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**Reference:**

Marivoet Wim, De Herdt Tom.- What happens with household assets during economic collapse? The case of the Democratic Republic of the Congo (1975-2010)  
The journal of development studies - ISSN 0022-0388 - 55:4(2019), p. 680-701  
Full text (Publisher's DOI): <https://doi.org/10.1080/00220388.2018.1448065>  
To cite this reference: <https://hdl.handle.net/10067/1497430151162165141>

## **What Happens with Household Assets during Economic Collapse? The Case of the Democratic Republic of the Congo (1975-2010)**

*ABSTRACT Many Congolese seem to have withstood their country's protracted economic crisis relatively well, despite its length and severity. This study analyses whether and to what extent this livelihood paradox can be explained by a strategy of asset depletion. In general, this strategy seems not to have played an important role. Marked reductions in household asset stock were limited to some secondary urban centers. Explanations for this strategy's limited reach point to a much richer set of asset coping mechanisms which households may have developed regarding assets in times of hardship, and to a concomitant shortage of research strategies to take due account of these.*

**Keywords:** coping strategies, livelihoods, household assets, the Democratic Republic of the Congo

## 1. Introduction

'Why Congo persists' (Englebert, 2003) is generally explained as a paradoxical outcome of the country's particular and often problematic history. Indeed, given its artificial creation in 1885, its cultural and demographic heterogeneity and its violent post-colonial history filled with secession attempts and military insurgencies of all kinds, one might have predicted complete state collapse. Yet, the Congolese state somehow managed to survive. The same goes for the Congolese people and their livelihoods. Indeed, life expectancy and child mortality rates, although poor from the start, do not point to any severe deterioration in survival conditions over the past four decades, notwithstanding the poor economic policies introduced and the sheer economic collapse as their outcome.

More specifically, after Mobutu launched his infamous policy of Zairianisation in November 1973, the country entered a long downward spiral of economic decline and state regress from which it started to recover, if at all, only recently. Annual growth rates for GDP per capita over this entire period were almost exclusively negative (WDI, 2012). On average, the Zairian economy between 1970 and 2003 contracted by more than 4 per cent annually. Despite some regional variation, the economic crisis was clearly felt in many corners of the country as indicated by the overall negative growth rates registered in all provinces (see Table 1).

<< **Table 1, about here** >>

This implosion of the Congolese economy reflects a combination of adverse external circumstances and disastrous domestic policies, which have been labelled as deficitary, inflationary and subversive in nature, not to mention criminal in many respects (Bézy,

Peemans, and Wautelet, 1981; Maton, Schoors, and Van Bauwel, 1998; De Herdt, 2002; Marysse, 2005; Reyntjens, 2005). On top of that, the political transition went anything but smoothly: after Mobutu was deposed during the first, so-called liberation war (1996-1997), the first African World War (1998-2003) was just about to begin.

In sharp contrast, despite its multidimensional nature and the rather poor living conditions in the 1970s, the crisis did not really seem to have impaired human survival significantly. True, according to Table 1, under-five mortality rose by 0.3 per cent annually on average and life expectancy decreased by eight months, from 47.2 years to 46.5 years over the period 1980-1997. Overall, though, these changes are much less dramatic than one would expect on the basis of the evolution of per capita GDP. Table 1 reports on the expected annual change by applying the income elasticities of under-five mortality and life expectancy respectively as estimated by O'Hare, Makuta, Chiwaula, and Bar-Zeev (2013) and Pritchett and Viarengo (2010). Given the spectacular decline in per capita GDP, we would expect both under-five mortality and life expectancy to deteriorate much more than they actually did: mortality would have increased almost twice as much and life expectancy would even have decreased four times as much as was actually the case. This general trend is also observable at the level of all individual provinces, with the exception of Bas-Congo, Équateur and Orientale. Why was this? Why were the majority of Congolese people so resilient to the many crises which affected their country?

In this paper, we explore the possibility to explain this livelihood paradox by analysing changes in asset ownership. In simple terms, households may have overcome the economic crisis by depleting their asset stock in order to generate the necessary resources and smooth consumption. A thorough investigation of this dimension has – to our knowledge – never

been attempted at the country-wide level for the Democratic Republic of the Congo (DRC). In fact, the few Congolese studies on survival strategies mainly focused on the capital city only and centred around processes of informalization, shifts in food baskets and changes in inequality (De Herdt and Marysse, 1996; De Herdt, 2000; De Herdt, Marivoet, and Marysse, 2008).

This paper also contributes to the recent literature on assets in livelihoods research. Over the last few decades, this literature largely built its arguments for analysing assets on a limited set of empirical cases (Moser, 1998; Bebbington, 1999) that eventually led to the increasing presence of information about assets in many types of surveys, which in turn allowed for more systematic analysis of asset data over time and between countries (e.g. Sahn & Stifel 2000; Howe et.al. 2008; Wietzke 2015). These studies are all based on the claim that assets would be cheaper and more reliable indications of the long-term standard of living than income or consumption. Making use of assets for analysis through time and between different contexts also comes with its own conceptual and methodological challenges, however, especially if this exercise is carried out in a context of adversity. The case of the DRC provides the appropriate material to flesh out this argument.

In the following section (Section 2), we will therefore introduce some basic concepts related to the use of household assets in pursuing viable coping strategies, as well as identify some basic conceptual issues associated with analysis of assets in livelihoods research. Section 3 will provide a small overview of the micro data used as well as the methodological challenges to correctly examine asset ownership over time. This section will also identify a set of common asset variables and discuss the procedure behind the construction of asset indices. In a subsequent section (Section 4), changes in asset ownership will be studied for the urban

sector of the DRC both by relying on these asset indices and their underlying components. Section 5 will conclude.

## **2. Asset coping mechanisms, some conceptual notes**

After the many decades of economic decline, it seems fair to expect that by 2003, most Congolese were at the end of their coping possibilities, having exhausted the most evident strategies first, while being forced to find other and more demanding solutions later on. In asset terms, one can assume this situation to be largely characterised by huge levels of asset depletion as well as a pronounced instrumentalisation of the little asset stock that remained. Despite this extreme vulnerability and in line with the Congolese livelihood paradox, most people were still capable of avoiding the very last stage: dying. This particular focus on assets is common for the majority of livelihoods research, which analyses how ‘people pursue a range of livelihood outcomes (health, income, reduced vulnerability, etc.) by drawing on a range of assets to pursue a variety of activities. The activities they adopt and the way they reinvest in asset-building are ... influenced by the types of vulnerability, including shocks ... , overall trends ... and seasonal variations’ (Farrington, Carney, Ashley, and Turton, 1999, p. 1).

To be sure, this asset approach by no means aims to be a substitute for an analysis of household budgets: although both metrics can be seen as ‘effect indicators’ (Bollen, Glanville, and Stecklov, 2007, p. 21) of the same latent variable of permanent income, they provide very different but complementary information to help us understand people’s coping behaviour. Whereas expenditure reveals something about people’s current living standards, data on asset ownership ‘represent both accumulated past wealth and security in the future, and [therefore] play a vital role in most household’s strategies for accumulation and consumption smoothing’

(Davis and Baulch, 2011, p. 136). For the same reason, many studies on poverty dynamics make use of both metrics to assess degrees of vulnerability and to distinguish structural from stochastic shifts in and out of poverty (Carter and Barrett, 2006; Chiwaula, Witt, and Waibel, 2011). In this respect, when consumption falls below the poverty line while assets remain above the critical *Micawber threshold*,<sup>1</sup> one speaks of a stochastic poverty transition. In the unfortunate case where both consumption and assets fall below their respective thresholds, this poverty transition is deemed structural.

Figure 1 provides the intuitive sequence of coping mechanisms along both the asset and consumption metric, each of them being associated with a particular livelihood process. In a first stage, people will evidently pursue a strategy of consumption smoothing by depleting non-productive assets (see mechanism 1). This strategy aligns well with Deaton's (1991) traditional buffer-stock model of precautionary savings, in which households are expected to save during times of relative prosperity in order to be able to dissave during times of hardship. This mechanism could be labelled as 'stepping down' (being the opposite of 'stepping up' (Dorward, 2009, p. 136) which involves a strategy of asset accumulation). Secondly, close to the *Micawber threshold*, people will switch to a strategy of asset smoothing and destabilize their consumption level (see mechanism 2). Empirical work, mainly in more homogeneous and rural settings, has indeed pointed to the existence of such critical asset thresholds around which this particular coping strategy could be observed (Corbett, 1988; Lybbert, Barrett, Desta, and Coppock, 2004; Carter and Lybbert, 2012). This strategy can be framed as 'hanging in' (Dorward, 2009, p. 136), because people manage to remain in the higher livelihood mode by keeping their production base buoyant. In the third and most radical stage, households will be forced to even deplete the economic foundation on which their livelihood depends in order to smooth consumption at subsistence level (see mechanism 3). The

livelihood process describing this stage is ‘dropping out’ (Mushongah and Scoones, 2012: 1241), a poorly reversible strategy characterised by a transition from a higher to a lower production mode and by a more pronounced vulnerability to subsequent shocks.

<< **Figure 1, about here** >>

To be sure, this is just a schematic representation of a much more complicated process. To begin with, the critical levels along which households may smooth consumption or assets are far from precisely specified. With respect to assets, the distinction between productive and non-productive assets is often blurred, as many assets initially used for consumption purposes can be easily instrumentalised in times of hardship. For example, the car used for commuting in the daytime can be rented as a taxi during the night. In a similar vein, positional goods (Hirsch 1976), whose value depends at least in part on the desirability by others, can be seen as productive assets too, in the sense that they define and structure access to people and thus precondition future access to the same people and to the material resources they possess or manage (Bebbington, 1999, p. 2023; Truyts, 2010, p. 142). Moreover, the norms which steer ownership of these social status goods tend to be inflationary with time (Rottiers 2012), thus pushing up the critical asset level. Local notions of “decent living” increasingly include modern equipment like mobile phones and television sets and hence preclude the possibility to deplete these items in favour of *prima facie* more priority household assets. And finally, as multiple production modes (and thus livelihoods) exist, there will be multiple critical asset levels. Several such levels can be identified also with respect to consumption. For example, smoothing will not only occur along the subsistence level (to physically survive), but also along the minimal consumption needed to remain labour productive in a certain segment of the economy or again to live up to the expectations of peers in society. All this may in fact

point to the existence of dynamic and multiple steps at various critical levels or, in other words, to a less discrete sequencing of asset and consumption smoothing.

Another source of real-life complexity not captured by Figure 1 relates to the problematic concept of *access* (de Haan and Zoomers, 2005). Depletion of productive assets at the household level does not necessarily deprive its members from having further access to them, as they can be rented or collectively shared. As a result, not every depletion of productive assets corresponds to a shift from a higher to a lower mode of production or to a possible shift into structural poverty. In a similar vein, a destabilization of consumption may be (partly) offset by financial transfers from other family members or relatives abroad. As a result, both axes of Figure 1 can either be read as asset *ownership or access* to assets on the one hand, and consumption based on own or others' resources on the other. Of course, the precise rules and conditions which govern these processes, or the extent people are able to challenge them, will determine whether they involve feasible coping strategies in the short or longer run (Bastiaansen, De Herdt, and D'Exelle, 2005).

### **3. Data and methodology**

For the purpose of this paper, a dataset of 21,390 urban families was constructed using five cross-sectional household surveys, each comprising representative data on family characteristics and asset holdings at sector and provincial level between 1975 and 2010. Unfortunately, the majority of these surveys do not disclose any information on people's consumption or its origin (such as proper budget, gifts or transfers). In light of the conceptual framework introduced above, the analysis will thus be focused on one dimension only, namely household assets. While this focus does not allow for an analysis of a broader set of

coping strategies, a discussion of the asset dimension as such may be meaningful in its own right. Information on assets is arguably collected with less measurement error compared to consumption (Sahn and Stifel, 2003). Furthermore, the extensive timeframe covers both the period of economic collapse as well as the slight recovery observed afterwards. As a result, these data would not only allow us to study the impact of economic regress on household wealth, but also the direct effects of the prudent and partial peace since 2003. Table 2 provides a small descriptive overview of these surveys; a fuller description can be found in Marivoet and De Herdt (2014).

<< **Table 2, about here** >>

Despite this unique window to analyse people's coping behaviour over time, a number of methodological challenges and drawbacks exist. Firstly, most household data covering asset holdings in the DRC do not provide much information on quality or depreciation. As a result, a house made of brick with a galvanised roof that was constructed in the 1970s will probably keep the same survey characteristics four decades later, notwithstanding its much more dilapidated state. The same goes for the many reassembled cars driving around in the DRC, which still do their job after being repaired an infinite number of times, but which – for most surveys – count as much as a new vehicle. Secondly, in most DRC surveys, consumer durables are not counted; their availability is only recorded by a simple binary variable (yes/no). And thirdly, variability in survey quality and methodological approach between each of the surveys is another potential source of imprecision. Obviously, queries on asset ownership and housing characteristics were formulated in various ways and by using different sets of close-ended categories, which do not always necessarily and neatly align over time.

In addition to these generic drawbacks, three more specific methodological issues should be mentioned. The first issue inevitably relates to the lack of panel data which precludes any close follow-up on the composition and changes of assets at the household level. Therefore, and consistent with the lens through which the livelihood paradox has been identified, we will mainly investigate the matter from a regional perspective. This in turn has several implications.

A first one relates to the fact that asset depletion, if observed, can only be seen as the aggregate loss of assets over time for a set of households. In this view, the budget saved on maintenance costs or by the non-renewal of broken assets, possibly complemented with revenues generated through the selling of scrap value or any constituent part of it, constitutes the mechanism for households to cope with economic regress. But lacking panel data, we are unable to capture the sale of functioning assets to other households within the same group. Indeed, as every item sold by one household at the same time implies its purchase by another household, no asset indicator at a more aggregate level will be able to register this transaction. To address this issue, we will pursue a more in-depth distributive analysis by examining the changes in asset ownership across different education quintiles. Although such a pseudo-panel technique will not resolve the neutralising bias within each quintile, it will at least be able to detect redistributive trends across broad layers in each urban society.

The second issue concerns the existence of confounding factors. To assess whether any observed asset depletion follows directly from the economic crisis, one should be able to control for other influential changes which occurred in the meantime. Demographic changes may be one such factor: facing adversity, people may decide to merge under the same roof to pool risk or to increase efficiency over available resources (Moser, 1998, pp. 11-13). As a

result, depletion by the more vulnerable households may go unnoticed, when they are accommodated within an extended family which still holds these assets. Young adults who postpone their marriage and wait for better times to collect their dowry would be an ex-ante form of risk management (Alderman and Paxson, 1994), while both strategies would result in an increase of household size. Given our research set-up, where the economic crisis is perceived at the macro-level and its impact on household assets is assessed at the micro-level, we are unable to control for changes of any confounding factor, as would be common practice in econometric research. Alternatively, we will study two such confounding factors separately. In addition to demographic changes, we will look at changes in occupational profile and how both may influence the results in terms of asset depletion.

Given the extended time-period under investigation, a third issue relates to any potential bias resulting from the introduction of new (ICT) goods. As a matter of fact, a lot of assets common today simply did not exist in the 1970s, such as personal computers, mobile phones and DVD players. This phenomenon is likely to point to asset accumulation, which in part may be fair in terms of the efficiency gains typically involved. On the other hand, these technological goods partly respond to a need which was previously covered by another good. To circumvent this new goods bias, changes in asset ownership will be analysed along a series of common asset items, which have been surveyed in all cross-sections. To correctly interpret the final results, it is important to emphasise that the asset index we develop will not be able to register the accumulation of new assets, nor the substitution of old by new. Such a substitution could be considered another strategy to cope with hardship, in addition to depletion of (old) assets. For two reasons, however, we believe that the new goods bias will only marginally affect our results (see Appendix for an overview of all asset queries from 1975-2010). First, given their similar function (i.e. calling from a distance), mobile and

landline phones have been considered identical. As such, an important new asset is integrated within the common asset list. Second, ownership rates of new assets have been overall very low for the DRC, ranging from less than 1.5% for airconditioning, computers and electric generators before 2007 to less than 5% and 7.5% in 2010, for the latter two assets respectively. Moreover, some of the so-called new assets have already become obsolete again, like VHS players, hifi chains or DVDs, all displaying similarly low ownership rates. As a result, the misinterpretation of real asset levels due to the ignorance of new goods will in the case of the DRC only concern a small minority of households.

Table 3 presents the list of common asset variables found in all five household surveys, including the unweighted frequency distribution of each item. More precisely, common information on housing quality was found in terms of drinking water, sanitation and materials used for the roof together with ownership of a radio, car/truck, telephone, television set and fridge. In an attempt to level out methodological differences over time, maximum conformity in asset type and/or its categorization was pursued or constructed where possible. We also included housing characteristics, supposing that, as the Congolese economic crisis unfolded relatively slowly, moving house was certainly part of people's strategies to cope with adversity (De Herdt, 2000), a strategy which seems highly unlikely in cases of acute distress.

**<< Table 3, about here >>**

To assess the evolution in asset ownership, indices will be constructed using the eight variables in Table 3. Similar to Sahn and Stifel's analysis (2000), the asset information of all five surveys will first be pooled in order to derive index weights which are consistent over time. In this paper, we opted for the polychoric extension of *principal component analysis* (PCA) developed by Kolenikov and Angeles (2009) to obtain the necessary weights behind

the indexation procedure (see appendix for details on the PCA results).<sup>2</sup> Of course, this reliance on indices should not prevent us from examining changes in ownership of their underlying components or other asset holdings, if the latter were not recorded in all surveys.

#### **4. Results and discussion**

Although this study employs the maximum of the available Congolese household data, preference will be given to the results of 1975, 2001 and 2010, which respectively reflect the period prior to the economic crisis, its most violent episode and the post-crisis period.

##### ***4.1. Depletion of assets to survive?***

Did the Congolese people over the years resort to a strategy of depleting their asset stock in order to survive? Figure 2, which displays the evolution in urban assets using two series of box plots, does not quite seem to support this hypothesis. Indeed, housing quality has remained remarkably stable over the years, with only a significant drop between 2005 and 2007, which was mainly due to a small decline in the quality of better equipped houses. Moreover, ownership of household durables clearly sketches an incremental and significant process of asset *accumulation*. Whereas this drift up until 2005 was mainly driven by the 50 per cent asset richest, this process eventually became much more inclusive – especially after 2007.

Of course, in line with the methodological remarks discussed above, these observations should be nuanced as they do not capture other coping strategies with possible impacts on

assets, whether in terms of asset quality, assets being omitted, being shared, turned into more productive ends or being redistributed among different layers and sectors in society. Only some of these alternative mechanisms can be documented here.

<< **Figure 2, about here** >>

With respect to redistribution, Table 4 provides a first indication of asset gainers and losers by decomposing ownership along provincial lines. According to this table (as well as Table 5 for more detail on some specific items), the asset drift in the urban sector seems to be mainly steered by Kinshasa, Bas-Congo and Bandundu. On average, all three provinces saw their asset stock increase between 1975 and 2001, which was mainly due to an increased ownership of television sets (for all three), complemented with cars and telephones (in Kinshasa) and fridges (in Bas-Congo). After 2001, the asset drift continued, but was then much more centred on acquiring a telephone than about obtaining a television set. On the other hand, the provinces of Équateur, Orientale and Kasai-Occidental recorded some asset depletion between 1975 and 2001. However, for Équateur, this depletion was reversed after the end of the war, while Orientale and Kasai-Occidental seemed to be somewhat trapped in their asset deprivation after 2001. For these three provinces, depletion occurred in terms of deterioration in roof quality, combined with a strong reduction in radio ownership in Équateur and with more moderate reductions in terms of fridges and phones in both Équateur and Orientale. Despite this overall asset depletion, ownership of television sets sharply *increased* between 1975 and 2001, which also seemed to be true for the urban sector in South Kivu. Moreover, a steep increase of telephone users after 2001 was also observed in each of these four provinces.

<< **Table 4, about here** >>

Figure 3 displays per province mean asset ownership levels and growth rates by years-of-schooling quintiles of the household head between 1975 and 2010. This gives us a more detailed idea of the ‘winners’ and ‘losers’ of assets. The reasoning behind the choice for education quintiles is double. On the one hand, and in line with previous research on informalization in Kinshasa (De Herdt and Marivoet, 2017), education has continued to structure the Congolese economy quite well, notwithstanding the collapse of many formal economic activities since the mid 1970s. Apart from a few exceptions, Figure 3 indeed clearly indicates, for each province and year, that the longer the household head went to school, the more likely it is that his family is endowed with more household assets. As a result of the association between educational attainment and wealth, the slope of the curves connecting growth rates of average asset levels per education quintile can be interpreted as pro-poor (when downward) and pro-rich (when upward). Indeed, a downward slope reflects a pro-poor evolution as it involves higher accumulation rates (or lower depletion rates) for the poorer compared to the richer households, while the reverse is true for an upward slope. On the other hand, and given the more permanent character of personal educational attainment, years-of-schooling quintiles are more likely to cover the same type of people over time, compared to other types of decomposition such as asset fractiles or quantiles based on socio-economic profile which allow for more mobility.

Taking a closer look at the growth curves in Figure 3, the most striking observation perhaps is the difficulty to characterise the evolution in asset ownership across provinces. As a matter of fact, each province seems to have followed its own particular trajectory, which aggregates for the urban sector as a whole into two waves of rather broad-based growth, a first one with annual rates by quintile slightly above 0 per cent (1975-2001), followed by a period of more

substantial accumulation around 2.5 per cent per year (2001-2010). The province which typifies this overall urban growth typology best (partially driven by its demographical weight) is Kinshasa, although the second episode of asset accumulation looks a little more pro-poor. Regarding the two other provinces with sustained asset accumulation over time, growth patterns look quite dissimilar: whereas Bas-Congo first experienced a period of marginally pro-rich growth after which asset ownership grew markedly pro-poor, the opposite seems to be true for Bandundu.

<< **Figure 3, about here** >>

With respect to the three provinces with significant mean asset depletion between 1975 and 2001, Figure 3 indicates that this decrease mainly occurred among families with household heads belonging to the second lowest education quintile in Orientale, and among the 40 per cent most educated in Équateur and Kasai-Occidental – perhaps because households with lower educated heads in these latter provinces simply had too little to deplete. Remarkably, for each of the three latter provinces, the subsequent period proved to be largely compensating in nature: those having resorted to strategies of asset depletion between 1975 and 2001 gained considerably more assets between 2001 and 2010; and those being spared during the first episode subsequently saw their asset stock either shrink or grow less strongly. This particular succession in growth patterns also appears to hold for South Kivu, where households within the second highest education quintile first needed to deplete their asset stock at an annual growth rate below -0.6 per cent, before it grew more substantially compared to other quintiles after 2001.

Given the fact that not all major cities were surveyed in 1975, a similar analysis could not be pursued for North Kivu, Katanga, Maniema and Kasai-Oriental. However, by combining data from Table 4 and Figure 3, one can clearly observe that, for the first three provinces, a strong and significant asset drift did occur in the period 2001-2010 (with a mixed growth profile in North Kivu and being generally pro-poor in Maniema and Katanga), and that Kasai-Oriental's evolution in asset ownership for the second period seems to be a less pronounced version of the one observed for its twin province in the west, with lower depletion and lower accumulation levels at either side of the asset distribution.

#### **4.2. No generalised asset depletion: why?**

Given the fairly moderate levels of depletion and its limited occurrence within the Congolese urban sector, we must conclude that a strong reduction in asset holdings overall simply did not occur, and certainly does not provide for a conclusive explanation for the puzzling history of many urban areas. This finding is remarkable, not only given the length and depth of the Congolese crisis, but also given the more heterogeneous urban context where it occurs, compared to rural settings where such critical asset thresholds are more typically observed. After all, depleting assets would have been a quite straightforward coping strategy, especially given the consumption nature of most items composing the index. So, why did the Congolese *not* resort to depleting their asset stock, and more remarkably, how did people in some urban areas even manage to substantially *increase* their asset level?

We explain this phenomenon by referring to the possible importance of some alternative mechanisms linking adversity to assets. We discussed many of these already above, as either conceptual complications or methodological limitations of our study.

### *Household recomposition*

Table 5 documents the changes of household size and occupational profile of the household head. For both factors, one can observe quite some variation over time. With respect to household size, urban households became gradually more extended as the crisis deepened, from 6.3 members in 1975 to 6.6 members in 2001. Since then, growth resumed and urban families suddenly ‘lost’ on average 0.8 of their members. This development occurred in many urban areas, though to different degrees. Most prominently, for all provinces heavily affected by the violent conflict in the country’s East (i.e. Orientale, both Kivus, Maniema and Katanga), household size was at its highest in the midst of the war in 2001, after which it significantly decreased, as measured by subsequent surveys (except for North Kivu). Conversely, in Kinshasa, Bas-Congo, Équateur and Kasai-Oriental, household size peaked earlier (1995), which is in line with the pillaging of the capital in 1991 and 1993 (Sabakinu Kivilu, 1999), the mass expulsion of people from Katanga into Kasai-Oriental in 1992-1993 (Dibwe dia Mwembu, 1999), as well as with the overall monetary derailment of the Congolese economy in the early 1990s (De Herdt, 2002). For Bandundu and Kasai-Occidental, the overall trend is more ambiguous, yet both provinces still record a significant decline in average household size in 2005, when the country’s economy gradually started to recover. These patterns are consistent with the hypothesis that asset depletion was partly avoided or compensated for by increased asset sharing. Indeed, this type of coping took place mainly when the economic crisis was at its deepest and thus depletion was most expected.

<< **Table 5, about here** >>

### *Informalisation*

Regarding the occupational profile of the household head, one can observe even more significant changes over time. Between 1975 and 2005, the Congolese urban economy informalised to an unprecedented degree. The overall trend of formal workers being pushed into an informal livelihood or simply into unemployment, is dominant and can be largely observed in each province's urban sector, too (not shown in Table 5). To be sure, this is just one, imperfect indicator of informalisation: it just looks at household heads, and it just looks at a person's primary occupation. One can expect that lack of formal employment will trigger both more household members to look for income-generating activities and also for more than one such activity per person. Informalisation of income-generating activities also implies turning assets into productive use. This type of instrumentalisation of assets fits within a broader fend-for-yourself strategy, manifest in the development of Congo's flourishing second economy (MacGaffey, 1991), which consists of a wide range of popular responses to economic crisis and state failure, as documented, among others, by de Villers, Jewsiewicki, and Monnier (2002) and Trefon (2004). Here, we discuss the typical case of transportation.

Table 6 presents the change in ownership of cars and bicycles in the urban centres between 1975 and 2001-2005. Notwithstanding the long crisis and apart from Équateur and South Kivu, cars were not subject to depletion, which may indeed be explained by reference to their income generating capacity (e.g. taxi revenues). In Kinshasa, car ownership even increased a little, by 2.5 per cent. Moreover, in the urban sector of Bas-Congo, Équateur, Orientale, South Kivu and Kasai-Occidental, a strong increase in bicycle ownership was noticed. Most salient in this respect are Équateur and Orientale where bicycle ownership almost doubled from 15 to 28 per cent in the first case and boomed from quasi non-existent in 1975 to a situation of almost one third of all households owning a bicycle in the second. These observations can be easily linked to the phenomenon of taxi-bikes (called *tolekas*) which nowadays dominate the

city streetscapes of Mbandaka (provincial capital of Équateur) and Kisangani (provincial capital of Orientale) (Omasombo Tshonda, 2002). In the cities of South Kivu, the increase in bicycle ownership was somewhat less sharp, from 1 to 8 per cent only, which is probably due to the more disadvantageous topology of the region. Yet, despite sharing the same type of hills, one quarter of all urban families in North Kivu had a bicycle in 2005.<sup>3</sup> As a result and in line with the concepts introduced above, many urban dwellers in the DRC seem to have managed to ‘hang in’ by smoothing their car ownership and its corresponding taxi revenues, while those in South Kivu and in Équateur seem to have ‘dropped out’, as exemplified by a livelihood shift from a car to a bike taxi man.

<< **Table 6, about here** >>

#### *Positional goods*

Not only can consumption assets be instrumentalised to increase or diversify income, they may also change in importance from a social status perspective: asset ownership may become more, or less, important as it also conveys social recognition to the owner. A car, for example, is not only a consumer asset with some productive potential, it is also a sign of **decency**. This particular function may provide for a third or complementary reason why the Congolese generally refrained from depleting their asset stock during the crisis years. A professor at the University of Kisangani recalls the better times in 1974 when he bought a car on credit by saying ‘I became a gentleman. My wife and my three children that I had back then, were well-nourished and they went to school by car’ (quote taken and translated from Omasombo Tshonda (2002, p. 94)).

**Met opmerkingen [CR1]:** perhaps: respectability. Decency implies some moral characteristics

But the status explanation seems much more important to understand what happened with two other commodities. The results of Table 6 demonstrate how the ownership of a television set and a telephone boomed between 1975 and 2010. The increase in telephones only occurred recently, reflecting the advent of mobile phones replacing old landlines throughout the country, while being driven at the same time by the small economic recovery since 2003. But the sharp increase in ownership of television sets can be observed during the full crisis years as well, and counted for all individual provinces (except for Orientale where the increase was not statistically significant). However, ownership rates of television sets were far higher for those provinces with a more privileged access to world markets, ranging from 77 to 43 per cent in Kinshasa, Bas-Congo and Katanga, compared to the more isolated provinces in the hinterland with ownership rates of only 8 to 18 per cent. This increase in television sets among households is not only surprising in light of the formal economic regress, but also given the poor nutritional status of the population. In Kinshasa, where television set ownership rocketed to 77 per cent, daily calorie intake per person remained low at around 1380 calories and malnutrition among its female population became the second highest of all urban centres. As no television set can be eaten or directly put to use in making money, we have to search for other explanations. Banerjee and Duflo (2011) refer to the information or entertainment value attached to TV to explain why poor people in Morocco have television sets and DVD players: preserving these assets can just be a simple and effective way to obtain information and spend your time in a more enjoyable manner. In the case of the DRC, with its increasingly irregular and lengthy power cuts<sup>4</sup>, this information and entertainment argument seems much more unlikely, however.

An alternative explanation refers to the importance of a television set as a positional good. This explanation corresponds closely with an ethnographic study conducted by Pype (2016) in

Met opmerkingen [CR2]: reverse order? or is 77 wrong?

Kinshasa about the meaning people give to ‘modern’ equipment like television sets, mobile phones or radios: first of all, such equipment has increasingly become part of what is nowadays called the “*facture*”, the list of goods that are exchanged between families of a marrying couple: ‘A TV set now commonly replaces the gun, customarily a gift for the bride’s father. Also electricity generators and stereo sets ... are replacing the more traditional and nowadays more difficult to find objects like a *machete*, *fusil*, and the like’ (Pype, 2016, p. 12). The role played by television sets as part of a gift economy also means that the associated expenses have become embedded in a network of wider social obligations. People who own a television set, whether or not it really functions, are demonstrating that they have a capable network of acquaintances, which is perhaps the most valuable asset of all in times of hardship (De Herdt, 2000).

The observed asset drift in television set (and mobile phone) ownership may thus simply reflect the more demanding social norms of decency: a television set has become what Adam Smith called a “necessary good”, enabling people “to appear in public without shame” (De Herdt, 2008). To be sure, the pursuit of social status in the DRC actually is in part financed by low nutritional intake and thus by increased health risks imposed on its population. Downscaling on nutrition in order to keep your future options open is in any event not confined to Kinshasa: Corbett already noticed that ‘rationing of current food consumption has been found to be one of the first responses to a decline in current income’ (1988, p. 1108), the main reason being to safeguard current and future income potential.

## **5. Conclusion**

This paper investigated the extent to which the Congolese people relied on their asset stock to cope with the country's long, generalised and protracted crisis. To this end, five cross-sectional household datasets were employed to study changes in asset ownership between 1975 and 2010. In line with the general depletion of the country's industrial base from the mid-1970s until the beginning of the 2000s, one could expect a similar outcome to have occurred with respect to household assets, namely widespread depletion to smooth consumption in order for people to survive. Besides, the extension of the period under investigation beyond the formal end of the war (2003-2010) has also proved useful in checking households' resilience.

Interestingly, those layers of urban society hit hardest during the crisis were also the ones that recovered more sharply afterwards. Comparatively, whereas some layers of urban citizenry in Équateur, Orientale, South Kivu and Kasai-Occidental have resorted to asset depletion, this coping strategy has proved to be successful for the latter two provinces (possibly in combination with other coping strategies) and was clearly insufficient to keep health conditions stable in the first two regions. For Kinshasa and more importantly for the urban centres in Bandundu, people survived the crisis; but this seemed to be much less associated with reductions in asset stock. Indeed, these urban areas were rather characterised by a strong asset drift, which in turn was mainly steered by an increased ownership of television sets (also made possible by the privileged access to foreign markets). As a result, other coping strategies must have been responsible for the relative stability in health performances observed in both provinces. Finally, with respect to the urban centres of Bas-Congo, the same strategies must have financed the observed drift in asset ownership, though this time without being able to counter the dismal survival prospects imposed by the region's economic crisis.

But the most important conclusion of our work is that, according to the available data, no generalised decrease in asset ownership seems to have occurred in the urban sector of the DRC. As a matter of fact, apart from some minor forms of depletion experienced by some households in Équateur, Orientale, South Kivu and Kasai-Occidental, we actually observe genuine asset growth in various patterns and in many urban areas of the country. True, asset accumulation after the crisis years (since 2001 onwards) was much more distinct.

Why did urban households not cope with the crisis years by depleting assets? We make sense of this observation by referring to some conceptual complications and methodological limitations of asset analysis: the way in which assets are reported in current livelihoods studies certainly does not enable the inclusion of the rich set of coping strategies people may have developed regarding assets in times of adversity. Figure 4 categorizes all asset coping mechanisms we discussed in this paper under three broad headings. Highlighted in grey, the starting point of our paper was to construct an asset index and study its evolution over time. Lacking panel data, this methodological approach captures only one form of depletion however, while several other asset sharing and repurposing mechanisms potentially conceal or explain why our asset indicator did not register severe asset depletion. Some of these alternative coping mechanisms were matched with research strategies able to deal with them directly, but for most of them we were only able to document their potential importance, either on the basis of quantitative or qualitative evidence, and for a few of them, further analysis would definitely be needed.

<< **Figure 4, about here** >>

In particular, selling household assets to other households could be partially controlled for by studying distributive changes in asset ownership across education quintiles. However, the data did not allow us to pursue a similar control with respect to the other alternative mechanisms. Moreover, only for relocating members to wealthier households, the increasing use of assets for productive purposes and the change of social norms governing asset ownership, were we able to provide some quantitative or qualitative evidence, though no control. Regarding household recomposition, proxied by changes in household size, the extended family has proved to be an important safety net to overcome periods of hardship. Furthermore, the instrumentalisation of assets, illustrated by two means of transport, matched well with the more general phenomenon of income-generating activities becoming increasingly informalised. With respect to positional goods, however, we found evidence of stricter norms of decency, in the steep increase of TV set ownership. We could not control, nor document for the remaining mechanisms, reducing the level of maintenance, borrowing from other households and substituting old by new assets.

Future research will need to determine the importance of each of these alternative explanations, but that will first of all require a much more serious effort on the data front. Assets have been promoted over the last few decades as relatively cheap alternative measures of well-being instead of household consumption (see e.g. Vandemoortele 2009, Wietzke 2015). This paper, however, made clear that such a shift in data collection priorities, if not substantially improved, comes at a heavy cost.

**Met opmerkingen [CR3]:** meaning here unclear: members of household?

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<sup>1</sup> This threshold refers to a character in Charles Dickens' novel *David Copperfield* who faced many financial difficulties before enjoying a successful career as a sheep farmer and magistrate. Introduced by Lipton (1993, as cited in Zimmerman and Carter (2003)), the *Micawber threshold* thus indicates the critical asset level where behaviour bifurcates between low- and high-income equilibriums, and around which people tend to pursue strategies of asset smoothing (Zimmerman and Carter, 2003).

<sup>2</sup> Compared to standard PCA, the polychoric extension ensures adherence to the monotonicity criterion, which requires that an improvement in one of the underlying components of an ordinal variable must always yield a higher index, all things being equal. In popular applications of standard PCA where ordinal variables are often dichotomized, the latter condition is not necessarily met.

<sup>3</sup> This high level ownership is probably due to the introduction of *tshukudus* or wooden bikes, which are used to transport heavy merchandise. These bikes, symbols of resistance to crisis, are mostly seen in and around the cities of Beni, Butembo and Goma (North Kivu). However, it is uncertain to what extent survey interviewers counted *tshukudus* as bicycles.

<sup>4</sup> To underscore the problematic nature of electricity supply in the DRC, one can refer to the phenomenon called *délestage*, where full neighbourhoods are without notice alternatively deprived from electricity during 2-3 days to avoid overcharging the power grid. Moreover, recent ethnographic research in Kinshasa points out that a lot of the existing electric and electronic equipment has broken down as a result of the instability in electricity supply (Pype, 2016).

**Appendix A.** List of asset ownership queries, urban sector (1975-2010)

1975	2001	2005	2007	2010
Table (grande)	Tables en bois	Tables		
Table de salon				
Table de cuisine				
Chaises	Chaises en bois	Chaises	Chair	
Buffet				
Fauteuil		Fauteuil		
Divan				
Bureau				
Bibliothèque				
Garde-manger				
Lit		Lits	Bed	Lit
			Mosquito net	Moustiquaire
Matelas		Matelas		
Berceau				
Garde-robres		Garde-robe		
Armoire				
Commode				
<b>Radio</b>	<b>Radio ordinaire</b> <b>Radio cassette</b>	<b>Radio</b> <b>Radio cassette</b>	<b>Radio</b>	<b>Radio</b>
	Chaîne à musique	Hi-fi (chaîne)		
<b>Télévision</b>	<b>Télévision</b>	<b>Télévision</b>	<b>Television</b>	<b>Télévision</b>
	Magnétoscope	Magnétoscope		
		DVD		
<b>Electrophone</b>	<b>Téléphone</b>	<b>Téléphone fixe</b> <b>Téléphone portable</b>	<b>Telephone</b> <b>Mobile telephone</b>	<b>Téléphone fixe</b> <b>Téléphone portable</b>
	Ordinateur	Ordinateur		Ordinateur
<b>Frigo</b>	<b>Frigo</b>	<b>Frigo</b>	<b>Refrigerator</b>	<b>Réfrigérateur</b>
	Congélateur	Congélateur		
	Ventilateur	Ventilateur		
	Climatiseur	Climatiseur		
	Machine à coudre	Machine à coudre	Sewing machine	
	Lampe Coleman	Lampe Coleman	Lamp	Lampe à pétrole
	Groupe électrogène			Groupe électrogène
		Machine à laver		
		Machine à écrire		
				Montre
Cuisinière à gaz	Cuisinière	Cuisinière	Stove/cooker	
Cuisinière électrique	Réchaud électrique	Réchaud	Grill/heater	
Réchaud à pétrole	Réchaud pétrole			
Vélo		Bicyclette	Bicycle	Bicyclette
Mobylette		Moto/mobylette	Motorcycle/scooter	Motocyclette/scooter
<b>Voiture</b>	<b>Camion/voiture</b>	<b>Voiture</b>	<b>Car/truck</b>	<b>Voiture/camion</b>
<b>Camion</b>		<b>Camionnette</b>		
Pousse-pousse				

Notes: The five common household assets found across all surveys are indicated in bold.

Source: The authors based on respective survey data.

## Appendix B. Results of polychoric principal component analysis

### Unstandardised urban asset index (8 variables)

#### Polychoric correlation matrix

	water	sanitation	roof	telephone	radio	television	frigo	car_truck
water	1.0000							
sanitation	0.0506	1.0000						
roof	0.5568	0.0275	1.0000					
telephone	0.4252	0.2118	0.4118	1.0000				
radio	0.2655	0.1822	0.3038	0.4978	1.0000			
television	0.6127	0.1555	0.5756	0.7075	0.5641	1.0000		
frigo	0.5952	0.1965	0.4719	0.5747	0.4535	0.7812	1.0000	
car_truck	0.5075	0.2860	0.3506	0.4739	0.4093	0.6093	0.6582	1.0000

#### Principal component analysis

k	Eigenvalues	Proportion explained	Cum. explained
1	4.1952	0.5244	0.5244
2	1.0909	0.1364	0.6608
3	0.7720	0.0965	0.7573
4	0.5987	0.0748	0.8321
5	0.4822	0.0603	0.8924
6	0.3682	0.0460	0.9384
7	0.3227	0.0403	0.9787
8	0.1701	0.0213	1.0000

#### Scoring coefficients

Variable		Coeff. 1	Coeff. 2	Coeff. 3
water	1	-0.7886	0.7382	-0.8823
	2	-0.4568	0.4276	-0.5111
	3	-0.2047	0.1916	-0.2290
	4	0.0496	-0.0464	0.0554
	5	0.4239	-0.3968	0.4743
sanitation	1	-0.2544	-1.5464	-0.7962
	2	-0.0495	-0.3007	-0.1548
	3	0.1462	0.8884	0.4574
roof	1	-0.4365	0.5231	-0.2205
	2	0.0675	-0.0809	0.0341
	3	0.6002	-0.7193	0.3032
telephone	0	-0.2437	-0.0664	0.1952
	1	0.3607	0.0983	-0.2889
radio	0	-0.3016	-0.2153	0.6620

	1	0.2009	0.1435	-0.4410
television	0	-0.2443	0.0365	0.0668
	1	0.4830	-0.0722	-0.1320
frigo	0	-0.0946	0.0022	-0.0217
	1	0.7013	-0.0165	0.1612
car_truck	0	-0.0493	-0.0234	-0.0324
	1	0.7278	0.3456	0.4788

### Unstandardised urban housing index (3 variables)

#### Polychoric correlation matrix

	water	sanitation	roof
water	1.0000		
sanitation	0.0506	1.0000	
roof	0.5571	0.0277	1.0000

#### Principal component analysis

k	Eigenvalues	Proportion explained	Cum. explained
1	1.5625	0.5208	0.5208
2	0.9950	0.3317	0.8525
3	0.4424	0.1475	1.0000

#### Scoring coefficients

Variable		Coeff. 1	Coeff. 2	Coeff. 3
water	1	-1.5572	0.1077	1.5641
	2	-0.9015	0.0623	0.9055
	3	-0.4034	0.0279	0.4052
	4	0.0992	-0.0069	-0.0997
	5	0.8385	-0.0580	-0.8423
sanitation	1	-0.1893	-1.9203	-0.0563
	2	-0.0367	-0.3725	-0.0109
	3	0.1089	1.1046	0.0324
roof	1	-0.9451	0.1210	-0.9493
	2	0.1480	-0.0189	0.1487
	3	1.3048	-0.1670	1.3105

Unstandardised urban durables index (5 variables)

Polychoric correlation matrix

	telephone	radio	television	frigo	car_truck
telephone	1.0000				
radio	0.4970	1.0000			
television	0.7069	0.5634	1.0000		
frigo	0.5758	0.4537	0.7825	1.0000	
car_truck	0.4722	0.4064	0.6095	0.6671	1.0000

Principal component analysis

k	Eigenvalues	Proportion explained	Cum. explained
1	3.3171	0.6634	0.6634
2	0.6565	0.1313	0.7947
3	0.5027	0.1005	0.8953
4	0.3428	0.0686	0.9638
5	0.1809	0.0362	1.0000

Scoring coefficients

Variable		Coeff. 1	Coeff. 2	Coeff. 3
telephone	0	-0.2738	-0.1479	0.4199
	1	0.4368	0.2359	-0.6699
radio	0	-0.3639	-0.7077	-0.5042
	1	0.2532	0.4925	0.3508
television	0	-0.2616	0.0084	0.1078
	1	0.5617	-0.0180	-0.2315
frigo	0	-0.0899	0.0645	0.0012
	1	0.8444	-0.6058	-0.0110
car_truck	0	-0.0385	0.0468	-0.0422
	1	0.9162	-1.1151	1.0057

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