Chronic vs Transient Poverty: the Case of Rural China

Yuan ZHANG, Fudan University, China
Guanghua Wan, ADB

Abstract: The poverty decomposition framework of Rodgers and Rodgers (1993) is found to violate the focus axiom of Sen (1976). An alternative is proposed in this paper and then applied to a panel data from rural China. Our empirical results indicate that chronic poverty dominates total poverty in rural China. Further, larger households are more likely to be poor. Those mainly engaged in farming tend to suffer more transient poverty. Finally, physical, financial, political and human capital all contribute to poverty reduction. It is particularly recommended that policy makers in China shall focus on chronic poverty rather than transient poverty.

Key Words: Chronic Poverty; Transient Poverty; Poverty Decomposition; Focus Axiom; Rural China

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1. Introduction

There exists a strong and growing interest among development practitioners and policy makers to learn from China’s poverty reduction experience (Wan 2008a), owing to the recognition that poverty reduction in China has been as remarkable as China’s miracle growth. According to China’s official statistics, there were 250 million rural poor in 1978 when economic reform began\(^1\). A decade later, it decreased dramatically to less than 100 million and further reduced to 15 million in 2007 (Table 1). In terms of headcount ratio, poverty dropped from 30.7 per cent in 1978 to 1.6 per cent in 2007. It is noted, nevertheless, that poverty reduction slowed down in the 1990s and 2000s and poverty actually rose in 1989, 1991 and 2003.

As is known, the poverty line underlying the official statistics is far lower than the commonly used $1.25 a day poverty line adjusted for purchasing power parity. But, using different poverty line does not alter the performance assessment of China (World Bank 2001) although poverty would be severer under higher poverty lines. For example, as many as 60.2 per cent of China’s population lived below the $1.25 poverty line in 1990. Merely six years later, this percentage dropped to 36.4 in 1996, and further decreased to 15.9 in 2005 and less than 5 in 2010 (Wan and Sebastian 2011).

[Table 1 here]

\(^1\) Rural poverty accounts for more than 99 per cent of China’s total poverty irrespective of poverty lines and periods under consideration (Zhang et al. 2007).
A salient feature of China’s poverty reduction experience lies at the pro-active roles of the central and local governments. In 1986, the Chinese government set up the State Council Leading Group on Poverty Alleviation and Development, headed by a deputy prime minister. Members of the group consist of 33 ministries and commissions including the powerful National Development and Reform Commission and ministries of finance, agriculture, education, and science and technology. The Leading Group supervises the work of its operational arm - State Council Leading Group Office of Poverty Alleviation and Development. The Leading Group Office is headed by a specially appointed minister. Corresponding institutions were set up at the provincial, county and even township levels to ensure implementation of poverty reduction projects, programs and policies. Such a strong and large scale government interventions have been hailed as a role model for many developing countries in Asia, and particularly in Africa.

Upon its establishment in 1986, the Leading Group Office selected 331 counties as state designated poor counties. These counties are the main targets of policy interventions through direct fiscal transfers as well as indirect assistances such as tax concessions, subsidized loans and preferential treatments in official projects and programs. In 1993, the central government launched the “8.7” campaign, committing to lift the remaining 80 million poor out of poverty in the remaining 7 years of the 20th century. In the same year, the number of state designated poor counties was expanded to 592 and the central government budget for poverty reduction was increased significantly. In 2001, China launched its first 10-year plan for poverty reduction, shifting policy targets to the much smaller village rather than county level. The plan also introduced the participatory approach and emphasized capacity building and training for potential rural to urban migrants.
In 2011, the second 10-year plan for poverty reduction was launched. While retaining the poor village and poor county focus, priority is now given to 14 ultra poor areas which are typically across provincial administrative borders. A much publicized move accompanying the release of the latest 10-year plan is the increase in the official poverty threshold from 1196 Yuan to 2300 Yuan. The move is significant for three reasons: First, it will make an extra 100 million or a total of 128 million rural population qualify for social welfare assistance, thus help reduce income inequality – one of the most pressing and important challenges China has been facing. Second, the move will boost domestic consumption, thus help rebalance the Chinese economy by reducing external trade imbalance and reducing heavy reliance on investment as the main driver of growth. In other words, the move will facilitate structural adjustment and improve China’s growth sustainability, which is very crucial for the global economy. Finally, the new threshold is closer although still short of the $1.25 poverty line.

Government interventions naturally focused on state designated poor counties and villages. Some provinces also have own province designated poor counties and villages. To what extent such strong government involvement is effective remains an open question. Findings from existing studies, however, are not very encouraging. For example, using data from Sichuan and Shaanxi, Rozelle et al. (2000) found that economic growth accounts for the bulky part of poverty reduction and policy interventions played little role. Empirical results from Fan (2003) indicate that among alternative government investment programs, subsidized loan produced the least impact on poverty. He attributes the insignificant policy impacts to frequent misuse of funds and
ineffective targeting. After all, the state designated poor counties only cover half of China’s poor. Further, urban poverty which emerged in the mid-1990s and rose with the massive inflow of migrants is not covered by the national poverty reduction plans. However, according to Jalan and Ravallion (1998, 2000), policy interventions in China were effective in reducing chronic poverty but not effective for reducing transient poverty.

While the extent of poverty reduction and government involvement in China is well documented, little is known about underlying mechanism or factors driving poverty. A commonly used framework towards uncovering the drivers of poverty reduction is to conduct poverty decomposition (Thorbecke 2004), which helps reveal components of a given level of poverty or contributions to poverty changes. Such decomposition results are valuable as they can provide insights on the causes or sources of poverty. For example, Zhang and Wan (2006) find that rural poverty increased in the second half of the 1990s in China and adverse distributional changes are the main cause. Using a different dataset and different decomposition methodology, Wan (2008b) finds that resource redistribution is more important than total endowment of resources in constituting rural poverty in China. Both findings highlight the need to contain rising inequality in order to eradicate poverty in China.

A given level of poverty can also be decomposed into its chronic and transient components. This decomposition is important since causes of chronic poverty differ from those of transient poverty and related policy instruments differ fundamentally. To illustrate, social protection is effective and may be sufficient as far as reducing transient poverty is concerned. However, fighting chronic poverty requires capacity building and possibly large investment in infrastructure, which
go well beyond social protection. In this context, it is important to note that the existing literature suggests dominance of transient poverty in total poverty in China and elsewhere (Baulch and Hoddinott 2000, Gustafsson and Ding 2009).

This paper will point out violation of the well-known focus axiom as a deficiency of the existing decomposition technique for studying chronic and transient poverty. An alternative is then proposed and applied to a unique and balanced panel data set for 1832 rural households in China, covering the long period of 1995-2005. Contrary to the prevalent view in the literature, our empirical results indicate that poverty in rural China had been dominated by its chronic rather than transient component. Other interesting include: (1) larger households are more likely to be poor; (2) those mainly engaged in farming tend to suffer more transient poverty; and (3) finally, physical, financial, political and human capital all contribute to poverty reduction.

The plan of the paper is as follows. Section 2 provides a brief literature review. This is followed by discussion of the new decomposition methodology. Decomposition results on chronic and transient poverty are presented and discussed in Section 3, while determinants of chronic and transient poverty are explored in Section 4. Finally, Section 5 provides a summary and discussions on policy implications.

2. Chronic versus Transient Poverty: Methodological Issues

Two main approaches exist for decomposing poverty into transient and chronic components. The spell approach examines the frequency of economic agents falling below the poverty line over certain time periods and those with a higher frequency than a benchmark are identified as chronically poor and the remaining poor are the transently poor. The benchmark is usually set as
“more than 50 per cent” such as two out of three years or three out of five years. Clearly, the choice of the benchmark is arbitrary, particularly when the number of periods under consideration is even. More importantly, as pointed out by Foster (2007), this approach cannot take into account of the depth of poverty experienced by the poor. Finally, inter-temporal income transfer is implicitly assumed away.

The other approach first calculates total poverty and then defines the chronically poor as those with their mean consumption or income (proxy of permanent income) below the poverty line. The extent of chronic poverty is indicated by the gap between the mean consumption or income and the poverty line. Once chronic poverty is measured, transient poverty is obtained as the residual of total poverty and chronic poverty (see more details below). It is noted that transient poverty measured under this approach encompasses poverty experienced by the transently poor as well as the transient component of the chronically poor. The latter component is a function of the gaps between the actual and mean consumption of the chronically poor. Obviously, chronic or transient poverty measured this way does not necessarily correspond to the chronically or transiently poor.

This approach initially proposed by Ravallion (1988) was popularized by Rogers and Rogers (1993). As it is built on the expected utility theory and overcomes some of the deficiencies of the spell approach, this approach recently gained popularity (see Gibson 2001 and references therein). However, as argued below, poverty decomposition under this framework violates the important Focus Axiom of Sen (1976), which states that poverty measurement shall be independent of observations of the non-poor people. In an inter-temporal context, the axiom can
be interpreted as excluding observations of the non-poor time periods when poverty is calculated or decomposed.

Let \( T \) index the number of time periods under consideration, \( Y_T \) denote consumption or income streams, \( P \) denotes total poverty, the transient component of poverty \( TP \) of Rodgers and Rodgers (1993) can be expressed as (see also Jalan and Ravallion 2000):

\[
TP = P(Y_T) - CP(\bar{Y}) \\
= P(Y_1, Y_2, \cdots, Y_T) - CP(\bar{Y}, \bar{Y}, \cdots, \bar{Y})
\]  

(1)

where the first term of (1) represents total poverty and the second term \( CP \) represents chronic poverty, with \( \bar{Y} \) indicating mean consumption. In Rogers and Rogers (1993) and Jalan and Ravallion (2000) (hereafter abbreviated as RRJR), \( \bar{Y} \) is obtained by averaging all consumption streams over the entire \( T \) time periods, irrespective of the poverty status of the economic agent during that period. Thus, according to (1), consumption streams in non-poor time periods also determine chronic and transient poverty although they do not enter the estimation for total poverty. This seems illogical. More importantly, the chronic and transient poverty measures so constructed explicitly violate Sen’s Focus Axiom.

Let \( Y_M \) be the sub-vector of \( Y_T \), which contains those consumption streams that are below the poverty line (\( M \leq T \)), then by the Focus Axiom it must be held that:

\[
P(Y_M) = P(Y_T)
\]  

(2)
where \( P(Y_M) \) is calculated over \( T \) time periods. Equation (2) implies that \( E[P(Y_M)] = E[P(Y_T)] \).

Ravallion (1988) defines chronic poverty as \( P(E(Y_T)) \) for an economic agent. This definition violates the Focus Axiom unless \( P(E(Y_T)) \) is set to equal \( P(E(Y_M)) \). Thus, in this paper, we define chronic poverty as \( P(E(Y_M)) \), which is measured or calculated over \( T \) time periods. Under this formulation, transient poverty reflects the risk or fluctuation in consumption over the \( M \) poor periods. In the absence of this risk (no consumption fluctuations), total poverty is equivalent to chronic poverty and transient poverty becomes zero. Proposition 2 of Ravallion (1988) can be used to demonstrate that an increase in the risk will increase the transient poverty component.

Using the familiar poverty measure of Foster et al. (1984), the total inter-temporal poverty for an economic agent is:

\[
P = \frac{1}{T} \sum_{t=1}^{T} \left(1 - \frac{Y_t}{z}\right)^{\alpha} \quad \text{if} \quad Y_t < z
\]

\[
= 0 \quad \text{if} \quad Y_t \geq z,
\]

where \( z \) represents the poverty line, \( \alpha \) is the poverty aversion parameter. Setting \( \alpha = 2 \), for those who were poor in \( M \) out of \( T \) time periods, total poverty is:

\[
P = \frac{1}{T} \sum_{t=1}^{T} \left(1 - \frac{Y_t}{z}\right)^{2}
\]

(4)

By our definition, chronic poverty can be expressed as:
\[
    CP = P(E(Y_M)) = P (\bar{Y}_M) = 1/T \sum_{t=1}^{t=M} (1 - \frac{\bar{Y}_M}{Z})^2 
\]  

(5)

where \( \bar{Y}_M \) is the mean of \( Y_M \). Let \( \hat{Y}_t \) be the deviation of \( Y_M \) from its mean, then :

\[
    Y_t = \bar{Y}_M + \hat{Y}_t, \quad t = 1,2,\cdots,M
\]  

(6)

Dividing both sides of (6) by the poverty line \( Z \), and substituting into (4), we can obtain after some manipulations:

\[
    P = 1/T \sum_{t=1}^{t=M} (1 - \frac{\bar{Y}_M}{Z})^2 + 1/T \sum_{t=1}^{t=M} (\frac{\hat{Y}_t}{Z})^2
\]  

(7)

It is important to point out that the first term on the right hand side of (7) is exactly identical to the chronic poverty \( CP \), as defined by (5), which is completely determined by the mean of consumption streams of the poor time periods only. The second term represents transient poverty, which is completely determined by consumption fluctuations around the mean or consumption risk of the poor time periods only\(^1\). According to our method, chronic and transient poverty computed for each economic agent can be simply aggregated using household population as weights. Further, for each agent or for the whole sample, it is possible to state which component, chronic or transient, dominates.

Clearly, unlike in previous studies, our measures and decomposition satisfy the Focus Axiom. They also satisfy other Axioms.

3. Empirical Application
Since poverty in China has been largely a rural phenomenon, we will focus on rural poverty in this paper. For this purpose, panel data for 1832 rural households over 1995-2005 were painstakingly constructed based on a nation-wide survey conducted annually by China’s Ministry of Agriculture. Although the survey started in 1984 and covers around 24000 households in 300 villages of 30 provinces, we only have access to data from Jiangsu, Zhejiang, Shandong, Shanxi and Shanghai for 1995 to 2005. An advantage of our long time-series panel data is that we can explore dynamics of chronic and transient poverty, which has seldom been studied in the literature.

Summary statistics of the data are presented in Table 2. These variables will be used in modeling determinants of poverty later in the paper. It is noted that all variable in value terms are deflated so compatible over time. Table 2 indicates that average household size decreased from 3.88 in 1995-1998 to 3.77 in 1999-2002. Meanwhile, the average labor force decreased from 2.49 to 2.47 per household. As a consequence, the dependency ratio improved from 56 per cent in 1995-1998 to 53 per cent in 1999-2002. In terms of average human capital, in both periods, each household possessed at least one laborer with junior high school certificate. Also, there was one laborer with senior high school certificate for every five household. Meanwhile, there was an increase in human capital. A substantial portion of laborers received professional training. It is interesting but not surprising to observe large variations in the number of cadres at different levels relative to their means. More substantial change occurred in average consumption. Per capita expenditure averaged 2505 Yuan in 1995-1998 but rose to 2965 Yuan in 1999-2002, implying a rise of 18 per cent. The most significant increase happened to financial assets which
rose by a remarkably 84 per cent, from an average of 11412 Yuan per household in 1995-1998 to 21039 Yuan per household in 1999-2002.

[Table 2 here]

Using the international poverty lines of $1.25 and $2 adjusted by purchasing power parity exchange rate, the head count ratios are estimated and presented in Table 3. Consistent with normal expectations, total poverty declined over time despite some regress around the turn of the new millennium. More than 42 per cent of sample rural household lived below the $1.25 poverty line in 1995, but this percentage dropped to 13.5 in 2005. Likewise, more than 62 per cent of the sample households lived on less than $2 per day in 1995. By 2005, this proportion declined to less than 31 per cent. It is noted that these headcount ratios are substantially lower than the national counterparts as reported by the World Bank. This is because the data used in this paper are mostly from relatively affluent areas of China.

[Table 3 here]

If one uses the spell approach to defining chronic poverty as “poor all times” (see Table 4), and a window of three years is used as in Gustafsson and Ding (2009), there is a visible declining trend in chronic poverty (Table 4, panel A). Under the $1.25 poverty line, 23.25 per cent of the sample households were always poor over 1995-1997. By 2003-2005, this percentage dropped to only 9.39 per cent. Under the $2 poverty line, chronic poverty was 45.85 per cent over 1995-1997 and 23.31 per cent over 2003-2005. When a fixed window of five years is used (Table 4, panel C),
the results also show a declining trend although the rate of decline becomes smaller. Chronic poverty decreased from 13.97 per cent in 1995-1999 to 7.10 per cent in 2001-2005 under $1.25 while under $2 the reductions were from 33.68 per cent to just below 20 per cent.

[Table 4 here]

What if “poor more than 50 per cent of times” is considered? Using a fixed window of three years (Table 4, panel B), the chronically poor were 40.07 per cent under $1.25 and 61.84 per cent under $2 in 1995-1997. They dropped to 15.83 and 33.52 per cent in 2003-2005, respectively. One interesting point to note is that there is a small rise in chronic poverty in 1999-2001. This is understandable when one recalls regress in poverty trend discussed earlier. It is noted that when the window length is extended to five years, such regress is no longer present (see panel D of Table 4).

The results corresponding to the three-year window can be compared with those using a five-year window because the terminal year for both cases is the same. The comparison reveals that chronic poverty under the five-year window is consistently higher than that under the three-year window. However, this is an artifact as the latter essentially defines chronic poverty as poor “66.7 per cent of times” while the former only “60 per cent of times”. This comparison highlights the arbitrariness of the spell approach.

Table 5 tabulates share of the transiently poor among all poor households which differs from the usual head count ratio over total sample households, poor or non-poor. Several findings are interesting. First, the estimated share of the transiently poor under $2 is equal to or lower than
that under $1.25 in the early periods, and they swap positions only after certain number of periods. This pattern appears irrespective of how transient poverty is measured. The reasons behind this finding are open to further analysis. Second, transient poverty seems to be on the rise under the $2 poverty line although the trend is not clear under the $1.25 poverty line. Again, what underlie this trend requires a separate study. Third, the declining trend in chronic poverty is no longer present. Finally, regarding dominance of chronic or transient poverty, the conclusion seems to be dependent on how chronic poverty is defined. When “poor more than 50 per cent times” is used, transient poverty consistently dominates. The contrary would be concluded when “poor all times” is used with a few exceptions (see results for the early periods in panel A of Tables 4 and 5). Once again, these results demonstrate the arbitrariness of the spell approach.

[Table 5 here]

It is important to note the clear and consistently declining trend in Table 4, not Table 5. This may lead one to conclude that poverty reduction in China is mainly due to elimination of chronic poverty. This is rather counterintuitive as common sense tells that it is harder to fight chromic poverty. The counterintuitive results are likely to be generated by the use of the spell method.

Table 6 provides poverty decomposition outputs using the decomposition framework proposed in this paper. The top three panels show results under the $1.25 poverty line. They are organized according to the window length. A number of findings can be discerned from panels A, B, and C of Table 6. First, total poverty and its chronic and transient components all show declining trends except when the window length is three and the time interval contains both 2000 and 2001.
Second, chronic poverty clearly dominates total poverty irrespective of window length and time interval. This finding contradicts most of earlier findings in the literature, based on data from China or other countries. In other words, earlier studies underestimated chronic poverty which could lead to misleading policy recommendations with serious consequences. The dominant component of chronic poverty in rural China is certainly an issue requiring urgent policy attention. Third, since the share of chronic poverty in total poverty remains more or less stable with visible declines towards 2005, it can be inferred that both chronic and transient poverty has declined at similar paces over time. This is more in line with normal expectations.

The findings under $2 are similar to those when $1.25 is used (see panels D, E and F of Table 6). The higher levels of poverty are self-explanatory but chronic poverty appears to be even more dominating. This implies that both the $1.25 and $2 poor face similar consumption risks thus their transient poverty is more or less the same. Consequently, the increase in poverty resulting from adopting a higher poverty line is mostly accounted for by the chronic component. This is clearly reflected by the larger share of chronic poverty when contrasting the relevant values in the top panel with those in the bottom panel of Table 6.

The finding that a higher poverty line is associated with a more dominating chronic component is intuitively appealing. After all, it is getting harder and harder to pick increasingly higher hanging fruits. Also, this finding seems to corroborate well with the observation that poverty elasticity of growth under the $2 poverty line is smaller than that under the $1.25 poverty line (Wan and Sebastian 2011). In other words, the same growth can lift more $1.25 poor than $2 poor out of
poverty, presumably because a larger proportion of $2 poor suffer from chronic poverty than that of $1.25 poor.

[Tables 7 here]

Table 7 is similar to Table 6, producing the decomposition results but using the conventional but popular RRJR method. As expected, the chronic poverty estimates are all smaller than their counterparts in Table 6. Since total poverty is identical, transient poverty computed using RRJR is bound to be overestimated. Contrasting values in panel A of Tables 6 and 7, it is found that the extent of overestimation is quite substantial. With the exception of the last two periods, RRJR produces transient poverty that is twice the corresponding values in Table 6. Comparing panels B and C reveals a striking finding: RRJR estimates are three times larger. These comparisons use results under the $1.25 poverty line. When results under the $2 poverty line are compared, the extent of overestimation is even worse. It can thus be concluded that the extent as well as shares of transient poverty are overestimated by as much as three times. Policy initiatives based on such research outputs must lead to serious consequences.

Clearly, chronic poverty is the dominating component as its shares are all larger 56 per cent under the proposed method as well as RRJR. It is also interesting to note that these shares become larger under RRJR when poverty line is increased. Nevertheless, chronic poverty is underestimated by RRJR and the downward bias can be as large as 20 per cent in terms of the share of chronic poverty in total poverty. These biases essentially stem from the violation of the Focus Axiom of the RRJR method.
A careful examination of Tables 6 and 7 reveals that reductions in the transient component are slower than the chronic poverty although the latter has been dominating. This is related to the pattern of growth and China’s poverty reduction strategy which largely rely on trickledown effects. Until recently, social protection in rural China had been absent or minimal and growth in China has become increasingly exclusive, undermining the trickledown impacts (Wan 2007). In particular, the demise of the rural barefoot doctor system and the failure of healthcare system reform exposed all rural households to sickness risks. According to NBS (2003), 24.3 per cent of households in poor areas relied on borrowing to pay for healthcare costs and 5.5 per cent had to sell essential assets to fight health shocks. All these contribute to the slower reduction of transient poverty in rural China.

How does our results compare with those using the spell method? Since the spell method usually does not consider the depth of poverty, simply contrasting them is not recommended. To facilitate the comparison, the spell method is used to identify the chronically poor first and then the FGT measure is estimated using data of the chronically poor only. Meanwhile, total poverty can be easily computed as usual. Thus, transient poverty can be obtained as the residual. As chronic poverty can be defined in different ways under the spell method, the estimation and decomposition are repeated for different definitions, with results shown in Table 8.

The top half of Table 8 contains results using the $1.25 poverty line while those under the $2 poverty line are presented in the bottom half of the same table. Since total poverty remains the same as before, any comparison must be made by examining poverty components. Also, it is
only valid to compare results for the same time interval. For example, panel A of Table 8 can be compared only with the results in panel A of Table 6.

[Tables 8 here]

Using results in Table 6 as the benchmark, the comparisons reveal several useful findings. First, the spell method either overestimate (when “poor more than 50 per cent of times” defines chronic poverty) or underestimate (when “poor all times” defines chronic poverty) chronic poverty. Second, both downward and upward biases become larger when the window length expands from three to five years. Third, the overestimation also becomes more serious when one moves from $1.25 to $2 poverty line. Fourth, seemingly by coincidence, the shares of chronic poverty based on the spell methods under the $1.25 poverty line and “poor more than 50 per cent of times over 5 years” more or less match the benchmark results. Finally, under the spell method chronic poverty becomes more dominating when the $2 rather than $1.25 poverty line is used. This is clear by contrasting values in the top half with those in the bottom half of Table 8.

4. Determinants of Poverty and Poverty Components

Having measured total poverty and its chromic and transient components, we now turn to their determinants. For this purpose, the following models will be used:

\[
P_{it} = \alpha_{1it} + \hat{\beta}_{1it} X + \varepsilon_{1it} \tag{8}
\]

\[
CP_{it} = \alpha_{2it} + \hat{\beta}_{2it} X + \varepsilon_{2it} \tag{9}
\]

\[
TP_{it} = \alpha_{3it} + \hat{\beta}_{3it} X + \varepsilon_{3it} \tag{10}
\]
Where $P$, $CP$ and $TP$ denote total, chronic and transient poverty, respectively (all measured according to Equation (7)), $\epsilon$ is the random disturbances, $\alpha$ and $\beta$ are parameters to be estimated. $X$ denotes the vector of explanatory variables which are listed in Table 3 (with the consumption variable excluded but a time trend variable added).

These models will be estimated as censored quantile regressions because all three dependent variables are censored at zero and the Tobit specification requires the stringent assumption of a normally distributed error term. The censored quantile estimator is more efficient than the usual OLS estimator and is robust to misspecification of the disturbance term (Koenker and Basswett 1978). In addition, quantile regressions can depict a more complete picture about the underlying relationship while OLS and Tobit models only summarize the average relationship. For previous applications of the quantile model, see Jalan and Ravallion (2000) and Cruces and Wodon (2003).

Table 9 shows the estimation results using data under the $2 poverty line (results corresponding to the $1.25 poverty line are similar and available from the senior author upon request). The time windows used to calculate total poverty and its components are three and five years, respectively. As a consequence, mid-period observations for the independent variables are used in model estimation. The popular RESET test suggests that our models are not mis-specified. Robustness checks were also carried out by adding other variables, finding that the estimated models are robust. The quality of the empirical models is also reflected by the significance of most parameters.
The findings can be summarized according to the type of independent variables. Focusing on household characteristics first, household size invariably has a significant and poverty-increasing effect on total, chronic and transient poverty. This is so regardless of the window length or the percentile under consideration. On the contrary, the impact of household labor force is mostly insignificant. Specifically, when the window length is five, at higher percentiles (e.g. from the 60th to the 90th quantile), the household labor force is even positively associated with poverty. What about age? The age-poverty relationship displays a U-pattern, possibly reflecting life-cycle earning capacity. Before the turning point at 50 years old, rise in age leads to poverty decline but then they become positively correlated.

Turning to the capital variables, human capital is found to contribute significantly to poverty reduction in all circumstances. The only exception relates to the impact of junior high school education on transient poverty when the window length is three. The physical capital as represented by stock of financial assets plays a significant role in reducing total and transient poverty with few exceptions. Regarding the political capital, in all cases communist party membership is helpful for reducing all forms of poverty. However, the number of cadres does not exert consistent effects, significantly reducing total and chronic poverty but not transient poverty in most instances.

An interesting result relates to the acreage of household farm land. It can help significantly reduce total and chronic poverty but increase transient poverty. A plausible explanation lies in the volatile returns to land and the nature of farming. More farm land means more inputs of all kinds in agricultural production whose output is subject to a multitude of shocks, risks and
uncertainties, being driven by nature, market or policy. These logically imply a close and positive relationship between transient poverty and land.

Finally, a careful comparison of the magnitudes of various estimates under columns of “CP” and “TP” in Table 9 reveals that those under “CP” are, almost in all cases, larger in absolute values. This may be related to the earlier finding of dominating chronic poverty component. One possible explanation is that the explanatory variables included in the models are determinants of permanent rather than transient consumption thus they exert larger impacts on chronic poverty than the transient component.

5. Summary and Policy Implications

Given the need to disentangle transient and chronic poverty from total poverty, more efforts are needed to address methodological issues as well as to conduct empirical research. This paper points out violation of the well-known focus axiom as the deficiency of the popular decomposition framework of RRJR and proposes an alternative approach. The improved technique is then applied to a long-time series matching panel data from rural China with a number of interesting and useful findings. To highlight, chronic poverty dominates total poverty in rural China and poverty reduction over time can be attributed to declines in both transient and chronic poverty. Further, physical, financial, political and human capital all contributes to poverty reduction although larger households are more likely to be poor. Those largely engaged in farming tend to suffer from rather serious transient poverty.
Our research findings imply that policy makers in China shall focus on chronic poverty. Thus, capacity building is crucial, particularly in terms of accumulating human capital while social protection which is being implemented in China can only play a supplementary role. This is exactly opposite to the findings and recommendations of Jalan and Ravallion (1988, 2000) who suggest China focus on transient not chronic poverty. As demonstrated in this paper, their results are based on the deficient framework of RRJR and thus are mis-leading.

Our recommendation to prioritize chronic poverty is becoming more relevant as China completes the implementation of nation-wide social protection system. Initiated in 1994 in the richer provinces of Shanghai, Zhejiang and Guangdong, those who fall below minimum living standards are provided direct financial assistance. This Dibo system gradually expanded to other provinces and had reached 1660 counties by 1997. However, the coverage was still low, with only 4.08 million residents benefiting in 2002. As the coverage and the amount of assistance increase, transient poverty will no longer be an issue for rural China. But the challenges of chronic poverty will persist and commands more research and policy attention.

Bibliography


In the case of $M = 1$, one can simply set $P = TP$.

Observations on independent variables are only available to us for the years 1995-2002.

Tobit models were also estimated but results are not presented.