 to 2004.   The poverty status drops from 13% to 12.8% for native-born and

18.9% to 17.1% for immigrants in three years.   Furthermore, the poverty transitions,

used to capture the fluctuation of entries and exits of poverty, drops from .42 to .31 times

per year for native-born, and .70 to .45 times pear year for immigrants in three years.

Immigrants demonstrate better improvement not only in above-poverty income, but also

in annual self-perceived health.

Column three to four indicate the patterns of first and second-generation immigrants.

From the age distribution, over 48% first-generation immigrants are above the age 45 and

only less than 1 % are below age 18, since children living with parents who are

immigrants are automatically coded as being the second generation, regardless of where they were born.   Meanwhile, limited amount of second-generation are above age 45, but the proportion under age 16 is over 73%.   It suggests the age distribution as well as immigration status might dominate the poverty dynamics and health status.   The younger generation generally tends to have better health, as well as poor status and stability income well-being.

Poverty dynamics

Optimistically, the income status and stability are improved in both native-born and immigrants from the first to the third years.   Immigrants are at a significant disadvantage in terms of income status and income stability, thus more detailed poverty dynamics are worth investigating, as shown in Table 2.   Row 1 shows that children and adolescent suffer from poverty in both native-born and immigrant families, and the condition is improved in an older generation.   Taking 36 months as a whole, most long-term poverty happens less than 12 months, however, a significant amount of poor conditions last more than 24 months.   This exists extraordinary in younger generation, particularly in immigrants (11% for native-born and 14% for immigrant children and adolescent).

Poverty transition is another story yet.   Row 2 shows that most of the transitions happening to individual are within four times.   It is rare for someone to have more than eight transitions during three years.   Nevertheless, immigrants experience higher income instability especially in younger cohort.   The long-term and short-term instability will influence health status in different level presented later.

Table 2. Age distribution of poverty dynamics and health status by immigrants and non-immigrants

	Non-Immigrant			Immigrant		
	18-	18-45	45+	18-	18-45	45+
N	11812	17260	19140	2857	3399	2349
%	25	36	40	33	40	27
Poverty status	(Percentage)					
First year poverty*	32	26	18	44	37	28
Second year poverty	31	24	17	42	33	27
Third year poverty	30	23	17	36	29	23
Long-term Poverty						
None	56	62	72	44	50	61
1-12 months	24	24	17	29	31	23
12-24 months	9	7	5	14	11	7
24+ months	11	7	6	14	9	9
Poverty transition						
First year poverty**	27	23	15	39	34	25
Second year poverty	25	21	14	37	30	22
Third year poverty	22	18	11	28	23	16
Long-term Poverty						
None	56	62	72	46	52	64
1-4 transitions	22	22	18	25	26	23
5-8 transitions	14	11	6	21	17	11
8+ transitions	4	3	1	8	6	2
*Poverty duration****						
None	54	60	71	41	49	59
1-4 months	21	21	15	27	28	22
5-8 months	8	7	4	12	10	6
8+ months	17	11	9	20	14	13
Health	(Mean)					
First year	4.41	4.02	3.38	4.27	3.96	3.27
Second year	4.40	3.98	3.33	4.34	3.93	3.21
Third year	4.39	3.98	3.30	4.32	3.97	3.21

* At least one month in the given year. ** At least on transition in the given year. *** *In 36 months. Source*: Survey of Income and Program Participation, 2001 panel, waves 1-9.

In my definition, poverty duration is the longest spell in a given period, and it is intrinsically similar to poverty status: the longer the duration, the higher rate of individual's poverty status. Therefore, row 3 shows similar characteristics described in poverty status section. Immigrants have longer poverty duration, and some children and adolescents encounter cumulative hardship in a greater level.

Finally, row 4 displays an apparent age degrading of health status in different cohort. The health paradox in aggregative level seems to disappear after grouping native-born and immigrants by age. Native-born have better self-perceived health than immigrants

in a minute scale.   This strengthens the needs to include age category into the causal

model of poverty on health.

Table 3. Correlations between poverty dynamics and health status

Non-Immigrant (N=48158)	(1)	(2)	(3)	(4)	(5)	(6)
(1) Health Status	1.00					
(2) Short-term poverty status	-0.12 *	1.00				
(3) Long-term poverty status	-0.13 *	0.83 *	1.00			
(4) Short-term poverty transition	0.00	0.33 *	0.26 *	1.00		
(5) Long-term poverty transition	-0.02 *	0.36 *	0.47 *	0.56 *	1.00	
(6) Poverty duration	-0.14 *	0.77 *	0.94 *	0.17 *	0.28 *	1.00
Immigrant (N=8605)	(1)	(2)	(3)	(4)	(5)	(6)
(1) Health Status	1.00					
(2) Short-term poverty status	-0.09 *	1.00				
(3) Long-term poverty status	-0.10 *	0.80 *	1.00			
(4) Short-term poverty transition	-0.04 *	0.34 *	0.27 *	1.00		
(5) Long-term poverty transition	0.00	0.37 *	0.48 *	0.55 *	1.00	
(6) Poverty duration	-0.12 *	0.73 *	0.92 *	0.15 *	0.25 *	1.00

*$p<0.05$.   Source: Survey of Income and Program Participation, 2001 panel, waves 1-9

Relationship between poverty dynamics and health

To what extent do individual's poverty histories account for the health status?   The

correlations in table 3 show that poverty duration, long-term and short-term poverty

status highly correlate with each other, and so do the short-term and long-term transition.

The health status is correlated with different poverty indicators in a medium level, but the

pattern is different between native-born and immigrants.   The short-term poverty

transition has no statistical relationship with health status in native-born, but so does the

long-term poverty transition in immigrant.   In other words, in terms of poverty transition,

the long-term instability might impact on native-born, and short-term instability seems to

endanger immigrants' health.   Further relationship must be explored through more

sophisticated modeling.

The determines of health

The central interest in the research is how poverty history accounts for the final health status. In poverty indicators, I proposed poverty status and poverty transition in both long-term and short-term forms to estimate their effects on final health status, and the poverty duration is deleted from models since its obvious collinearity with long-term poverty status. Initial health status and total family income are controlled for different health and income level to evaluate the pure effect of poverty dynamics on health. Finally, due to huge influence of age degradation, the model will estimate three age groups within native-born and immigrants.

Table 4 shows some dominant variables which effect on health: younger age, higher education, and higher family income help promoting better health in all groups. Meanwhile, other demographic variables show different influence between native-born and immigrants: in native-born families, divorce has negative impact on health in 18-45 age group, and so does family size in 45+ age group. It suggests family dissolution impacts adults' health, and larger family size indicates possible extra support of care from family members for elders' poor health. These two effects are insignificant in immigrant's model. Similarly, male advantage exists in adults in both groups as well as native-born children and adolescents. Surprisingly, race doesn't play significant roles in every model, and the possible explanation is it is somehow attenuated by separating immigrants from non-immigrant. All these demographic variables are used for controlling partial effects, and they will not be examined further.

Table 4. Ordered logit estimates of health status on poverty and demographic variables in different age groups for immigrants and non-immigrants

	Non-Immigrant						Immigrant					
	18-		18-45		45+		18-		18-45		45+	
Poverty indicators	β	se	β	se	β	se	β	se	β	se	β	se
Short-term poverty status	0.49	0.22	-0.87	0.09	-1.85	0.10	1.49	0.39	-0.88	0.18	2.31 *	0.23
Long-term poverty status	-3.00 **	0.26	-6.62 ***	0.12	-2.55 **	0.12	-0.55	0.49	0.24	0.23	-3.54 ***	0.28
Short-term poverty transition	-0.97	0.09	2.51 *	0.04	0.62	0.04	0.07	0.16	-1.19	0.07	-2.69 **	0.10
Long-term poverty transition	-1.10	0.02	-0.79	0.01	-0.86	0.01	-1.17	0.04	0.35	0.02	1.95	0.02
Demographic variables												
Male	2.81 **	0.07	4.19 ***	0.03	-0.94	0.03	1.54	0.16	2.35 *	0.07	0.88	0.08
Age	-3.90 ***	0.04	-13.39 ***	0.00	-16.56 ***	0.00	1.60	0.08	-6.12 ***	0.00	-9.03 ***	0.00
Non-Hispanic White	-0.88	0.29	-0.48	0.13	1.59	0.14	-0.43	0.81	0.86	0.34	1.21	0.40
Non-Hispanic Black	-1.49	0.30	-1.91	0.13	0.02	0.14	-0.04	0.85	0.51	0.36	1.07	0.43
Hispanic	-1.86	0.31	0.23	0.14	0.54	0.16	-0.12	0.79	0.62	0.34	0.81	0.40
Asian	-0.50	0.41	-0.63	0.18	0.88	0.21	-0.54	0.79	0.29	0.33	0.87	0.40
# of family members	0.62	0.03	1.86	0.01	-2.00 *	0.01	0.17	0.05	-0.88	0.02	-1.57	0.03
Ever Divorce	-0.05	1.55	-3.22 ***	0.04	-1.15	0.03	NA		-0.72	0.11	0.26	0.10
Highest Education	0.56	0.10	13.07 ***	0.02	14.66 ***	0.02	-0.38	0.19	4.69 ***	0.04	3.07 **	0.04
Control variables												
Total family income	3.52 ***	0.00	5.15 ***	0.00	9.77 ***	0.00	2.94 **	0.00	3.93 ***	0.00	2.95 **	0.00
Initial health status	14.63 ***	0.05	49.29 ***	0.02	70.10 ***	0.02	6.19 ***	0.09	17.79 ***	0.04	20.56 ***	0.04
Model characteristics												
N	2738		16473		18465		591		3184		2219	
LR chi2	400		4512		9312		63		573		870	
Prob > chi2	0.00		0.00		0.00		0.00		0.00		0.00	
Pseudo R2	0.07		0.11		0.17		0.05		0.07		0.13	
Log likelihood	-2874		-19025		-23175		-628.4		-3792		-2932	

* $p<0.05$, ** $p<0.01$, *** $p<0.001$. *Source*: Survey of Income and Program Participation, 2001 panel, waves 1-9.

To answer my research question, the result in general supports the permanent income hypothesis that long-term poverty status dominates in most groups, but the absolute income hypothesis as well as the life course transition hypothesis is found weak in their effects on health. In native-born family, long-term poverty status has negative impact in all age groups, however, non-significant effect is shown in immigrants under age 45 after controlling current family income and initial health status. The exception shows the mixing effects of health paradox: higher poverty does not necessary cause poor health.

Other minor positive effects are found in short-term poverty status (immigrants 45+) and short-term poverty transition (native-born age 18-45). From theories it is unusual to observe positive impact of poverty on health, but some explanations could be found in coping behavior called *resilience*. Resilience is defined as the capacity to cope with life's setbacks and challenges (Moen and Erickson 1995) . To evaluate self-perceived health status, individual may develop a positive cognition toward the current economic setback through available social or personal resources, such as social integration, support network, self-reliance, and mastery. These attributes contribute to individual's capacity, first-generation immigrants in particular, to cope with temporary adversity.

For native adult (age 18-45), resilience might be a protective factor to buffer the sudden poverty transition and encourage individuals to have a much positive view toward the world, including their health. Similar effects could be found in immigrants above 45, who are mainly first-generation immigrants well-know for struggling against the hardship, and short-term poverty status they encounter still undergo the psychological mechanism to generate a much more positive health perception.

In conclusion, these models suggest difference patterns might exist between native-born and immigrant individuals.   For non-immigrant, poverty indicators have similar influences across different age group.   On the other hand, poverty has no effects in immigrants below age 45, but complicated effects emerge in the group above age 45. To delve into the health paradox, both objective and physical health measures, more suitable poverty indicators, and appropriate method to eliminate the age degrading effect should be considered in the future.

Discussion

To what extent does health status vary depending on individuals' poverty histories? Pervious research shows children's poverty experiences and persistently poor conditions have significant effects on certain mental health outcomes (McLeod and Shanahan 1996). In limited available longitudinal research, the findings generally support long-term income rather than current income; income level are more significant than income change; and persistent poverty is more harmful for health than occasional episodes (Benzeval and Judge 2001).   This article basically correspond these arguments:

1. *support permanent income hypothesis*: long-term poverty status (persistent income) has greater effects than short-term poverty (transient or current poverty), and

2. *does not support life course transitions hypothesis:* significant long-term poverty status (persistent poverty, income level) shows dominant effects than poverty transitions (occasional episodes, income change).

However, some limitations still exist.   First, the poverty measurement based on income and official poverty threshold fails to capture the facts of personal consumption and

expenditure, and the definition of poverty status will be distorted by measures without adjustment. Second, the construction of poverty and health dynamics should be measure by advanced methods to capture their growth patterns, such as fix and random effects or growth curve model (McDonough and Berglund 2003; McLeod and Shanahan 1996). Although similar ideas have been employed into the models with status and transition, it fails to measure the initial health and poverty level with their future growth. Third, SIPP provides monthly data within three years, and the duration is relatively short compared with other datasets in previous research. It might be an ambivalence because shorter duration eliminates possible unwanted effects, like aging and significant life transitions which will further complicate the causal effect between poverty and health. However, three-year span might not be long enough to test life course theories, particular with lack of individual's previous information. If poverty history is available in the dataset, the effect of life course might appear since three years might not be long enough for cumulative health transition. Finally, the age degradation and health paradox could be confounding factors to the health studies of immigrants. More appropriate causal models and categorization are necessary.

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