

Cultural Dimensions Of Rural Poverty In Indonesia – A Methodical Approach Focussing On Education And Origin

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Abstract

The investigation of relative poverty in rural areas of developing countries is dominated by an economic point of view. This paper presents a methodical step for weighting cultural factors of influence. As empirical data basis a household census of a village in rural Central Sulawesi, Indonesia, was conducted. For the determination of poverty we apply to a measuring tool already tested by Zeller et al. (2006). As variables, which represent the cultural factors exemplarily, we choose education and origin. We show that the level of education and the time of migration affect the poverty distribution of the village significantly. Ethnical affiliation, in contrast, only plays a subordinated role. Furthermore, we conclude that results of a quantitative approach towards cultural dimensions needs to be accompanied by qualitative in-depth research as otherwise crucial questions about the how and why of quantitative causal relations cannot be answered.

Keywords

Culture, Poverty, Rural Area, Sulawesi, Indonesia

Introduction

The examination of influencing factors of relative poverty in rural areas of the so called developing countries has so far been dominated by an economic approach (cf. Ferreira 2001, Lanjouw 2001 etc.). Apart from the economical and political framework, cultural factors are usually not included in such scientific research, although these can have strong influence on individual behaviour and therefore can be critical towards the economic prosperity of households¹. Research on the cultural aspects of poverty on the other hand is usually based on qualitative methods (cf. e.g. Hentschel, Waters 2002).

With this given situation the question arises, whether and how it is possible to link the distribution of relative poverty with cultural factors in a quantitative way. Furthermore, is it possible to develop an analytical tool to find the relevant and significant cultural factors for prosperity on the household level of a village? Such an approach for a quantitative procedure are found with Quang Dao (2004), who has compared rural poverty on an international level with the empirical analyses of 32 developing countries. A closer look at his statistical model shows that the socioeconomic factors are integrated into a formula to calculate rural poverty. Apart from economic variables Quang Dao (2004) uses socio-cultural factors like ethnic homogeneity and a gender-development-index. It is however not clear how much emphasis such individual factors have in the overall result. This means that the used socio-cultural

¹ In this paper household should be understood as a socio-economic unit made up of individuals, „who live and operate together in an economic sense“ (Pöschl 1989: 627, cited in: Peuckert 2004: 30 f.). In the researched village it is often the case that the people living in one household are related to each other. However it is not a necessary requirement to the definition of household used here, that the members of it have to have family ties (ibid). Furthermore some households in the village are characterised by groups of individuals living together, but who feel that they belong to different socio-economic units, so that they represent independent households.

factors have not independently been put into relationship with the indicators for poverty. In contrast to this we have selected an approach in this study with which at first a poverty-index for households of an Indonesian village can be calculated. In a second step this will be put into relation with the values of different cultural factors (education and origin). This approach makes it possible to draw direct relationships between the level of poverty of a rural household on the one hand and the various cultural aspects influencing the household on the other hand.

The methodical question remains in this scientific context as the individual emphasis and weight of cultural factors has to be clarified in the light of a multitude of definitions and interpretations for the term culture. It is understandable that mostly qualitative methods are used to describe and illustrate cultural parameters. Is it possible and acceptable to deal with the analysis of cultural aspects in a different way than with a qualitative approach? From a disciplinary point of view this is usually negated because of the complexity of the term culture. Especially for the, so far, fairly low level of co-operation between the natural and economic sciences with the social and cultural sciences, the quantitative recording of cultural factors opens up the possibility of modelling and interdisciplinary collaboration. In contrast to the qualitative research, the quantitative recording of cultural factors makes statistical relationships possible. The results presented in this paper constitute a first methodical step for the formulation of the weighting of cultural variables. Our complete count of all households of a village in rural Central-Sulawesi, Indonesia is used as an empirical basis for the development of this approach. By using empirical data the following thesis will be examined: education and origin of household members have a significant impact on the level of relative poverty of that household.

This study is an attempt to find a methodical approach in the causal research of rural poverty in the tropics from a social sciences point of view. After defining the terms „culture“ and „household“, the methodology of this paper is described as well as the research area. In the following section the data set from the empirical case study is operationalized according to the mentioned approach. The results are presented in this section differentiated by education, ethnic origin and regional origin. Finally the results are summarized and the methodical process is analysed for its use and potential for follow-up studies.

Defining the terms culture and poverty

Given the complexity of the term „culture“ it is not surprising that not only the popular science publications, but also the technical literature often talks about culture without

formulating any clear and tangible definition. Often this term is used without explanation (e.g. Blum, Dudley 2001) or a single component, e.g. religion, is named as constituting culture (cf. e.g. Barro, McCleary 2003). Belina (2003) criticises the tendency of post-modern approaches of scientists like Smith (2000) or Mitchell (2000) who declare everything as culture, because like this only tautological definitions are possible. Then again he, as the other contributors in the textbook „Cultural Geography“ (Gebhard, Reuber and Wolkersdorfer 2003), reveals only a general definition of the term culture instead of naming concrete factors which together make up culture. Belina especially explains that culture does not stand in contrast to economics like in the definition of Williams (1988) because human behaviour is embedded into the political and economic framework. Straub and Thomas (2003) in reference to Segall (1983, 1984) discuss the opinion that culture, in total, can not be viewed as a measurable variable, because of its diffuse and abstract character. One can only try to operationalise aspects of the „over-complex construct“ (Straub, Thomas 2003: 34) that the term culture resembles for empirical research. Whiting (1976, cited in Straub, Thomas 2003) also suggests to dissect the difficult to comprehend term culture into manageable variables. For our research we define culture in reference to Thomas (1996) as an orientation system, which influences perception, thought, value and actions of individuals and groups. In this case the actors are the heads of households, whose cultural attitudes is influenced by internal and external factors. In the context of the study region, the components education and origin represent not only two important parts of culture, but also two clearly operationalizable variables. We are, however, aware that, as Fremerey (2004) emphasises, culture is perceived as a result of socialisation and therefore continuously adapted to its social context. Thus, our study will show to what extent a quantitative approach will be able to answer all necessary questions to fully understand the driving forces of culture-economy relations.

Although less complex than the term culture, it is also necessary to define what poverty means in our study context. In this study the relative poverty index by Zeller et al. (2006) has been chosen. This index is an aggregated value from a series of variables, which represent the poverty status of a household. The choice of variables is made on the basis of a catalogue of altogether 37 ordinal and interval scaled variables from the range of topics „human resources“, „food security and vulnerability“, „living conditions“ and „property“. These variables are correlated with a defined and repeatedly tested benchmark-indicator („average per capita expenditures of the household for clothing and shoes“ cf. Zeller et. al. 2006) and are then ranked according to the resulting correlation levels (PEARSON-Chi-Square). All variables with a significant correlation coefficient ($\alpha < 0,10$) are then incorporated into a

main-component-analysis. By means of multiple analysis runs it is possible to filter out the best combination of indicator-variables, which best describe the factor “poverty”. From this results the following choice of indicator variables for this research. An increase in the value of the variables marked with ^a have a positive influence and those marked with ^b have a negative influence on the value of the poverty index of a household:

- „Monetary value of electronic appliances” ^a,
- „Monetary value of transport equipment” ^a,
- „House: Material for outer walls” (ordinal scaled: increasing quality) ^a,
- „House: Type of roofing material” (ordinal scaled: increasing quality) ^a,
- „House: Type of flooring material” (ordinal scaled: increasing quality) ^a,
- „Electricity source for the household” (ordinal scaled: increasing quality) ^a,
- „Per capita expenditure for clothing and shoes” (= benchmark-indicator) ^a,
- „Number of TVs in household” ^a,
- „Food shortage”: How many of the last 12 months with at least one day with food shortage in the household? ^b,
- „Increased income”: How much of an imaginary additional monthly income of 25.000 Rp. (≈ 2,50 €) would be spent on additional food?^b.

With help of the formula below the standardised and with specific coefficients weighted indicator variables can be connected by addition to get to the standardised poverty index (average =0) on household level:

$$(1) \quad PovertyIndex = \sum_{i=1}^{10} z_i \cdot w_i$$

with z_i = Value of variable i , w_i = weighting-factor for the variable i (cf. Procedure for calculation of the poverty index: Zeller et al. 2006 (98 ff.); Schwarze et al. 2005; Shaban 2001; Henry et al. 2000).

The result is a value for the poverty index for each household. Low index values give indication of a low level of prosperity, high values give indication of a high level of prosperity, so that a relative comparison can be drawn of the poverty situation of the individual households of the researched village.

After this the households are divided according to the poverty index ratings into three categories (terciles) each containing the same number of households. The first tercile („tercile 1“) represents the poorest third of the village population, the „tercile 2“ stands for the average, less poor third, while the „tercile 3“ is made up by the least poverty stricken third of the

residents. After data cleansing, including plausibility checks, the data for 475 households is included in the calculation of the poverty index. This tool of economists deliberately ignores cultural specifics of the mentioned individual poverty indicators, even though this tool has been designed for a worldwide use (cf. Henry et al. 2000). For our researched area in Central Sulawesi this is permissible. Although there are differences, for example in the specific building techniques of different ethnic groups, but this is not necessarily because of cultural preferences for certain building materials. Any differences occurring between the building techniques are solely the result of the economic situation of the households.

Research Area and Methods

The Lore Lindu region situated south of the provincial capital Palu in Central Sulawesi, Indonesia was selected as the research area. The core of the region is represented by the mountain rainforest region of the Lore Lindu National Park. In the vicinity of this park more than 120 villages are situated. Agriculture is the main source of income for most of the inhabitants. Besides rice, coffee, vegetables and especially cocoa are the major crops cultivated in this region. Migration, intra-regional and even more immigration from other parts of Sulawesi and from other islands of Indonesia influenced strongly the demographic structures of the villages over time (Faust et al. 2003). It has, however, to be distinguished between three main groups of villages in terms of population composition and socio-economic development: a) the static-traditional village consists of a majority of autochthonous people or migrants who settled down already more than three decades ago; b) the villages in transition show a recent growth of immigrants from outside the study region, while in the post-transitional villages (c) a big number of migrants from South Sulawesi settled down 10 to 15 years ago having a great impact on population and agricultural structures (Weber et al. 2007). A typical traditional village on the margins of the national park has been selected for this study on the basis of previous qualitative and quantitative research there (Fremerey 2002, Kreisel, Weber, and Faust 2004, Weber 2006). This village is characterised by an autochthonous majority of inhabitants (the group of the Moma) and a social structure based on local common law. The majority of the migrants had already arrived many decades ago and mainly consists of the local ethnic group of Uma people and immigrated Rampi people from the northern part of South Sulawesi. Recent immigration to the village is few. Agriculture is the main source of income for the households. A census conducted by the authors in the village provides a pool of demographic, economic and cultural data for the total of 521 households for this study.

To define the cultural imprint is not an easy task, because a multitude of components make up such an imprint, whereby again each single aspect is subject to dynamic change. It is even more complicated to identify the cultural imprint for quantitative statistical analyses in a practicable manner. Especially not easily tangible culture components, like „tradition“ or „values“ are recorded better in a qualitative way than in a quantitative, with good reason.

In this study only those variables which allow a targeted operationalisation can be selected to exemplify the orientation system „culture“(see above). This requires that the data, as with those for the poverty index, can be collected and statistically processed with a standardised questionnaire. Cultural factors which can only be raised by means of narrative collection methods are not suitable at this stage. However they take an even higher significance with the selection of the cultural factors in this study and in the later checking of the quantitatively determined correlation between the cultural factors with the values for poverty. Furthermore the variables used must be clearly thematically distinguishable from another. On the basis of previous qualitative studies (Weber, Kreisel and Faust 2003, Weber 2006) the variables „education“ and „origin“ of the household members present themselves. Especially in rural areas, as represented by this study, these aspects have a very high influence on the cultural imprint of human behaviour.

The pre- and early colonial stages of the socio-economic structure of society in this region were characterised by small local elites with a high standard of prosperity based on their political position and a comparatively poor majority of the clan, respectively the later village population (Weber 2006). A formal school system was introduced in this region in the early 20th century by the Dutch colonial power. Protestant missionaries acted in the double function as teachers and priests. The general accessibility of school education enabled the village people, independent of their social and economic status according to the motivation and abilities of the individual, to learn a more rational and economically orientated way of thinking, which could result in their economic progress. This broke down the previous polarisation and opened the way to individual differentiation in the distribution of prosperity. Naturally it must be considered that prosperous families have more possibilities to invest in the higher education of their children, and in many cases use this to secure the relatively high economic status of the family also for future generations. Of course the opposite effect is also to be expected that investment for schooling is made to enable a social and economic upward mobility for a family in the first place. Therefore the cultural factor school education can be expected to have an influence on the distribution of poverty in the village.

The research regarding the level of school education is conducted on the basis of the heads of household and also of all adults of a household. On the one hand we illuminate the potential influence of the level of education of household members on their particular level of prosperity. Other research regarding the level of poverty corresponds to a comparison of differently educated groups, i.e. a comparison of the heads of households who have not graduated from any school with other educated groups. Furthermore an average of the level of education of the adults of every household is made to get the average level of education of the households. This will be linked to the poverty index as well.

Despite its peripheral position and its rural structures the study region is characterised by strong immigration. Besides manifold intraregional migration the immigration from other parts of Indonesia plays an important role. Especially migrants from the south of Sulawesi move to the region leading to a significant population growth. A triggering factor for the dynamics of this migration is the „cocoa-boom“, which started in Sulawesi at the beginning of the 1990s. This often caused spontaneous migration, which especially targeted areas such as our research region because of sufficient land resources and good climatic and soil conditions for cocoa production (cf. Weber 2006). Still persistent today, the migration dynamics continue to modify the original spatial distribution pattern of ethnicities. The immigrants bring a certain cultural imprint from their region of origin with them, which is often different from the one of the indigenous ethnic groups. This is especially valid for the interregional migrants. A possible social stratification of the villages of the study region may be evident, but this does not play a role for the object of research of this paper. The village we researched represents a certain village type, which in regional comparison is characterised by relatively little supra regional migration and a more traditional social structure predominates.

The cultural aspect „origin“ is perceived by two points of view: First the correlation between the poverty index and the affiliation of the heads of household to the different ethnicities will be analysed. Thereby ethnicity or ethnic shall mean the self-perception of individuals as members of a coherent group with certain common attributes like language, religion or collective traditions or history (cf. e.g. Barth 1969, Kohl 1998). Alone his or her response to the census question of which ethnic group he or she feels to belong to is crucial for the classification of the head of household to a certain ethnic group in this study. There are no objectively testable criteria for this, so that the individual sense of belonging is not necessarily to be found in actual attributes. Further the question regarding immigration will be looked at, whereby the term „immigration“ is defined by us in this context as whether the head of household has changed his or her residence in his life (= “immigrant“) or if he or she has lived

in the researched village all his life continuously (= “native”). In addition the point in time of the immigration into the village will be included in the analyses.

Various statistical methods are applied in this analysis to link the economic value (prosperity of a household – represented by the poverty index) with the selected factors of the variable „culture“. In detail these are the one-way analysis of variance (ANOVA), the contingency analysis (Chi-Square), the Mann-Whitney-Test, the T-test and the linear regression analysis. The variance analysis checks the influence of the specific characteristics of a cultural variable on the variable „poverty index“. If there is an influence detected, it can be said that this cultural aspect significantly influences the poverty index in the researched village. In this case we examine whether the independent factor-variables „ethnicity“, „religious affiliation“ and „level of education of the head of household“ each considered in isolation, have a significant influence on the dependent variable “value of the poverty index of the household”. With the help of a contingency analysis (Chi-Square-Test) we test whether the poverty index variable (classified as terciles) is independent of the individual cultural factors (especially ethnicity and educational level). On the one hand the entire cultural variable with all characteristics is tested for its independence of the poverty index. On the other hand two single characteristics (dummies) at a time are compared with each other in regard to their distribution on the three poverty index terciles.

The non-parametrical Mann-Whitney-Test enables to test the distribution of cultural variables, which are itemised according to their characteristics (dummies), onto the poverty index variable. With this it can be ascertained whether there are significant differences between the individual characteristics of a variable in the particular poverty index distribution and which characteristic has the tendency for a higher poverty index average. The T-Test is used by us to examine two dummies (to be understood as two independent samples) of a cultural variable for their distribution on the dependent metric poverty index variable in order to find significant differences in the average values. The linear regression analysis is used to test whether there is a linear link between the metrical scaled independent cultural variables (education index of a household and duration of the residence in the village) and the also metrical scaled dependent poverty index variable.

Results of the case study

Our analysis shows that the ethnicity of the heads of household only plays an inferior role for the distribution of poverty of the researched village, whereas the level of prosperity significantly rises with increasing educational level of the heads of households. Also

immigration has a significant influence on the poverty distribution of the village: Immigrants, especially those who have migrated to the village in the past few years, tend to be in extreme positions within the poverty scale. The results of the individual cultural factors will be presented in detail below.

Education

Education is examined first on the level of the heads of household and then on the level of all adults of a household. The resulting links between relative poverty and education are explained with the following: the vast majority (53%) of the heads of household of the investigated 475 households has only completed primary school. 13% have not finished any school. Secondary school was completed by only 28% of the heads of household, whereas the highest education level (academy/university) was only reached by ten (2%) heads of household (cf. Tab. 1).

Tab. 1: Overview of the level of education of the heads of household in the researched village (Source: STORMA Subproject A1 – Village census 2004)

	Absolute	Percentage
No schooling or not finished primary school	61	12,8
Completed primary school	250	52,6
Not finished secondary schooling (Junior High)	20	4,2
Completed secondary school (Junior High)	78	16,4
Not finished Senior High	6	1,3
Completed Senior High	49	10,3
Not finished academic education	1	0,2
Completed academy or university	10	2,1
Total	475	100,0

Access to education is largely independent of ethnicity. This applies at least to two of the three considered ethnicities and for the natives of the third ethnicity (= Uma; see below). The migrant households of the Uma show significantly less well educated heads of household. This can be explained with the circumstance that the villages of origin of most members of this ethnicity lack facilities for higher education. Moreover the peripheral and mountainous location and the infrastructural deficits of the region of origin of this ethnicity make the places with higher schooling not as reachable as from most other areas of the Lore Lindu region.

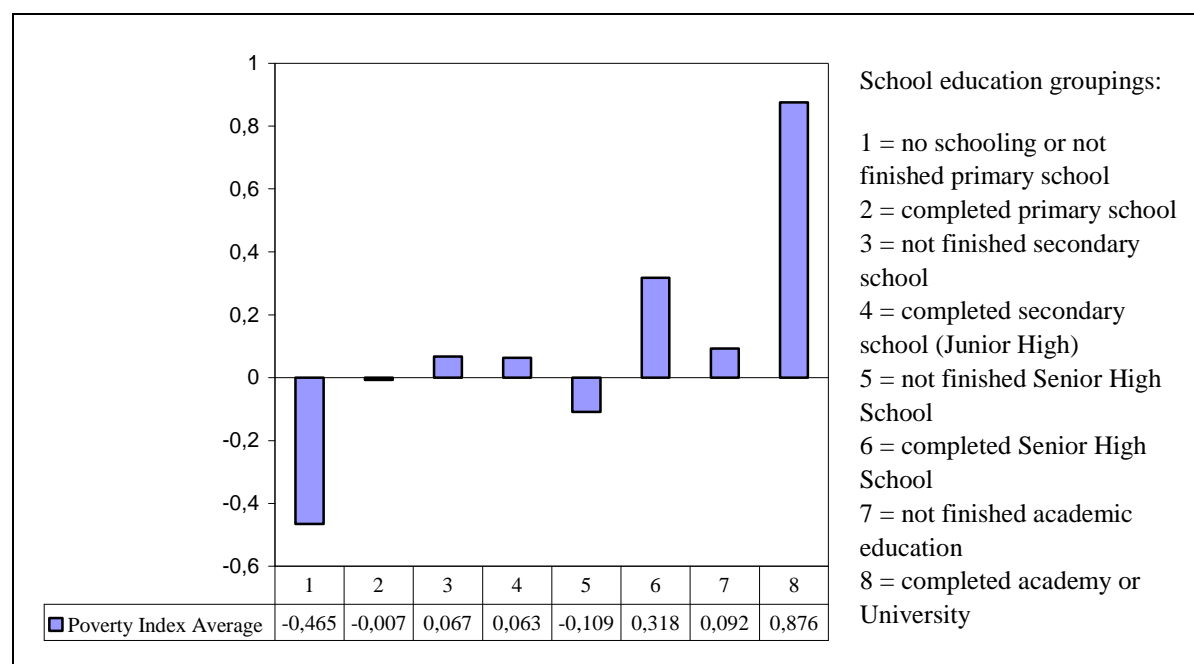
The level of education of a head of household has, generally speaking, a highly significant impact on the prosperity of the family (poverty index). This means that different level of education lead to different levels of the poverty index. Thereby a higher level of education is

concomitant with the presence in a higher poverty index tercile (cf. Tab. 2 & Fig. 1). This link can be described as moderately strong with a contingency coefficient of 25%. The comparison of different levels of education with each other shows that those households whose heads have no schooling or did not finish primary school are inferior in their prosperity level to all other education groups.

Tab. 2: Distribution of the school education groupings on the three terciles (Source: STORMA Subproject A1 – Village census 2004)

Level of school education (heads of household)								
	No (finished) schooling	Completed primary school	Not finished secondary school (junior high)	Completed secondary school (junior high)	Not finished senior high	Completed senior high	Academic education (completed or not)	Total
Tercile 1	21,5%	50,0%	4,4%	15,2%	1,3%	7,6%	0,0%	100%
Tercile 2	10,7%	57,9%	3,8%	16,4%	0,6%	8,2%	2,5%	100%
Tercile 3	6,3%	50,0%	4,4%	17,7%	1,9%	15,2%	4,4%	100%

Fig. 1: Level of education of the heads of household and poverty index in the researched village (Source: STORMA Subproject A1 – Village Census 2004)



Level of significance < 0,01

Another result of the analysis is that households from the group of the „more educated“ (meaning at least completed high school) are significantly less poor than households from the group of the „less educated“ (heads of household who have only completed primary school or have not completed any school) (cf. Tab. 3).

Tab. 3: Poverty Index-Comparison „Less Educated“vs. „More Educated“ (Source: STORMA Subproject A1 – Village census 2004)

	Poverty Index-Average	Mean Rank	Sign.
"Less Educated"	-0,10	176,50	
"More Educated"	0,41	235,26	0,000

All of these results support the hypothesis that a higher level of education of the head of household is equal to a higher level of prosperity of that household. From this comes the interpretation that the insertion of knowledge into the activities of a household directly influences the prosperity. For example it is thinkable that land use decisions are executed economically more rationally on the basis of a higher education level.

Besides looking at the level of education of the heads of household we now link the poverty index with the educational level of all individuals of a household older than 15 years (=“adults“). This seems necessary to us, because the exclusive focus on the head of household might hide the fact that also other members of the family, who contribute to the household income direct or indirectly, have a high or low level of education. Therefore the possibility exists that the low educational level of a head of a wealthy household is compensated by another member of that household with a higher level of education.

Firstly all mature members of a household are included into the analysis. The results from this perspective also lead to the conclusion that a higher level of education entails a higher level of prosperity. Thus the households of the researched village whose adults have a higher average educational level are economically significantly better off than households with a low average educational level (with a contingency coefficient of 32%). In addition households with a high proportion of adults from the group of the „less educated“(max. primary school) are significantly poorer as families with a low proportion. Inversely families with a high proportion of the group of the „more educated“ (at least completed high school) are clearly less poor than families with a low percentage from this group (correlation coefficient of approx. 25% each). Furthermore we include into the analysis the influence of individual members of a household, who might be the only persons with a high level of school education in that household, but are not acting as head of household. Households with at least one higher educated individual (completed high school or more) have significantly higher poverty

index value and with that a higher level of prosperity as households without a higher educated individual (cf. Tab. 4).

Tab. 4: Poverty index and adults with a higher level of school education (Source: STORMA Subproject A1 – Village census 2004)

At least one member of household with a higher level of education?	Poverty Index-Average	Mean Rank	Sign.
yes (N=102)	0,49	307,28	0,000
no (N=373)	-0,13	219,05	

If those households where at least one higher educated individual is present are isolated from the group where the head of household is less educated, the result shows that these households also are significantly more prosperous. With these results the thesis can be confirmed that the level of education of a head of household has little influence on the prosperity of that household, when other members can compensate his or her knowledge deficit. At the same time this puts in perspective the influence of the head of household on the poverty level positioning of the household in the village. All these results presented in this section show that inside the researched village there is a strong correlation between a higher education – be it the head of household or another individual from that household – and a higher level of prosperity of that household.

Ethnic origin

A multitude of different ethnic groups are to be found in the researched village. More than half of all households count themselves to the group of the Moma (273 of the studied households), who like the Uma (47 households) are a local ethnic group focused territorially on the local district of Kulawi. The group of the Moma defines itself in contrast to the other ethnicities as *tuhan kampung* („masters of the village“). The second largest household-group is composed of Rampi-families (99 households), who originally came from the South of Sulawesi. All further ethnic groups of this research sample are represented with only ten or fewer households (cf. Tab 5).

Generally speaking the variable „ethnicity“ has no statistically significant influence on the value of the poverty index: Members of different ethnic groups on average do not show different poverty level distributions (cf. Tab 6). There are significant links to the poverty index in some cases when in a direct comparison of only two ethnicities at a time: The group of the Chinese in the village (N=7 households) is prosperous above average when compared to the Rampi and also the Moma (cf. Fig 2). They are more commonly found in the tercile 3 and therefore have a special position inside the village.

Tab. 5: Ethnic groups in the researched village (Source: STORMA Subproject A1 – Village census 2004)

	Absolute	Percent
Moma	273	57,5
Rampi	99	20,8
Uma	47	9,9
Kaili	10	2,1
Poso/Mori/Pamona	10	2,1
Toraja	9	1,9
Napu	7	1,5
Chinese	7	1,5
Other	7	1,5
Besoa	6	1,3
Total	475	100,0

Tab. 6: Distribution of the ethnic groups on the three terciles (Source: STORMA Subproject A1 – Village census 2004)

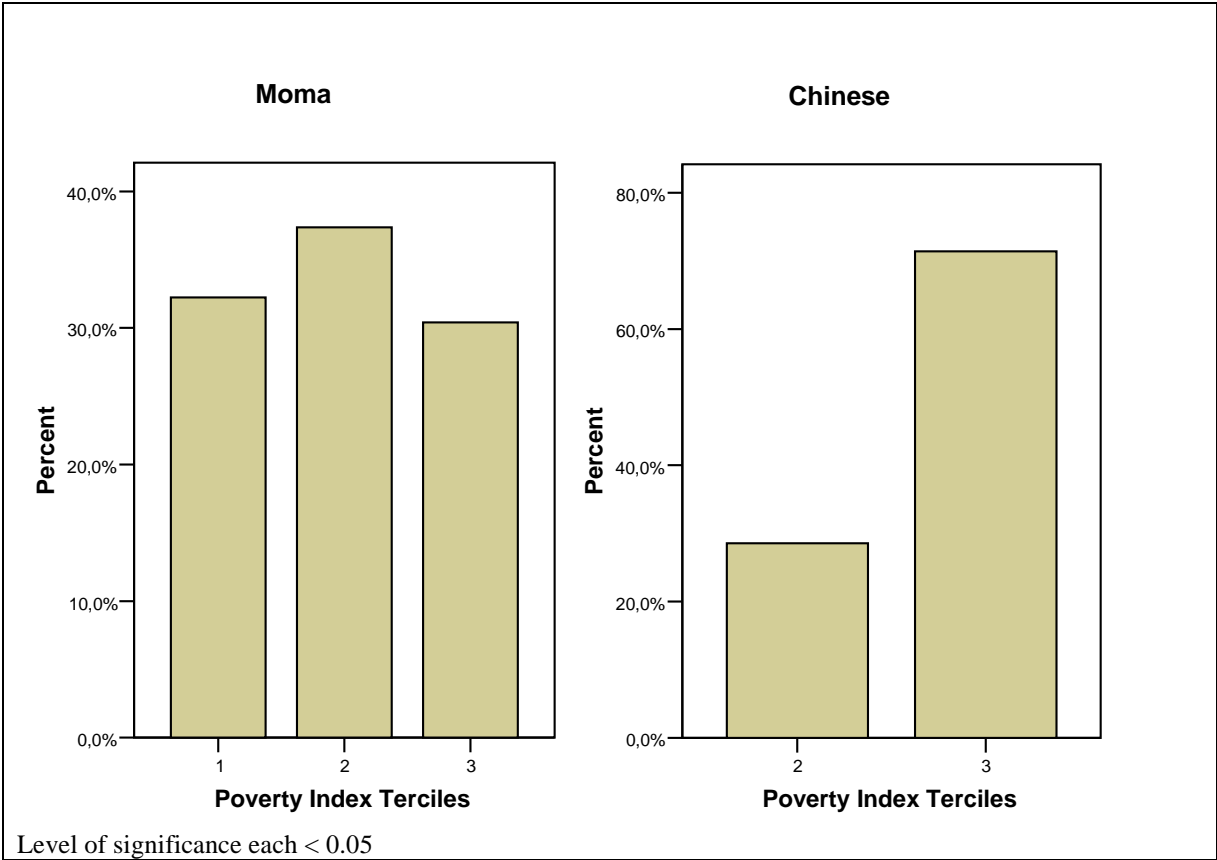
	Ethnic Groups (Heads of household)						
	Kaili	Uma	Moma	Rampi	Chinese	Other	Total
Tercile 1	2,5%	9,5%	55,7%	23,4%	0,0%	8,9%	100%
Tercile 2	1,3%	8,2%	64,2%	20,1%	1,3%	5,0%	100%
Tercile 3	2,5%	12,0%	52,5%	19,0%	3,2%	10,8%	100%

The statements towards the group of the Chinese have to be taken with caution, because they only represent a small minority in the researched village and therefore the statistical revelations can be distorted. But other researches towards the economic position of Indonesians with Chinese origin support the notion that this group has an above average status of prosperity (cf. Chua-Franz 2002, Weber 2006). In comparison to all other ethnicities the Moma are found more than the average in the middle tercile (=tercile 2) so that they tend less to the extremes „relative poverty“ or „relative prosperity“ (cf. Fig. 2). The remaining analysed ethnicities do not allow any significant statements.

The differences of the ethnic groups in the village generally speaking can not explain the distribution of poverty. Only individual small ethnic groups, here especially the Chinese, show significant differences in their poverty status. Yet in this context at least the tendency for differences in the distribution of prosperity between the local Moma-group and the immigrated groups (i.e. Kaili Uma, Rampi) is to be found. The factor „migration“ will be analysed more precisely in the following abstract. Besides ethnicity the religious affiliation of

the head of household can be studied in relation to the distribution of poverty. Aragon (2001) for instance puts confession and economic status into at least an indirect connection for the conflict region of Poso in Central Sulawesi. However in this case the religious affiliation is mostly identical with the ethnic affiliation (which is roughly the case in our researched village) so that an isolated focus on religion does not seem advisable and we therefore limit the analysis to ethnicity as the influencing variable.

Fig. 2: Poverty index of the Moma and Chinese (Source: STORMA Subproject A1 – Village census 2004)



Regional origin

About 42% (201) of the heads of household of the researched village have at least once changed their place of residence, while about 58% of the questioned heads of household (274) have lived continuously in the researched village since their birth (Source: STORMA Subproject A1 – Village census 2004). The first of those mentioned groups will be called „migrants“ or „immigrants“ in the following (even when many of these individuals were born in the researched village, but had a different place of residence in the meantime; this subgroup of the immigrants makes up about 20%) and the second group is declared „natives“. Besides the question whether a household is native or migrant, in this context it is also of interest at

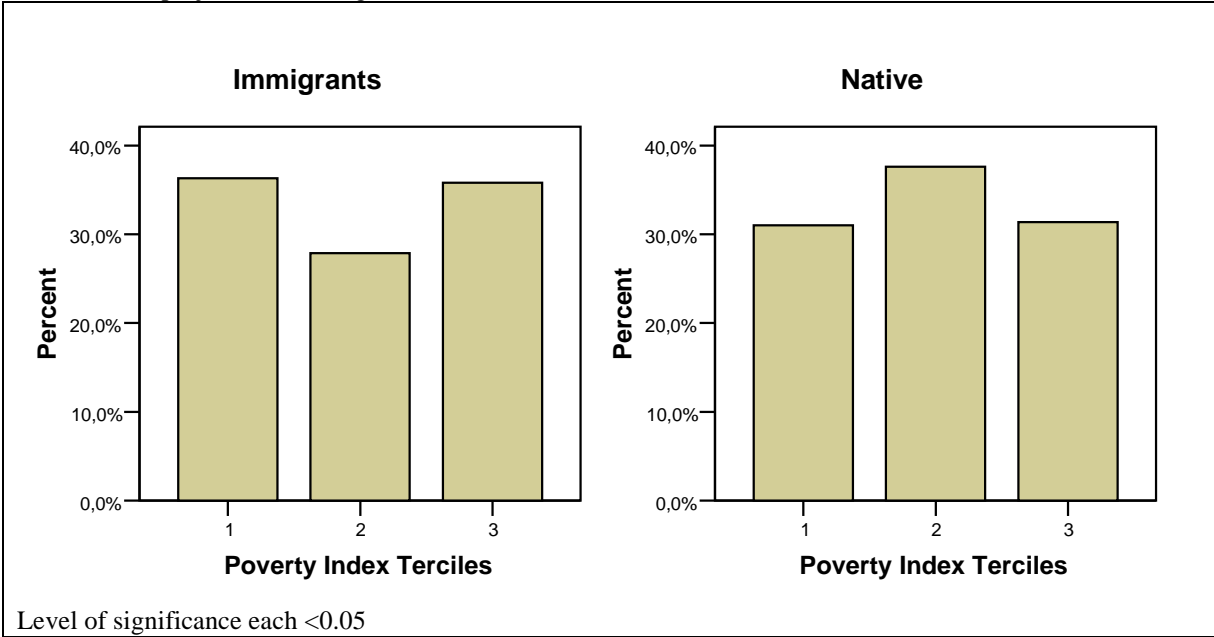
what time the immigration took place: do newly immigrated families have a different status of prosperity as families who immigrated a long time ago?

The tendency is that there are differences between the immigrants and the natives. Hereby the households from the group of the immigrants are on the one hand represented over proportionally in the poorest poverty index tercile (tercile 1) and the least poor (tercile 3), while the group of the natives dominates the middle tercile (= tercile 2) (cf. Tab7).

Tab. 7: Distribution of immigrants and natives on the three terciles (Source: STORMA Subproject A1 – Village census 2004)

	Immigration (heads of household)		
	Yes	No	Total
Tercile 1	46%	54%	100%
Tercile 2	35%	65%	100%
Tercile 3	46%	54%	100%

Fig. 3: Comparison of the distribution of poverty of the immigrated and native heads of household (Source: STORMA Subproject A1 – Village census 2004)



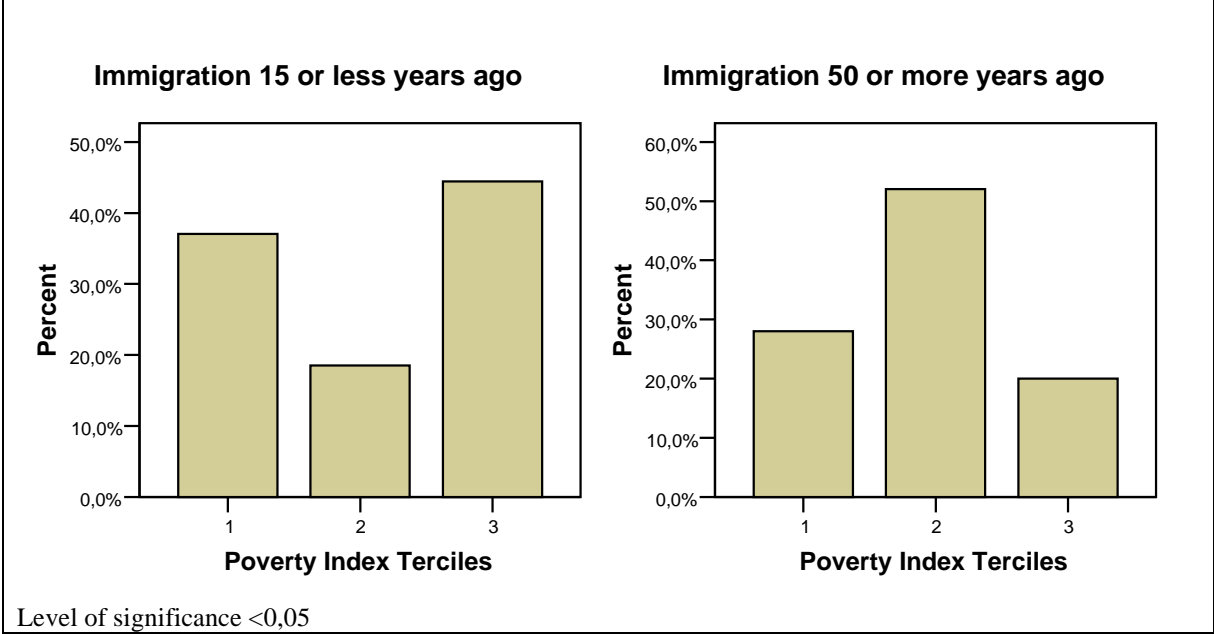
Hence the immigrated households show more extreme positions in the spectrum of poverty distribution, while the locals have a more prominent position in the middle of the poverty distribution and moreover show fewer fluctuations (cf. Fig.3). This allows the conclusion that native households are firmer in their status in the village, while immigrated families have to orientate themselves anew and have to find their position in the village. Additionally the economic circumstances of their previous place of residence play a role to explain for the relative poverty or relative prosperity.

To illuminate the special position of the immigration households further, a comparison between only the immigrated households among themselves with the criterion „duration of the immigrated household in the place of residence“ is interesting. In the researched village a family whose change of place of residence was conducted a long time ago has a different level of poverty in consequence of change of place of residence in recent times. The latter are over proportionally present in the first and last poverty index tercile, therefore tend to be relatively poor or relatively prosperous, while the immigrant families who have lived in the village for a long time are accumulated in the middle tercile (=tercile 2) (cf. Tab. 8 & Fig. 4). These groups however do not show any differences in the average of the poverty index.

Tab. 8: Distribution of the migrant groups (classified according to time of immigration) on the three terciles (Source: STORMA Subproject A1 – Village census 2004)

	Time of immigration (Heads of household)			Total
	15 or less years ago	16 to 49 years ago	50 or more years ago	
Tercile 1	27%	63%	10%	100%
Tercile 2	18%	59%	23%	100%
Tercile 3	33%	60%	7%	100%

Fig. 4: Comparison of groups of migrant families according to time spent in the researched village (Source: STORMA Subproject A1 – Village census 2004)



Fundamentally there are two types of newly arrived immigrants in the village with different migrational motives. There are the relatively wealthy, who have immigrated because of pull-factors like marriage or acquisition of land. The second group of immigrants is composed of households who have emigrated from their region of origin, because of push-factors. They

hoped for an improvement of their living conditions in the researched village, but because of their unstable role in the village this has not been the case very much. The households who have immigrated decades ago have in time integrated themselves into the structures of the village and do not tend to be in such extreme positions in the poverty-spectrum. The bottom line is that immigrated households tend to either an above or below average poverty status, especially when the immigration has just been recent. Native households or long time residents on the other hand rather take a middle position in the distribution of poverty.

Synopsis of multiple cultural factors

The results of this case study are subject to further examination for the analysis of the connection of individual cultural factors with the poverty index: a synopsis of multiple cultural factors is made. The actual role of the ethnicity of the head of household is of special interest here: Does maybe the different ethnic affiliation of the head of household play a role when for example the poverty status of the “less educated“ or the recently immigrated are analysed?

Methodologically, groups of heads of household are formed (i.e. „tercile 1 – less educated“) on the basis of the poverty index and one cultural factor each (“less educated” or “more educated” as well as “recently migrated” or “migrated a long time ago”). These groups are correlated with the factor ethnicity (only the three main ethnicities in the village are considered: Uma, Moma and Rampi). With this synopsis ethnicity is also only of inferior importance and not significant. This underlines that other cultural factors apart from ethnicity of the head of household are actually responsible for different positions in the poverty spectrum.

This last result reveals that our tested approach of integrating cultural indicators into a statistical calculation scheme can only build the basis for further, especially qualitative research in order to find out why ethnicity plays an inferior role for the relation of poverty and education. As Weber (2006) illustrates with the example of another village of the Lore Lindu region the relationship between poverty, origin and education can never be analysed sufficiently by only using quantitative research methods. In that village statistical calculations provide the result that the people belonging to the autochthonous ethnic group are poorer than those who immigrated from North Sulawesi. On the basis of the quantitative data one can also conclude that the migrants are higher educated than the locals. Thus, our tested method would fit. However, we would not be able to answer the many questions about why this relation exists. Only by adding qualitative data, e.g. from narrative interviews, we can explain that

historical influences in the study region as well as in North Sulawesi reaching back to the colonial period and a different shaping of the people's cultural orientation system are crucial influencing factors for the given poverty-education-origin interrelation.

Conclusion

The goal of our study is to develop a method which allows the quantitative combination of the distribution of poverty of households with cultural aspects. The data of a village census from rural Indonesia was used for the operationalisation of the variables for poverty (use of a poverty index) and cultural aspects (education and origin). The cultural variables were linked with the poverty index by means of adequate statistical methods. The results of the case study show that the educational level of members of a household has a clear influence on the prosperity status of that household: a higher education results in lower relative poverty. Concerning the collective term „origin,, in the researched village, it can be summed up that the ethnicity of the head of household has no considerable impact on the poverty status of that individual household. However, immigration has a significant effect on the poverty distribution of the village: immigrants, especially those who have moved to the village in the last couple years, tend to the extreme positions in the spectrum of poverty.

The study presented here can not claim global validity, which is anyhow not intended. The results presented show however that such an analysis is principally viable. The study therefore offers a methodical basis for the quantitative link of influencing cultural factors with a poverty index, which can and should be optimised in future. Hereby the case study may form a basis for further research of villages of a defined region. Especially the variables education and origin are suited for the transfer of the method used onto other regions. The final goal of reaching a weighting of cultural factors by generalisation presents the biggest challenge in the context of this research approach, whereby it does not have to be exclusively applicable to our researched village or the region of Central Sulawesi. Should this however succeed, an important gap in the socioeconomic empirical research could be closed.

This study also shows, however, the limits of quantitative approaches of explaining cultural impacts on and relations to other, e.g. economic issues. With our applied method we ended up quickly at a point where additional qualitative data were required for explaining the statistical results in the face of the complex interrelation of social, cultural, economic and political influencing factors. Other studies in the research region, which are mainly based on quantitative data, reveal as well that the entire picture of investigated topic cannot be drawn without additional qualitative data (cf. Steffen-Dewenter et al. 2007, Kreipe, Faust 2007,

Priess et al. 2007, Schwarze et al. 2007). Furthermore, qualitative investigation assists with avoiding the inconsiderate production of stereotypes as it offers a view beyond alleged so-called hard facts, which are based on calculated significances from quantitative data. The real life can hardly be forced into a simple black and white scenario that inevitably emerges from statistical significances, which deal with only two categories: it is or it is not. A statistical significant correlation is a welcome result not necessary to be challenged. It is an undeniable hard fact, countable, measurable – an objective truth. This is the main difficulty and danger when mainly concentrating on quantitative analysis for investigating a certain problem.

For improving interdisciplinary scientific research and multi-method approaches two strategies should be aimed: a) expanding the effort of integrating data of usually qualitatively investigated topics into quantitative analysis and modelling, and at the same time b) allocating enough space for the comparatively more time-intensive qualitative research in order to avoid missing important data, which are necessary for explaining and thus better understanding inter-relations and causalities.

Literature:

- ARAGON, L.V. (2001): Communal violence in Central Sulawesi: where people eat fish and fish eat people. In: *Indonesia*, (72), 45-79.
- BARRO, R.J. & McCLEARY, R.M. (2003): Religion and Economic Growth across Countries. In: *American Sociological Review*, (68), 760-781.
- BARTH, F. (Hrsg.) (1969): *Ethnic Groups and Boundaries. The Social Organization of Cultural Difference*. London, Oslo.
- BELINA, B. (2003): Kultur? Macht und Profit! – Zu Kultur, Ökonomie und Politik im öffentlichen Raum und in der Radical Geography. In: Gebhard, H., Reuber, P., Wolkersdorfer, G. (Hrsg.): *Kulturgeographie. Aktuelle Ansätze und Entwicklungen*. Heidelberg, Berlin, 83-97.
- BLUM, U., DUDLEY, L. (2001): Religion and economic growth: was Weber right? In: *Journal of Evolutionary Economics*, (11), 207-230.
- CHUA-FRANZ, C. (2002): Indonesiens Chinesen. Konstruktion und Instrumentalisierung einer ethnischen Minderheit. Hamburg. (= *Mitteilungen für Asienkunde*, Band 361).
- FAUST, H. (2006): Comparative Cultural Geography – Empirical evidence on processes of integration in rural Bolivia, Ivory Coast and Indonesia. In: *Erdkunde*, Jg. 60, Heft 3, S. 209-220.
- FAUST, H., MAERTENS, M., WEBER, R., NURIATONO, N., RHEENEN, T. van & BIRNER, R. (2003): Does Migration lead to Destabilization of Forest Margins? -

- Evidence from an interdisciplinary field study in Central Sulawesi. Göttingen/ Kassel/ Bogor/ Palu. (= STORMA Discussion Paper Series Sub-program A, No. 11).
- FERREIRA, F.H.G. (2001): Rural non farm activities and poverty in the Brazilian Northeast. In: *World Development*, (29)3, 509-528.
- FREMEREY, M. (2004): Between Differences and Synergy: Cultural Issues in an International Research Scheme. In: Gerold, G., Guhardja, E., Fremerey, M. (Eds.): Land use, nature conservation and the stability of rainforest margins in Southeast Asia. Berlin, 523-533.
- FREMEREY, M. (2002): Local Communities as Learning Organizations - The case of the village of Toro, Central Sulawesi, Indonesia. (= STORMA Discussion Paper Series Sub-program A, No. 6).
- GEBHARD, H., REUBER, P. & WOLKERSDORFER, G. (2003)(Eds.): Kulturgeographie. Aktuelle Ansätze und Entwicklungen. Heidelberg, Berlin.
- HENRY, C., SHARMA, M., LAPENU, C. & ZELLER, M. (2000): Assessing the Relative Poverty of Microfinance Clients – A CGAP Operational Tool. Washington.
- HENTSCHEL, J. & WATERS, W.F. (2002): Rural poverty in Equador: assessing local realities for the development of anti-poverty programs. In: *World Development*, (30)1, 33-47.
- KOHL, K.-H. (1998): Ethnizität und Tradition aus ethnologischer Sicht. In: Assam, A., Friese, H. (Eds.): Identitäten. Frankfurt am Main. (= Erinnerung, Geschichte, Identitäten, Bd. 3), 269-287.
- KREIPE, H. & FAUST, H.: Geovisualisierung in der aktuellen Ökosystemforschung - Ergebnisse einer kulturgeographischen Studie zur Landnutzung in Zentralsulawesi, Indonesien. In: Dickmann, F. (Hrsg.) (2007): Geovisualisierung in der Humangeographie. Nutzung kartengestützter Informationssysteme in Wissenschaft und Praxis, Kartographische Schriften, Bd. 13, Bonn, 137-144.
- KREISEL, W., WEBER, R. & FAUST, H. (2004): Processes of Change in Cultural Landscape - Historical Impacts on Use and Management of Natural Resources in the Rainforest Margins of Central Sulawesi. In: Gerold, G., Guhardja, E., Fremerey, M. (Eds.): Land use, nature conservation and the stability of rainforest margins in Southeast Asia. Berlin, 39-65.
- LANJOUW, P. (2001): Nonfarm employment and poverty in rural El Salvador. In: *World Development*, (29)3, 529-547.
- MITCHELL, D. (2000): Cultural Geography. Oxford.

- PEUCKERT, R. (2004): Familienformen im sozialen Wandel. 5., überarb. und erweiterte Auflage. Wiesbaden.
- PÖSCHL, H. (1989): Formen des Zusammenlebens 1988. In: *Wirtschaft und Statistik* 10/1989, 627-634.
- PRIESS, J. A., MIMLER M., WEBER R. & FAUST H. (2007): Socio-environmental impacts of land use and land cover change at a tropical forest frontier. In: Oxley, L. and Kulasiri, D. (eds.): MODSIM 2007 International Congress on Modelling and Simulation. Modelling and Simulation Society of Australia and New Zealand, December 2007, 349-357.
- QUANG DAO, M. (2004): Rural poverty in developing countries: an empirical analysis. In: *Journal of Economic Studies*, (31)6, 500-508.
- SCHWARZE, S., SCHIPPERS, B., FAUST, H., WARDHONO, A., WEBER, R. & ZELLER, M. (2005): The Status of Toro Village in the Lore Lindu Region: is it really exceptional? – A Comparative Quantitative Study of Socio-economic Indicators. Göttingen/ Kassel/ Bogor/ Palu. (= STORMA Discussion Paper Series Sub-program A, Band 14).
- SCHWARZE, S., SCHIPPERS, B., WEBER, R., FAUST, H., WARDHONO, A., ZELLER & M., KREISEL, W. (2007): Forest Products and Household Incomes: Evidence from Rural Households Living in the Rainforest Margins of Central Sulawesi. In: Tschardtke, T. et al. (eds.): The stability of tropical rainforest margins, linking ecological, economic and social constraints of land use and conservation, Springer Verlag Berlin, 209-224.
- SEGALL, M.H. (1983): On the Search for the Independent Variable in Cross-Cultural Psychology. In: Irvine, S.H., Berry, J.W. (Eds.): Human Assessment and Cultural Factors. New York, 127-138.
- SEGALL, M.H. (1984): More than We Need to Know about Culture, but are afraid not to ask. In: *Journal of Cross-Cultural Psychology*, 15, 153-162.
- SHABAN, A. A. (2001): Rural poverty and poverty outreach of social safety net programs. M.Sc. Thesis, Institut für Rurale Entwicklung. Göttingen.
- SMITH, N. (2000): Socializing culture, radicalizing the social. In: *Social & Cultural Geography*, (1), 25-28.
- STEFFAN-DEWENTER, I., KESSLER, M., BARKMANN, J., BOS, M., BUCHORI, D., ERASMI S. & FAUST, H. et al. (2007): Tradeoffs between income, biodiversity, and

- ecosystem functioning during tropical rainforest conversion and agroforestry intensification. In: *PNAS*, März 2007, Nr. 104, S. 4973-4978.
- STRAUB, J. & THOMAS, A. (2003): Positionen, Ziele und Entwicklungslinien der kulturvergleichenden Psychologie. In: Thomas, A. (Eds.): *Kulturvergleichende Psychologie*. 2. Aufl. Göttingen, Bern, Toronto, Seattle, 29-80.
- THOMAS, A. (1996): Analyse der Handlungswirksamkeit von Kulturstandards. In: Thomas, A. (Eds.): *Psychologie interkulturellen Handelns*. Göttingen, Bern, Toronto, Seattle, 107-135.
- WEBER, R. (2006): *Kulturlandschaftswandel in Zentralsulawesi. Historisch-geographische Analyse einer indonesischen Bergregenwaldregion*. Göttingen.
- WEBER, R., FAUST, H., SCHIPPERS, B., MAMAR, S., SUTARTO, E. & KREISEL, W. (2007): Migration and Ethnicity as Cultural Impact Factors on Land Use Change in the Rainforest Margins of Central Sulawesi, Indonesia. In: Tschardt, T. et al. (eds.): *The Stability of Tropical Rainforest Margins, Linking Ecological, Economic and Social Constraints of Land Use and Conservation*. Springer Verlag Berlin, pp. 417-436.
- WEBER, R., KREISEL, W. & FAUST, H. (2003): Colonial Interventions on Cultural Landscape of Central Sulawesi by "Ethical Policy": Impacts of the Dutch Rule in Palu and Kulawi Valley 1905-1942. In: *Asian Journal of Social Science*, (31)3, 398-434.
- WHITING, B.B. (1976): The Problem of the Packaged Variable. In: Riegel, K., Peacham, J. (Eds.): *The Developing Individual in a Changing World*. The Hague, 303-309.
- WILLIAMS, R. (1988): *Keywords*. London.
- ZELLER, M., SHARMA, M., HENRY, C. & LAPENU, C. (2006): An operational method for assessing the poverty outreach performance of development policies and projects: Results of case studies in Africa, Asia, and Latin America. In: *World Development*, (34)3, 446-464.