

CREATIVE APPROACHES TO MONITOR THE IMPACT OF ECONOMIC CRISES IN COLOMBIA

Mauricio Santa María¹

Paula Acosta

Anwar Rodríguez

Diane Kuhn

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¹ Associate Director, Researcher and Research Assistants. Fedesarrollo.

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I. Introduction

The main goal of this document is to develop alternative indicators to gauge how Colombian households respond to economic crises. The development of these indicators contributes to the World Bank's initiative to create easily updatable databases which include variables that may help to anticipate future episodes of economic downturn. In this sense, the World Bank has developed a series of activities to monitor the impacts of the global financial crisis on human development indicators, and to guide policy and program responses. The activities aim at forecasting, simulating or anticipating future impacts and at monitoring them as they unfold. They are intended to generate information on the social impact of the crisis now, by using existing data or producing estimates based on simulations when data are not available. Ultimately they are intended to support client countries to strengthen their own capacity to measure and monitor social indicators.

In Colombia the 1999 crisis proved that most households, especially the poor and vulnerable², had a limited scope of strategies to avoid a significant reduction of income and destruction of human capital. In turn, these households had no resort but to use harmful strategies such as removing their kids from school and diminishing the consumption of food. In order to avoid this situation and provide special help to the poor and vulnerable, the government created a Social Support Network (RAS following its Spanish acronym) based on training programs (to avoid the long term destruction of human capital) and conditional cash transfers (to mitigate short term reduction of income). Nonetheless, the implementation of the RAS took more time than was initially intended and therefore did not help households through the crisis.

The impact that the current international financial crisis has had on Colombia is much more moderate. This suggests that the effect of this recession on household behavior will be much smaller, particularly taking into consideration the continued functioning of the RAS and a new set of social programs. We use data available (official and non-official sources) to generate a series of indicators that capture different dimensions of household responses to crises including consumption and human capital investment patterns among others. The main contribution of this document is that it identifies key variables that predict or may anticipate household decisions during a crisis and, most importantly, that are easy to follow. In turn, these indicators will help permit a closer look at the economic situation, identify target population (since different crises affect different groups) and shape further policy actions.

The document is divided in four sections of which this short introduction corresponds to the first. The second section includes a general description of the main household behavior theories, as well as some international evidence that supports them and a brief analysis of the Colombian case in the 1999 crisis. The third section gathers the traditional and non-traditional indicators proposed to monitor household responses during economic crises. Finally, the fourth section summarizes the main findings and offers further developments to help the World Bank shape public policies regarding the Government's role during future episodes of economic distress.

² Vulnerability is defined as the *ex-ante* risk that a non-poor household will fall into poverty in the future, or that a poor household will remain being poor in the future (Nuñez and Espinosa 2005).

II. Household strategies to cope with economic crisis

In order to better predict and respond to financial crisis, academic and policy experts have produced a broad literature on the response of households and consumers to economic recession. Although much of this literature has focused on traditional indicators of changes in behavior³, the current financial crisis has spurred a variety of creative alternative indicators of economic performance. In this section, literature on traditional indicators of household behavior is considered. The limitations are acknowledged, and a justification for alternative options is presented.

A. General Household Behavior Theories

Loshkin and Yemtsov (2001) and Fiszbein et al. (2003) identify three broad household strategies in response to changes in adverse changes in income: adaptive, active, and social networking. Adaptive strategies refer to changes in consumption patterns, which can include both decreases in the quantity of consumption as well as changes in the type, or quality of consumption. For example, households might choose to consume lower quantities of food, or they might choose to switch to cheaper varieties of food products. Included in this vein are changes in consumption patterns of both durable and nondurable goods.

Active household responses to adverse income shocks include changes in labor force participation, selling possessions, the use of savings and credit, and migration. In terms of labor force participation, households may respond by adding new workers or by working more hours. Although Fiszbein *et al.* (2003) note that households may respond to income shocks by selling possessions, neither Jin Kang and Sawada (2003) nor Loshkin and Yemtsov (2001) identify it as an important coping device. Both Jin Kang and Sawada (2003) and Pernia and Knowles (1998) point to credit or salary advances as an individual household response, though community savings and borrowing cooperatives may also serve as a coping mechanism. Another active strategy of rural workers is to migrate to urban areas, which tends to depress wages during a crisis. International migration also occurs, particularly when a financial crisis is isolated or its effects are felt asymmetrically within a region.

Social networking strategies can include seeking assistance from friends and relatives, NGOs and government programs. Government assistance may come as part of job retraining, pension funds, and social service subsidies as well as broader conditional cash transfer programs such as *Familias en Acción* in Colombia and *Bolsa Familia* in Brazil. Furthermore, food subsidies, gifts and transfers from non-household members may help to insulate households from an income shock. These transfers may be domestic or international, in the form of remittances.

In addition to a rich literature on household responses to income crises, a number of scholars have addressed responses to job insecurity, or uncertainty about future income. For example, Benito (2005) finds that an increase in unemployment risk for the head of the household is correlated with reductions in household food consumption. Furthermore, delayed consumption of durable goods is

³ Research on household behavior in response to adverse changes in disposable income can be broadly divided as it addresses two broad questions: first, how does household behavior change in response to realized changes in household revenue, and second, how does behavior change in response to uncertainty about future income.

inversely correlated with job security. Carroll (1994) also finds that income uncertainty is correlated with lower current consumption, though Carroll et al. (2003) finds that the effect of precautionary spending only emerges at moderate and higher levels of income.

Whereas traditional indicators are helpful for confirming broad economic trends and consumer response, alternative measures may provide more precise insight into consumer choices. For example, rather than an aggregate measure of food consumption, considering the stock price for an upscale restaurant chain versus the stock price for doughnuts during a recession provides concrete insight into consumption tradeoffs. Furthermore, alternative indicators may allow for better prediction of economic performance. As described in the following section, forklifts in the United Kingdom served such a role in the early 1990s.

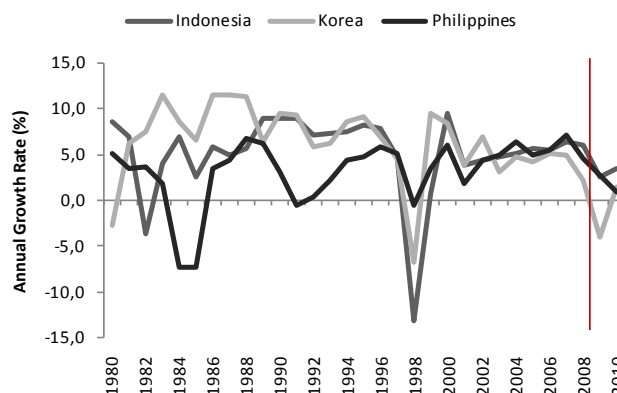
B. International Evidence

This section offers international evidence for both traditional and alternative indicators of economic performance. The first four sections present traditional indicators of household behavior from several of the most severe financial crises of the past 15 years, including data from Mexico, sample of three Asian countries, Russia, Argentina and Uruguay. The following two sections, the United States and the United Kingdom, present numerous alternative measures of consumer behavior in the face of a poor economy.

1. The Asian Crisis: Indonesia, Korea and the Philippines

Human capital investment suffered substantially in Indonesia, Korea and the Philippines between 1997 and 1998 (Pernia and Knowles 1998). Figure 1 shows a sharp decline on the annual growth rate for these countries in 1998 followed by a fast recovery during the next few years.

Figure 1. Annual Growth Rate (%) in Indonesia, Korea and Philippines



Source: The Conference Board and Groningen Growth and Development Centre, Total Economy Database, June 2009.
IMF Estimates for 2009 & 2010

Both Thomas *et al.* (2004) and Frankenberg *et al.* (1999) report decreases in school enrollment as a result of the financial crisis. The changes were most significant for children from poor households, males, and urban residents. Thomas *et al.* (2004) report decreases in enrollment of between 10-25%

from 1997 to 1998 for all males aged 8-15 as well as females aged 7-13. These declines are particularly troublesome given the previous trend of increased enrollment during the 1990s. Additionally, children who remained enrolled were more likely to be working for money and spending fewer hours in school (from 6 hours per day in 1997 to 5.1 hours per day in 1998). One third of children who worked in the family business reported working more hours in 1998 than in 1997 (Frankenberg *et al.* 1999). Healthcare also suffered, as use of health services fell substantially for both children and adults between 1997 and 1998. Notably, children's usage of the *Posyandu*, a program for community health service centers, declined significantly, resulting in a decrease in Vitamin A intake among children under 3 (Frankenberg *et al.* 1999). Furthermore, the percentage of adults below a healthy Body Mass Index (BMI) increased from 13.6% of survey respondents in 1997 to 15.4% of respondents in 1998. Nonetheless, the health status of survey respondents improved across a number of other indicators.

Human capital investment also suffered in Korea, where health and children's education expenditures fell by 20%. Food consumption fell by 15%, with a 63% decrease in consumption of luxury goods (dining out, durables, etc.). Public and private transfers did increase by approximately 10%, but constituted only 4% of total income (Jin Kang and Sawada 2003). Assets sale was not an important coping strategy in Korea. Restricted access to credit markets did pose a serious obstacle to Korean households, with the expected welfare loss due to credit constraints increasing by 45% during the crisis (Jin Kang and Sawada 2003). Youth unemployment also increased, due in part to recruitment bans during the crisis (Pernia and Knowles 1998).

Although the impact of the Asian financial crisis on the Philippines was less severe than its impact on Indonesia and Korea, it nonetheless eroded much of the economic and human development progress that had been made in the 1990s. As part of changes in consumption patterns, Philippine households de-prioritized healthcare, resulting in increased incidence of malnutrition, decreasing weight among children, and increased vulnerability to illness (Reyes *et al.* 1999). Immunization coverage declined, and there appeared to be decreasing use of contraceptives, particularly in rural areas. Both Albuero (1999) and Reyes *et al.* (1999) report declines in school enrollment; survey respondents noted a need for children to help on farms to save on labor costs, a lack of money for allowances, transportation, and lodging, and a need for children to watch over younger siblings while parents were at work.

Many Philippine families actually increased food expenditures, a result of rising relative prices given currency fluctuations. Resources were reallocated away from dining out and nonessentials such as ice cream, coffee, and soft drinks to staple foods such as vegetables, cooking oil, and sugar as well as home food production. Clothing expenditures represented the largest decrease in budget share from 1997 to 1998 (Reyes *et al.* 1999). More families began to rely on credit sources, and with restricted access to formal credit, on selling assets or credit through informal lenders. A 1998 survey showed 17% of households to have sold some assets in the previous 19 months, most commonly land, appliances, and jewelry. Both Lim (1998) and Aldaba (2000) report increased labor market participation rates.

2. Russia

Literature on household responses to income shock in Russia has addressed the economic crises of 1994-5 (Stillman 2001) and 1997-8 (Stillman 2001, Loshkin and Yemtsov 2001, Lokshin and Ravallion 2000) as well as the pension crisis in 1996 (Jensen and Richter 2003) (see Figure 2). Scholars consistently find decreased food consumption; Stillman (2001) reports a decline of 27% in food expenditures as a result of the crisis, Lokshin and Yemtsov (2001) notes that more than half of families cut food expenditures, and Jensen and Richter show pensioners in arrears cut calorie and protein intake by roughly 10%. Other consumption categories also experienced significant declines as a result of income shocks: 63% of households cut clothing expenditures during the 1998 crisis (Lokshin and Yemtsov 2001) and services (26%) and fuel (36%) expenditures declined significantly as part of a more general trend of decreased consumption during the pension crisis (Stillman 2001).



Source: The Conference Board and Groningen Growth and Development Centre, Total Economy Database, June 2009.
IMF Estimates for 2009 & 2010

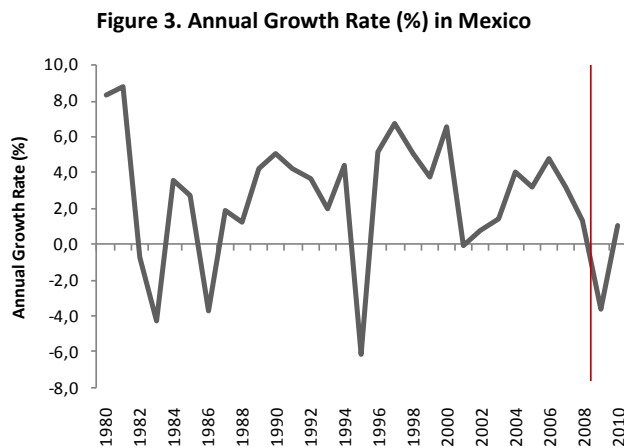
Health care suffered through a variety of channels in addition to dietary changes. During the pension crisis, men and women with chronic health conditions (heart attack, stroke, diabetes) were 4 to 5 percent less likely to report taking medications after the crisis, and men were about 5 percent less likely to visit a doctor (Jensen and Richter 2003). Furthermore, arrears pensioners were more likely to visit public facilities rather than private doctors. Jensen and Richter (2003) found significant and disturbing changes in health amongst arrears pensioners, including an increase in physical limitations, a 7% increase in likelihood of reporting chest pains, and a 5% increase in likelihood of fatality among men.

In addition to changes in consumption, Russian households employed a variety of active and social networking strategies in response to income shocks. During the 1998 crisis, 18% of households received assistance from relatives, and 7% from friends (Lokshin and Yemtsov 2001). The government social safety net also mitigated poverty effects (Lokshin and Ravallion 2000). During the pension crisis, households were able to replace approximately 20% of income lost through pension by working greater hours, selling assets, borrowing money, and reducing transfers made to non-household members. Sales of assets, for example, increased from 8.5% before the crisis to 16% after, and borrowing increased from

12% to nearly 20% after the pension crisis. Overall, however, adaptive strategies involving changes in household consumption patterns are predominate in the literature on Russian financial crises.

3. Mexico

A forced devaluation of the peso in Mexico in late 1994 segued into a nearly ten percent fall in GDP in 1995, an acute economic shock which came to be known as the Mexican Peso Crisis (Figure 3). McKenzie (2003, 2006), Cunningham and Maloney (2002), and Attanasio and Székely (2004), among others, have published work on changes in consumer behavior during the crisis. Cunningham and Maloney (2000) focus on the coping strategy of contributing additional household members to the labor force, noting that in Mexico this strategy was able to offset the median fall by raising household incomes by approximately 25%. They note, however, that this strategy was not available or effective for some demographic groups, most notably single mothers. McKenzie (2003), in contrast, finds no change in household labor market participation.



Source: The Conference Board and Groningen Growth and Development Centre, Total Economy Database, June 2009.
IMF Estimates for 2009 & 2010

With regard to human capital investment, McKenzie (2003, 2006) actually finds that school attendance rates among children 15-18 actually increased, which he attributes to a lower opportunity cost of schooling due to decreased demand in the labor market. McKenzie (2003) also shows decreased fertility rates in 1995 as families postponed childbearing in order to mitigate financial pressures. In fact, consumption of durable goods declined by 27%, clothing by 33%, and total food expenditures by 9%. Interestingly, McKenzie (2006) finds that reallocation of food expenditures toward staples (milk, eggs, grains, etc) increased by more than Engel's Law⁴ would predict, suggesting that Mexicans may have been uncertain of the transient nature of the crisis.

Domestic social networking strategies were not a source of buffer against income shock during the peso crisis, as families received an average of 19% fewer gifts and donations on average from other

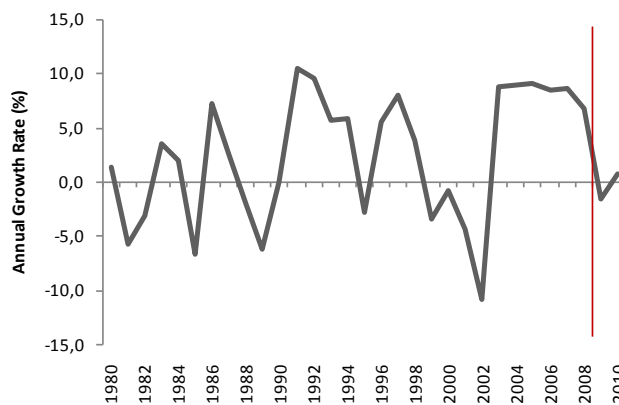
⁴ Engel's Law states that given set of preferences the proportion of income spent on food falls as income rises even if actual expenditure on food rises. This means that the income elasticity of demand for food is less than one.

Mexican households (McKenzie 2003). Households reduced the average transfer that they made to non-household members by 25%. These reduced transfers persist in subsamples of rural and urban households as well as under low and highly-educated household heads. In contrast to decreased domestic transfers, transfers from abroad were an important income smoothing mechanism, as they almost doubled during the crisis.

4. Argentina

Beginning in 1999, Argentina entered into a severe fiscal crisis that resulted in four years of recession and a sharp devaluation of the peso (see Figure 4). Numerous scholars (Corbacho *et al.* 2003, Fiszbein *et al.* 2002, Fiszbein *et al.* 2003, Uribe and Schwab 2002, España *et al.* 2002) have addressed the impact of the crisis on Argentine household behavior and resulting social outcomes. All of them find evidence of adaptive strategies, particularly with regard to alimentary and medical expenditures. Fiszbein *et al.* (2003) note that nearly three-quarters (73.5%) of families reduced food consumption during the crisis, and over 90% substituted to cheaper food. Thirty-seven percent reported being unable to buy medicine that they needed (Fiszbein *et al.* 2003), and 38% of families reported an increased use of public rather than private health facilities (Uribe and Schwab 2002). Thirteen percent canceled health insurance, five percent reported overdue health insurance payments, and eight percent expect to have to postpone health payments (Uribe and Schwab 2002).

Figure 4. Annual Growth Rate (%) in Argentina



Source: The Conference Board and Groningen Growth and Development Centre, Total Economy Database, June 2009.
IMF Estimates for 2009 & 2010

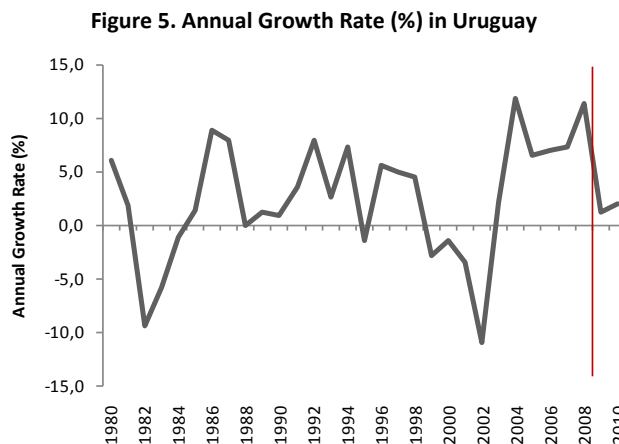
There was also evidence of active strategy adaption. Corbacho *et al.* (2003), for example, reports an increase in labor market participation by members other than the household head, and an increase in self-employed workers, which is interpreted to indicate an expansion of the informal sector. Fiszbein *et al.* (2003) also finds an increase (13.40%) in labor market participation, as well as an increase in hours (14.80%) by those already working. Furthermore, 12.20% report living off savings, and 2.80% sold or pawned belongings in 2002, an increase from the reported 0.6% in October 2001. Some evidence of social networking strategies was present, though Corbacho *et al.* (2003) reports that government spending was not a significant source of help during the crisis, and Fiszbein *et al.* (2003) reports that

fewer than 10% of families were supported financially through bartering, communal activities, public assistance, or family and friends.

A number of health indicators in Argentina demonstrate the decay in public health that occurred during the fiscal crisis. For example, Uribe and Schwab (2002) show an increase of 32% in identified cases of AIDS and a nearly 500% increase in cases of the parasitic disease Leishmaniasis. Furthermore, there was a fall of 43% in medical coverage for expecting mothers, and a decline of 20% of infants who received an adequate number of medical exams during their first year. Such indicators probably reflect changes in dietary habits as well as decreases in medical care during the crisis.

5. Uruguay

Dependence on the Argentine economy was one of the principal contributing factors to the Uruguayan banking crisis that hit in July 2002 (Figure 5). Although the fiscal response to the banking crisis is well-regarded (de la Plaza and Sirtaine 2005), there were still substantial changes in household behavior as consumers adapted to the negative economic shock. Active household strategies, and specifically migration, were an important response for households in Uruguay. Pellegrino and Vigorito (2005) note that emigration from Uruguay increased substantially between the beginning of economic recession in 1999 and the peak of the crisis in 2002. The departure rate during this time period (12.3 people per 1000) is comparable to the heavy migratory flows of the 1970s. Between March and December 2002, the majority of emigrants' relatives reported the reason for emigration as unemployment or low income. Interestingly, Pellegrino and Vigorito (2005) note that highly skilled individuals are over-represented among emigrants responding to the 2002 banking crisis. As such, the emigration represents a serious loss of human capital. It may be necessary to consider the human capital effects of active strategies such as migration as well as the more direct effects of educational and health trends in the wake of a crisis.



Source: The Conference Board and Groningen Growth and Development Centre, Total Economy Database, June 2009.
IMF Estimates for 2009 & 2010

A second active strategy that was common in Uruguay in the wake of the banking crisis was an increase in self-employment by workers who lost private sector jobs (Amarante *et al.* 2008). The increase

in informality of labor market participation implies a number of additional risks, as well as a less effective social political program. Self-employed workers are less likely to be targeted for government aid, and their wages fluctuate frequently. Furthermore, those employed in the informal sector do not contribute to fiscal revenue, exacerbating the fiscal strain during economic crises.

The *Ministerio de Desarrollo Social* (MIDES) implemented an anti-poverty plan known as *Plan Nacional de Atencion a la Emergencia Social* (PANES) from April 2005 until December 2007 in order to overcome the social effects of the 2002 banking crisis. The primary component of PANES was *Ingreso Ciudadano*, a conditional cash transfer program targeted at approximately 10% of the population. A second component of the plan was known as *Trabajo por Uruguay*, which was a workfare program in which a household member participated in a six month temporary employment program which included training activities. Other programs included *Rutas de Salida*, which offered courses on civil and labor rights, *Hábitat*, which provided households with materials to improve their living conditions, and food purchase cards. In December 2007, PANES was replaced with a family allowances program known as *Asignaciones Familiares* (Amarante *et al.* 2008). Although evaluation of the success of PANES in reducing child labor rates and improving school attendance, as well as increasing formality of the labor market and raising adult incomes, is still underway, relevant literature on conditional cash transfer programs (ECLAC 2006, Coady and Parker 2002, Skoufias and Parker 2004) suggests that positive outcomes such as increased school attendance may be offset by unintended negative consequences such as decreased child leisure time.

6. United States

Given the limitations of traditional indicators, Jones (2009), Brush (2009), and Rampell (2009), among others, offer several alternative indicators that are correlated with a poor economy in the United States (Figure 6 shows the evolution of GDP growth in United States). For example, Americans seem to seek a mental escape from financial troubles, as box office receipts, romance novel sales, and revenues from online dating all increase during a recession. Another unusual indicator of a bad economy are long delays in the time that customers wait to pick up dry cleaning after the clothing is ready. As dry cleaning bills are typically paid upon receipt of the clothing, consumers in a poor economy often wait longer to retrieve their items in order to delay payment.

Figure 6. Annual Growth Rate (%) in the United States



Source: The Conference Board and Groningen Growth and Development Centre, Total Economy Database, June 2009.
IMF Estimates for 2009 & 2010

Jones (2009) further notes that as consumers settle for inexpensive luxuries, mascara sales have increased dramatically during the current recession. Eye makeup sales from March 08-March 09 were 8.5% higher than they were during the same period of the previous year, with mascara sales in particular increasing 13%. Eye makeup seems to have replaced lipstick as the most reliable cosmetic indicator of recession in the United States. Foods such as doughnuts and hot dogs experience sales increases during a poor economy as consumers look for inexpensive comfort items (Brush 2009, Golodryga and Hagan 2009). From mid-March to mid-April 2009, Doughnut-maker Krispy Kreme's stock rose an impressive 56%. Experts also look for sales of certain items to decline during an economic recession. For example, according to Brush (2009) and Golodryga and Hagan (2009), Former Fed Chairman Alan Greenspan uses men's underwear sales as an indicator of consumer behavior. There seems to be some basis for such an indicator; men's underwear sales declined by 12% in the 12-month period ending in January 2009, but have leveled off since then (Brush 2009). Decreased demand for private transportation has led Catherine Rampell, writing for the New York Times, to propose the availability of taxicabs as an indicator of economic performance (Rampell 2009). As retail demand falls, so too does online shopping and consequently the shipping of cardboard boxes; Golodryga and Hagan (2009) report that corrugated cardboard box shipments fell more than 8% in February of 2009 compared the same month in 2008.

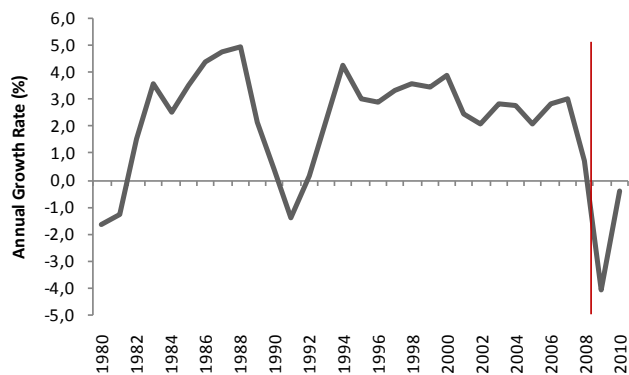
The temporal patterns of spending have been shown to change in a poor economy. As individuals who receive government aid, as well as those who receive once-monthly paychecks, are typically paid at the end of the month, purchases and specifically larger items tend to accumulate at the beginning of the month, with decreased revenues toward the end. In addition to consumption behavior, market analysts try to predict consumer sentiment toward stocks. Blog content, as available through the website *blogspot.com*, for example, helps researchers chart online opinions about the economy.

7. United Kingdom

The United Kingdom has also developed some creative measures of a poor economy. For example, the UK's recession in the early 1990s (Figure 7) was forecasted by falling British forklift sales (Bowen 1993). Whereas most individuals believed that the economy was still performing well in 1989,

forklift sales had begun to decline. Another unusual indicator of the economy in the UK are air passenger numbers traveling between London and Edinburgh. In July 1990, before the economy fell into recession, 157,000 people traveled between the two cities. One year later, only 138,000 people made the trip (Bowen 1993). The Oxford-Independent Activity Indicator also proposes some unusual economic indicators, such as the number of television licenses held and the sales in John Lewis department stores. Furthermore, during an economic recession temporary worker agencies experience a decrease in demand as people who otherwise might have requested hired help rely on relatives and friends during their vacations.

Figure 7. Annual Growth Rate (%) in the United Kingdom



Source: The Conference Board and Groningen Growth and Development Centre, Total Economy Database, June 2009.
IMF Estimates for 2009 & 2010

C. What did we learn from the 1999 crisis in Colombia?

In 1999, Colombia entered into deep recession in the worst financial crisis to hit since the Great Depression. Numerous scholars (Rawlings *et al.* 2002, Gaviria 2000, Henao 2001) have addressed the social consequences of the crisis as well as avenues for improvement in the government's response. Rawlings *et al.* (2002) identify mobilizing available labor, changing patterns of consumption, and using available physical assets such as housing as the three most important household strategies in Colombia during the 1999 crisis. Gaviria (2000) also finds that mobilizing available labor was an important strategy, with 21% of households that experienced a loss in income increasing labor force participation, compared to only 7% of households which experienced no income loss. Twenty-four percent of households with income loss increased hours worked (compared to 10% of households without loss), and 25% sold assets (10% without loss).

Human investment suffered as a result of changes in consumption patterns during the crisis. To reduce food consumption, families reduced the number of meals per day and/or serving sizes. Health indicators reflected these dietary changes. For example, 13.5% of children aged 0-5 suffered from malnutrition in 2000, with nearly 20% suffering within the poorest income quintile (Rawlings *et al.* 2002). Additionally, fewer children received vaccines against all basic communicable diseases (65.5% in 1995 vs. only 52% in 2000). Education patterns also reflected decreased disposable income, as families across all income levels shifted children from public to private schools. Between 1996 and 2000, enrollment in

private schools at the secondary level decreased as a percentage of total enrollment from 28% to 23%. Twelve percent of households which reported a loss in revenues had at least one member drop out of schooling for financial reasons (Gaviria 2000), and the percentage of children who neither work nor study increased from 10.5 to 13.3 percent between 1995 and 2000 (Rawlings 2002).

Because the existing social security system, including programs such as *Instituto Colombiano de Bienestar Familiar* and *Red de Solidaridad Social*, was insufficient to address the acute poverty generated by the crisis, the government responded with several social initiatives designed to target those suffering most directly from income losses. Among these social programs were *Manos a la Obra*, which included both *Vías para la Paz* and *Proyectos Comunitarios*, an emergency social security net known as the *Red de Apoyo Social* (RAS), an educational loan program (ACCES), and several smaller projects funded by the World Bank and Inter-American Development Bank.

Proyectos Comunitarios sought to increase the income of the poorest individuals in rural settings by offering temporary work on community projects such as housing construction and public service facilities. Given the rural focus of Plan Colombia, 80% of the resources for *Proyectos Comunitarios* were earmarked for municipalities with fewer than 100,000 inhabitants. Approximately two-thirds (US \$200 million) of the funding for the first phase of *Proyectos Comunitarios* came from external sources. *Vías para la Paz* was initiated as part of Plan Colombia and, like *Proyectos Comunitarios* has as its objective the improvement of transportation infrastructure in areas affected by civil conflict. The anticipated results were both infrastructural improvements in at-risk communities and avenues for increasing social capital and preventing further spread of violence. Furthermore, by employing unemployed unskilled workers, the program would augment the revenue of the poorest inhabitants of conflict zones. Upon the execution of *Empleo en Acción* and *Jóvenes en Acción*, *Manos a la Obra* became integrated with the *Red de Apoyo Social*.

Although it was intended as an emergency response, the *Red de Apoyo Social* was not actually implemented until 2001, two years after the initiation of the crisis. Rawlings *et al.* (2000) note that the delayed response was largely due to Colombia's limited experience with conditional cash transfer programs, such that the process for developing the political will and technical basis for RAS was unduly protracted. The RAS emergency safety net was composed of three distinct programs: (1) *Empleo en Acción*, (2) *Familias en Acción*, and (3) *Jóvenes en Acción*. *Empleo en Acción* provided temporary employment to poor, unemployed, low skill workers through the construction of public works projects, aiming both to occupy an otherwise vulnerable population in productive activity while simultaneously providing the infrastructural basis to improve basic services in poor communities. *Familias en Acción* offered two types of conditional grants, nutritional and educational, to families classified as SISBEN 1⁵. Finally, *Jóvenes en Acción* provided a three to five month training course followed by a three month internship to youths from Colombia's seven principal cities.

⁵ SISBEN, or *Sistema de Selección de Beneficiarios*, is Colombia's proxy mean test used to target poor households; SISBEN 1 and 2 are approximately equivalent to the lowest income quintile.

The *Empleo en Acción* workfare program was unable to target effectively through self-selection by offering less than minimum wage to workers, due to legal restraints. Another problematic aspect of the program was that there was an excess of labor supply for the available resources. A variety of solutions were considered and implemented, including a lottery, offering half-days of work, and implementing projects of shorter duration with more workers. Whereas the lottery presented ethical concerns to the extent that eligible participants were refused access to the program, spreading scarce resources amongst additional laborers resulted in a failure to meet the basic needs of participants (Trujillo *et al.* 2004). Additionally, revisions (childcare, public restrooms) may be required to ensure adequate female participation in the program. With regard to the administrative aspect of *Empleo en Acción*, there was not always sufficient transparency in the process of disbursements from program funds to the execution of projects. As funds were released through the intermediary of local officials, they were often diverted to other projects, leaving the program's approved projects unfunded.

Familias en Acción sought to address both immediate loss of revenue and the danger of long-term human capital disinvestment through cash transfers to families conditional on meeting educational and nutritional standards. It served as a rural complement to the other two urban-based programs of RAS, targeting only municipalities with fewer than 100,000 inhabitants. Additionally, only municipalities with at least one banking facility were eligible to participate in the program. As noted by Trujillo *et al.* (2004), this particular prerequisite served in some cases to exclude municipalities with the weakest infrastructure, which were frequently those hit hardest by the economic crisis. Similarly, in order to participate in the program, municipalities were required to demonstrate the capacity to respond to increased demand for education and health services generated by nutritional and education grants, as the success of the program depended on an increased supply of vaccines and accommodation of shifts from the private to public education system. Given that the municipalities with the fewest resources were also lacking adequate social service facilities, the *Familias en Acción* program did not effectively target the most vulnerable populations. The administrative system designed to disburse the conditional cash transfers under *Familias en Acción* must also be monitored to minimize delays in processing compliance data and issuing grants (Rawlings 2002). Childcare options should be considered for mothers as part of the program.

With regard to the *Jóvenes en Acción* program, two salient areas for improvement emerge. First, because the number of youths who presented themselves for enrollment in the program exceeded the resources available, private sector firms that sponsored internships were able to select the individuals whom they wanted to participate. In other words, the program suffered from a selection bias by which enrollment decisions for eligible individuals may have been a function of their superior work ethic, educational background, or other characteristic. As such, the targeting mechanism in *Jóvenes en Acción* did not objectively select the poorest or most vulnerable youths to participate. A second aspect of the program which could be improved is the potential for youths enrolled in the program to experience a negative income shock after the internship period if more permanent employment did not result. This possibility was exacerbated by the fact that the training and internship schedule did not allow for supplementary employment during the course of the program. Participants were thus unable to seek or

accept job opportunities until after the internship period was completed, increasing the probability of an adverse revenue shock.

Another component of the government's social response to the crisis was the reformation of student loans for higher education. In 2003, the government, in conjunction with the World Bank, provided support to Colombia's student loan agency, *Instituto Colombiano de Crédito Educativo y Estudios en el Exterior* (ICETEX), which subsidizes interest rates for low-income students (World Bank 2008). With this support, ICETEX established a new credit line which came to be known as *Acceso con Calidad a la Educación Superior* (ACCES), which extended more than 87,000 loans between 2003 and 2006. ACCES addressed equity issues in tertiary education by targeting students from the lowest two income strata. Between 2003 and 2006, 69% of new ACCES borrowers came from strata 1 and 2, with over 90% coming from strata 1, 2, and 3.

For example, ACCES has had a positive impact on the distribution of students from lower income strata receiving loans. One of the reasons for this impact is that after the approval of ACCES, students were no longer required to present real estate or assets as collateral in order to receive loans, a requirement that had previously precluded tens of thousands of students from accessing funds. ACCES led to a 30% decrease in the probability that low-income students would drop out of schooling (Cerdán-Infantes and Blom 2007). Support from the project also increased the institutional capacity of the Ministry of Education through the creation of a Vice-Ministry of Tertiary Education and an information system (SNIES) which allows universities and policymakers to track graduation rates, dropout rates, and key financial information. One important area for future improvement is technical and technological higher education. More generally, ACCES could be improved by addressing the infrastructural needs of universities in order to offer the highest possible quality of education and research training to students.

In addition to the aforementioned programs, the World Bank and Inter-American Development Bank funded several smaller projects in the wake of the 1999 financial crisis. For example, the Social Sector Adjustment Loan Project helped improve the displaced population's access to social programs as well as develop a Social Risk Management System. The Peace and Development APL project in 2004 assisted low-income families with the production of staple crops and access to basic services, as well as promoting environmentally safe economic activity. Additionally, the Water Sector Reform Assistance Project (2001) provided financial support for improved sanitation and sustainable public utilities.

In consideration of future programs to alleviate both transient and permanent poverty or risk of poverty, it may be helpful to think about providing support to individuals as they transition from one age group or population to another. For example, rather than executing the components of the RAS program in geographically separated areas, the complementarities of the project could be exploited by providing nutritional and educational support to children under 17, transitioning into training and/or internship programs in young adulthood. Such an integrated approach would help to address the selection biases of a program such as *Jóvenes en Acción* by preparing low income youths through educational support to enter into a competitive training and internship program. In order to avoid a second negative income shock as youths exit the internship program, supporting development projects could be designed around

the professional implementation of skills developed in training. In brief, an integrated approach to development support will both allow Colombia to respond effectively to acute income shock generated by economic crisis as well as alleviate the effects of more permanent poverty.

III. Alternative indicators that capture how household behavior changes during a crisis

The literature has identified a wide range of alternative strategies (some more effective than others) that households use to cope with income shocks as a result of an economic crisis. These strategies have been broadly captured by official and aggregate indicators that, in developing countries, are difficult to collect and are publicly disclosed with delays, which means that these indicators are not of much use to generate immediate or short term policies to help households in times of crisis.

Therefore, a set of alternative indicators (traditional and non-traditional) that identify specific household behavior in times of economic distress are proposed, starting at the most aggregate level, passing through consumption trends and finishing with household and government reactions. The nature of these indicators will allow a closer monitoring of consumer and household activities and, following this line of thought, will suggest which day-to-day variables most accurately capture economic cycles.

A. Macroeconomic

There are multiple ways to monitor economic activity, especially in aggregate terms. The indicators proposed in this section correspond to those that can capture, at least in a general way, how households and governments react in times of crises. On one hand, it is a stylized fact that, when a recession hits an economy, fiscal policy should enter into an expansive stance in order to counteract the slowdown of economic activities. The objective surrounding anti-cyclical policies is that in times of good economic performance, the government should generate savings that will act as a buffer when the situation turns around. This leads to a rise in government expenditures (especially social expenditures and investment in infrastructure), a decline in tax collection, and a greater fiscal deficit.

On the other hand, the performance of the housing market is significantly associated with household welfare and in turn with the economic situation of a country. Consequently a close monitoring of the housing market will allow a better understanding of how households react in times of crisis. In Colombia, house ownership is an active strategy used by households to mitigate future negative income shocks⁶ (Nuñez and Espinosa 2005). Thus, when the economy is booming the demand for houses and apartments increases, raising the price of real estate and stimulating the construction sector, which in turn demands more basic materials (such as cement and electricity). This translates into a reduction of housing building permits and cement dispatches when the economy hits the downturn. The demand of electricity also diminishes as industries and businesses produce less and households act more moderately, demanding fewer amounts of public services. Table 1 shows the set of traditional and non-traditional indicators chosen to capture the reaction of households in aggregate terms.

⁶ Households that are home owners are less vulnerable to being poor or of falling down to poverty due to negative income shocks.

Table 1. Macroeconomic Indicators

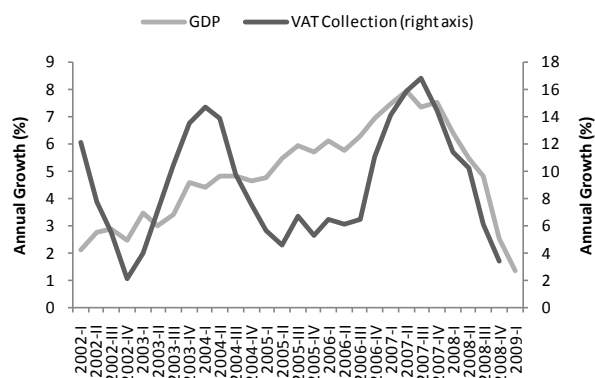
Traditional					
	Indicator	Source	Periodicity	Type	Representativeness
Government Expenditure	Central Government expenses	Ministry of Finance	Monthly, Quarterly and Annual	Raw data	National
Tax Collection	Collection of the VAT	DIAN	Monthly	Administrative Records	National
Unemployment	Percentage	Integrated Household Surveys. DANE	Monthly	Survey	National (urban and rural)
Non-Traditional					
	Indicator	Source	Periodicity	Type	Representativeness
Building Permits	Housing building permits (m ²)	DANE	Monthly	Administrative Records	Urban
Cement Dispatches	Tons of cement delivered to construction sites	<i>Instituto Colombiano de Productores de Cemento (ICPC)</i>	Monthly	Administrative Records	National
Energy Consumption	Regulated Demand of energy	National Planning Department. XM	Daily, Weekly, Monthly	Administrative Records	National
Entrepreneurial activity:					
- Employment - Economic situation - Economic expectations	Balance of responses	Entrepreneurial Opinion Survey - Fedesarrollo	Monthly and Quarterly	Survey	Urban by economic sector
Migration	Number of individuals that exit the country	Security Administration Department (DAS)	Monthly	Administrative Records	National

1. Traditional Indicators

The first traditional indicator proposed is the Central Government's level of expenditure that, as was mentioned previously, rises when the economy enters into a recession. The Ministry of Finance gathers monthly, quarterly and annual data on expenditure. Monthly data are particularly useful as they may help anticipate a contraction of economic activity when social expenditures and investment on infrastructure augments (keeping in mind a counter-cyclical policy).

The second indicator is related to the Nation's income. When economic activity diminishes, tax collection follows, especially consumption taxes such as the Value Added Tax (VAT). Tax collection in Colombia is managed by the *Dirección de Impuestos y Aduanas Nacionales* (DIAN), which produces monthly data that is useful to anticipate changes in aggregate consumption patterns. As Figure 8 shows, the reduction in the collection of the VAT (in constant 2008 pesos) anticipates the fluctuation of GDP via consumption.

Figure 8. Draft potential of traditional macroeconomic indicators



Source: DANE. DIAN.

2. Non-traditional Indicators

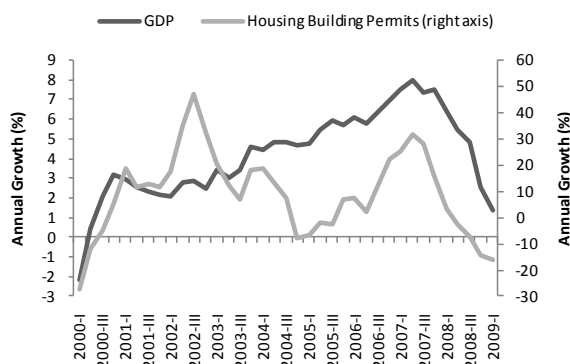
As was mentioned previously, housing building permits and cement dispatches are two non-traditional indicators that capture the behavior of the housing market, which consequently responds to households' demand. The *Departamento Administrativo Nacional de Estadística* (DANE) gathers monthly information about the approved amount of square meters for housing constructions. Additionally, the *Instituto Colombiano de Productores de Cemento* (ICPC) collects information concerning cement producers and compiles monthly indicators of the tons of cement dispatched to construction sites. Figure 9 show that these indicators follow aggregate economic activity closely.

Energy consumption is closely monitored by DNP, which in turn relies on data on transactions and prices gathered by XM, the company responsible for the administration of the trading system for electricity in the wholesale market and the administration of charges for the use of networks in the national system. With this information, a regulated demand of energy (GW per hour) is calculated at a daily, weekly and monthly basis. The regulated demand mostly responds to the households demand as they represent about 45% of the regulated market.

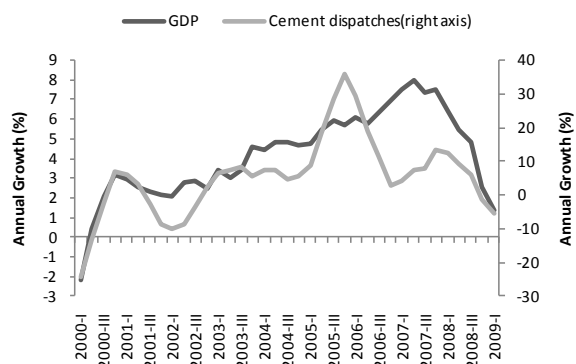
Another source of non-traditional indicators for aggregate economic activity could be Fedesarrollo's Entrepreneurial Opinion Survey (EOS). This survey collects monthly and quarterly data about industrials economic activity, their expectations about future performance and their desire to hire or dismiss workers. This could be a good way to capture accurate information about the behavior of corporations and small businesses in order to characterize the demand side of the labor market for the main productive sectors (e.g. construction, automotive, etc.) and destiny of their production (i.e. internal or external market).

Figure 9. Draft potential of non-traditional macroeconomic indicators

a) Housing building permits vs. GDP



b) Cement dispatches vs. GDP



Source: Dane. DNP. ICPC.

B. Household Consumption

As noted earlier, household consumption patterns change drastically as a response to negative income shocks. Such changes in consumption represent an adaptive strategy that households use in order to maximize the amount of disposable income in times of financial stress. Table 2 presents the indicators (traditional and non-traditional) that show how households' and consumers' preferences change during a recession.

The traditional indicators used to monitor households' consumption patterns are associated with the consumer confidence or sentiment level and the amount of resources spent, especially on food. The past five episodes of recession in the United States have been accompanied by great reductions in consumer confidence (as measured by the University of Michigan Consumer Sentiment Index). This reduction also implies a reduction of general expenses. The international evidence shown previously demonstrates that expenditure on food diminishes especially in poor households in developing countries.

Another approach to monitoring changes in consumption patterns is to follow specific responses of consumers and households. For example, there is a positive relation between a household's consumption level and the amount of garbage it produces; as consumption decreases during a negative income shock so does waste production. Furthermore, a similar relation holds between the amount of resources and time that a household spends on entertainment or leisure activities; as the situation worsens, household members use less of their resources on entertainment activities and more of their time working or helping with household activities, which reduces the time spent on leisure. In fact, a recent poll conducted by Yanhaas shows that the reduction of expenses on leisure and entertainment activities is the first measure taken by households in Colombia to reduce costs⁷. In this sense, there is a strong indication that reading newspapers (except the classifieds section that is used to find job

⁷ 56.4% of the households that responded the survey stated that they would postpone vacations, whereas 47.8% said that they would avoid eating in restaurants, 42.2% answered that they would reduce the assistance to bars and nightclubs, and 38.0% noted that they would go less to the movies as active strategies to reduce costs.

opportunities), the number of visits to the hairdresser or barber, going to the movies or soccer matches, and traveling diminishes.

Finally, households' perceptions and the use of transportation services are good proxies to find out when the situation worsens. In effect, the Yanhaas poll shows that, in February 2009, 44.8% of the households answered that they would reduce the use of taxicabs as a way to reduce expenses, whereas, in May 2008, 22.7% of the households had answered in this way.

Table 2. Household Consumption Indicators

TRADITIONAL					
	Indicator	Source	Periodicity	Type	Representativeness
Consumer Confidence	Consumer Confidence Index	Consumer Opinion survey. Fedesarrollo	Monthly	Survey	Urban (main cities: Bogotá, Medellín, Cali, Barranquilla)
Weekly expenses on food	Percentage of income	Life Quality Survey. DANE.	Annual	Survey	National
General Expenses	Percentage of income	Life Quality Survey. DANE.	Annual	Survey	National
NON-TRADITIONAL					
	Indicator	Source	Periodicity	Type	Representativeness
Garbage Disposal	Garbage (kg.) per subscribed household	Public Services Information System. Services Superintendence.	Monthly	Administrative Records	National (by regions)
Food:					
- Meals	Number of meals per day	Household Behavior Survey (HBS). Fedesarrollo	Monthly	Survey	Urban (main cities)
- Protein consumption	Index of protein consumption	Household Behavior Survey (HBS). Fedesarrollo	Monthly	Survey	Urban (main cities)
Entertainment:					
- Movies	Attendance	Cultural Consumption Survey. DANE	Annual	Survey	National (by regions, gender, age groups and educational level)
- Newspaper	- Purchases - Sections read	Cultural Consumption Survey. DANE	Annual	Survey	National (by regions, gender, age groups and educational level)
- Soccer	Attendance	DIMAYOR	Weekly	Administrative Records	Urban
- Travel and Vacationing	Number of passengers per airport	Aeronáutica Civil	Monthly	Administrative Records	Urban
- Beauty and hair care	Visits to the hairdresser or Barber	Household Behavior Survey (HBS). Fedesarrollo	Monthly	Survey	Urban (main cities)
- Cellphone use	Prepaid charge	Household Behavior Survey (HBS). Fedesarrollo	Monthly	Survey	Urban (main cities)
- Leisure and personal expenses	Percentage of income	Life Quality Survey. DANE.	Annual	Survey	National
Good moment to buy					
- House	Balance of responses	Consumer Opinion	Monthly	Survey	Urban (main cities:

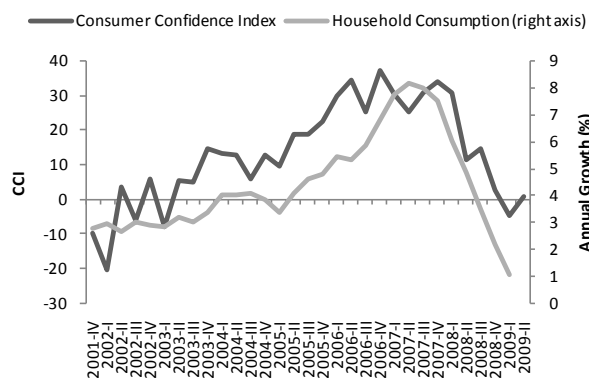
- Car - Appliances and furniture		survey. Fedesarrollo			Bogotá, Medellín, Cali, Barranquilla)
- Clothes	Purchase of clothing during the past week	Household Behavior Survey (HBS). Fedesarrollo	Monthly	Survey	Urban (main cities)
Transportation services to get to work:					
- Walking - Bicycle - Bus - Taxicab - Private car	Frequency of use	Household Behavior Survey (HBS). Fedesarrollo	Monthly	Survey	Urban (main cities)
- Expenses	Amount of money spent on transportation	Life Quality Survey. DANE.	Annual	Survey	National
		Household Behavior Survey (HBS). Fedesarrollo	Monthly	Survey	Urban (main cities)

1. Traditional Indicators

The Consumer Confidence Index (CCI) is calculated by Fedesarrollo using the answers reported in the Consumer Opinion Survey (COS), which is a monthly survey that captures consumers' perceptions and expectations of economic activities and consumption trends. Figure 10 show that the CCI and the household consumption series follow the same trend. Indeed, the CCI is one of the best leading indicators of the economic activity in Colombia.

In addition, the *Encuesta de Calidad de Vida* (ECV) is a regular survey administered by the DANE that captures different indicators that affect life quality and well-being. The survey has been conducted every five years since 1997 in order to obtain information to enable comparisons of socio-economic conditions of households in Colombia, to track the variables needed for the design and implementation of public policies and for monitoring the Millennium Development Goals (MDGs). However, effort is being made to turn this into an annual survey in order to capture periodical indicators of expenditures among the poor and non-poor households.

Figure 10. Consumer Confidence Index



Source: COS – Fedesarrollo. DANE.

2. Non-traditional Indicators

Garbage production per subscribed household is monitored by the Public Services Superintendence that monitors the supply and functioning of domiciliary public services in Colombia. There are administrative records gathered in the *Sistema Público de Información de Servicios Públicos* (SUI) that capture monthly statistics of the average amount of garbage produced by each household that uses the waste disposal services.

Food consumption can be used as a good proxy to evaluate household welfare during times of economic distress. As it was mentioned previously, the reduction in food consumption is an adaptive strategy commonly used by households to augment disposable income. Therefore, a continuous monitoring of the number of meals eaten per day, especially among the poorest segments of the population, could give a rough estimate of when households decide to reduce food ingestion in order to cover other expenses. The Household Behavior Survey (HBS)⁸, survey designed by Fedesarrollo to be conducted by phone to households classified as Sisbén 1 and 2 in a monthly basis could help capture this effects. Another useful indicator could be the index of protein consumption, generated as the ratio between the number of servings of protein rich foods and carbohydrate rich foods. The idea behind this index is that when households are passing through a difficult situation, the daily diet tends to be dominated by cheap carbohydrates such as potatoes instead of expensive foods such as meat and poultry. Appendix 2 contains the complete questionnaire of the survey.

Entertainment indicators are gathered from different sources. The Cultural Consumption Survey (CCS) made by the DANE registers annual information about the consumption of movies and newspapers among others. The information of this survey is disaggregated by gender, educational level and age groups, which allows a detailed analysis of the way cultural consumption changes in times of crisis. There are administrative records that gather monthly information about attendance at soccer stadiums and the quantity of passengers (national and international) registered in every airport. Another useful alternative could be to monitor and the consumption of airtime consumption of minutes via cellphone as the people tend to be more careful as they use this service and buy less amounts of credit during an economic downturn. This information could be available in the HBS described above.

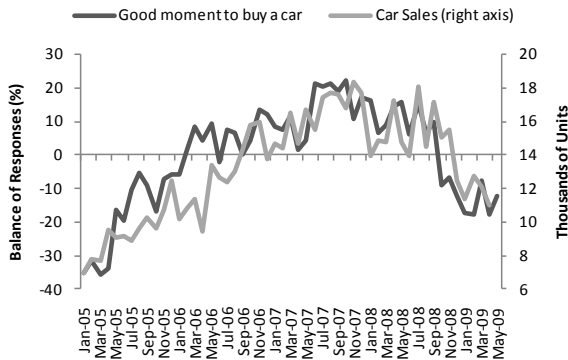
Fedesarrollo's Consumer Opinion Survey (COS) captures monthly changes in consumers' perceptions. The survey includes questions that ask if today is a good moment to buy different types of goods such as a car, a house or apartment and durable goods (home appliances and furniture). Figure 11 shows how these different questions follow closely real sector indicators such as car sales, annual variation of housing building permits, and annual variation of the retail of durable goods. Therefore, these turn out to be leading indicators of different consumption patterns that respond more rapidly when there is a recession as households react almost immediately to changes in credit conditions and exchange and interest rates that deteriorate during these periods. In addition, the HBS includes

⁸ This is a survey especially proposed for the development of this document. Fedesarrollo created a questionnaire that captures especial household characteristics that could anticipate economic downturns.

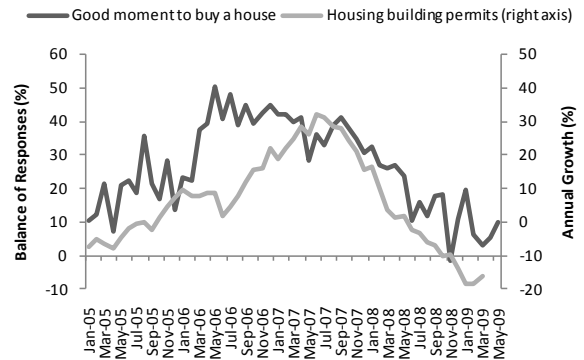
information about the periodicity in which households buy clothes and shoes, information that could be useful to identify when poor individuals have to moderate their expenses of these type of goods.

Figure 11. Consumer Opinion Survey

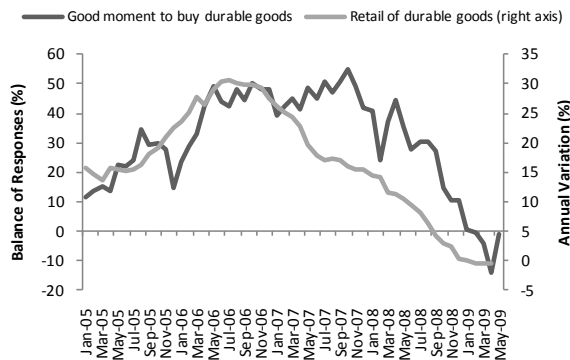
a) Good Moment to Purchase a Car vs. Car Sales



b) Good Moment to Buy House vs. Housing Building Permits



c) Good Moment to Purchase Appliances and Furniture vs. Retail of Durable Goods



Source: COS – Fedesarrollo. Econometría S.A. DANE.

Finally, information about the transportation used by the head of the household to get to work is collected in the life quality survey previously mentioned. This information will help to analyze how individuals substitute more expensive transportation services for cheaper ones regardless of the deterioration in the quality of the service and the additional time it takes. As mentioned earlier, substitution of this type is an active strategy that households, especially the poor, have to apply in order to reduce costs.

C. Education

There is substantial evidence that shows household income decreasing on average during an economic crisis. This effect is particularly prevalent among the poorest and most vulnerable population groups, reducing their welfare and exposing them to future shocks. As a result, these households have to resort to harmful strategies in order to avoid a more serious income reduction (Nuñez and Espinosa

2007). Most of these harmful strategies are associated with a reduction or destruction of human capital as kids are forced to leave school in order to work.

In the case of Colombia, 12% of the households that reported a reduction of income due to the crisis also reported that at least one of their members had to interrupt school to find a job (Gaviria 2000). Most importantly, international evidence shows that the individuals who interrupt school are less likely to return to classes when their economic situation improves, which in turn leads to a long term destruction of human capital and lower living standards. Another fact that has been widely documented in Colombia is that in times of crisis, parents change their children from private to public schools in order to minimize educational expenditure in this item (Gaviria 2000).

An alternative way to monitor this situation, i.e. kids leaving school in order to work or help with family chores, is to ask the head of the household directly about the main reason why his or her child is not studying. Thus it is not surprising that when a negative shock on income hits the household the main reasons for not studying would be related to the lack of resources and the need to augment the households' labor supply.

Table 3 lists the set of traditional and non-traditional indicators suggested to monitor changes in education related variables during times of crisis.

Table 3. Education Indicators

TRADITIONAL					
	Indicator	Source	Periodicity	Type	Representativeness
Schooling	Elementary and high school enrollment rate	Ministry of Education	Annual	Hard Data	National
Type of institution (public or private)	Percentage of population	Life Quality Survey. DANE.	Annual	Survey	National
NON-TRADITIONAL					
	Indicator	Source	Periodicity	Type	Representativeness
Main reason for not studying:					
- High costs or lack of money - Needs to work	Percentage of population	Life Quality Survey and National Health Survey. DANE.	Annual	Survey	National
- Illness - Stayed and helped with families' chores - Worked	Percentage of respondents	Household Behavior Survey (HBS). Fedesarrollo	Monthly	Survey	Urban (main cities)
Quality of Education					
- SABER tests - Examen de Estado para Ingreso a la Educación Superior (SAT following its english acronym) - Examen de Estado de Calidad de la Educación Superior (ECAES)	Results of standardized tests	Colombian Institute for the promotion of higher education (ICFES)	Biannual	Administrative Records	National
Institutional Quality	Index of Institutional Quality	See Appendix 1	Biannual	Administrative records	National

Access to Educational credits:					
- Instituto Colombiano de Crédito Educativo y Estudios en el Exterior (ICETEX) - Acceso con Calidad a la Educación Superior (ACCES)	Percentage of Beneficiaries	SIGOB	Biannual	Administrative Records	National
Graduates from superior education institutions:					
- Public - Private	Number of graduates	National Observatory for Education. Ministry of Education.	Biannual	Administrative Records	National (by regions and gender)
- Graduate - Technical & technological - BA - Post-graduate - Specialization - MA - PhDs	Number of graduates	National Observatory for Education. Ministry of Education.	Biannual	Administrative Records	National (by regions and gender)

a) Traditional Indicators

The Ministry of Education gathers annual information of elementary and high school enrollment rates. This information is very valuable because it helps researchers to identify how many children are leaving school in response to the deterioration of household conditions. In particular, this information is also useful as it allows the identification of the most vulnerable age groups, i.e. those which have the highest risks of abandoning school if a negative shock hits their household.

The life quality survey (ECV following its Spanish acronym) also includes information about the percentage of children per level that are attending public or private schools. There are great differences in the tuition fees and costs between attending a private or a public school. Therefore changes in these patterns may help identify when households' income falls below the threshold that forces parents to take their children out of private schools (that in most cases in Colombia are associated with better quality) and place them into public ones. This indicator thus helps to identify when households are passing through a negative income shock. Despite changes in the quality of education between official and non-official institutions, this strategy is less harmful in terms of human capital accumulation.

b) Non-traditional Indicators

The non-traditional indicators chosen to characterize how schooling is affected during economic crisis are the main reasons for not studying. This information is available in the Life Quality Survey and the National Health Survey (ENS following its Spanish acronym) with an annual periodicity and in the proposed Household Behavior Survey (HBS) on a monthly basis. This information is useful to identify when the destruction of human capital is associated with restrictions, i.e. high tuition costs, or with the need to increase the household's supply of labor. Nonetheless, both of these reasons to avoid school are related to low income levels that can be a result of shocks (whether covariate or idiosyncratic).

The rise in the public/private ratio of enrollment as a result of an economic crisis has negative impacts on education quality. Consequently, the continuous monitoring of the results on standardized

tests and exams such as the *Pruebas SABER* (performed on children in fifth and ninth grade), ICFES (performed on high-school seniors) and ECAES (performed on college students before receiving their diplomas) would allow discerning when the substitution of private to public schools affects its quality. The Colombian Institute for the promotion of higher education (ICFES, following its Spanish acronym) gathers semiannual information on this regard. The *Instituto Colombiano de Crédito y Estudios Técnicos en el Exterior* (ICETEX) gathers information about the number and amount of resources spent on educational credits each semester. This information is useful to determine if the number of beneficiaries of this type of credit increases as a result of the increase of social expenditures to mitigate the impact of the crisis or diminishes as a result of fewer educational opportunities as a result of the reduction of household's income and the migration of inactive household members into the labor market.

In addition, the National Observatory for Education gathers biannual information on the amount of college graduates from official and private institutions, as well as from different graduate and undergraduate programs and careers. This information is useful to match-up the supply and demand for jobs, and especially to find out if, in times of crisis, individuals change their career decisions.

In order to evaluate shifts in the demand for different types and qualities of superior education during an economic downturn in Colombia, it is necessary to construct an index or system for ranking educational institutions (Appendix 1). We propose a preliminary ranking system based on data that are available through the Ministry of Education or which could be collected at a low cost. The ranking system proposed here would allow for a more comprehensive measure of changes in educational trends during an economic crisis. Rather than simply capturing changes in attendance rates, this new measure could capture changes in overall quality of education that students obtain during a crisis. Although the indicators proposed here would be sufficient to develop individual rankings, for the purposes of measuring educational trends during a crisis it might also be sufficient to group institutions into strata of high, medium, and low quality.

D. Social Protection

Households as well as governments invest less in health care during times of crisis (Santa María *et al.* 2009). It is a known fact that people try to avoid going to doctor's appointments in times of economic distress in order to avoid additional expenses. This problem is specifically pronounced among the poor, which in most cases are those who have no coverage whatsoever (known as *vinculados*). Table 4 summarizes the main sources and types of traditional and non-traditional indicators chosen to characterize the health care and pensions dimension of human capital.

There are several traditional indicators used to characterize this dimension of human capital accumulation. In the first place, public expenditures in the health care systems have a tendency to decline during a recession. The resources that are most prone to be affected during the crises are the ones related to public health (education and immunization campaigns, among others) and prevention. This reduction generates gaps that are in difficult to fill when the situation reverses, and in the long run generates health problems. Furthermore, it is not wrong to suppose that beneficiaries of the contributive regime decline when a recession hits as affiliation to this regime highly depends on having a formal job. In this sense, the number of beneficiaries (or applications to become beneficiaries) of the

subsidized regime would increase as more people lose their jobs. Monitoring these indicators will help understand how the presence of health insurance affects households' consumption decisions (Santa María *et al.* 2009).

The idea behind alternative (non-traditional) indicators is that they capture different aspects that surround households' behavior amidst an economic crisis. These indicators capture households' perceptions about the main reasons for not receiving health care and the main source for covering medical and hospitalization costs. In the presence of a negative shock, households would have a tendency to respond that lack of money is the main reason for not going to a doctor (in control and prevention appointments) and that local administration and family and friends are the main sources for covering medical and hospitalization costs, especially among the poorest segments of the population.

Table 4. Social Protection Indicators

TRADITIONAL					
	Indicator	Source	Periodicity	Type	Representativeness
Expenditure in health	Public expenditure	Social Protection Ministry. DNP.	Annual	Raw data	National
Type of affiliation (health):					
- Contributive Regime - Subsidized Regime - None	Percentage of population	SIGOB	Annual	Administrative Records	National
People affiliated (pensions):					
- Active - Inactive	Number of people (by gender, age and wage)	Superintendence of Finance	Monthly and annual	Raw data	National
NON-TRADITIONAL					
	Indicator	Source	Periodicity	Type	Representativeness
Sickness	Percentage of Respondents	Household Behavior Survey (HBS). Fedesarrollo	Monthly	Survey	Urban (main cities)
Number of procedures	- Hospitalizations -Procedures	RIPS	Annual	Administrative Records.	Urban (main cities)
Main reason for not receiving formal medical attention:					
- Lack of money - Lack of time - No health insurance - Does not like doctors	Percentage of Respondents	Household Behavior Survey (HBS). Fedesarrollo	Monthly	Survey	Urban (main cities)
Main source for covering medical attention:					
- Social security - Private health insurance - Local administration - Family or own resources	Percentage	Life Quality Survey and National Health Survey. DANE.	Annual	Survey	National
Main source for covering hospitalization costs:					
- Social security - Private health insurance - Local administration - Family or own resources	Percentage	Life Quality Survey. DANE.	Annual	Survey	National
Money spent on the last visit to the doctor:					
- Medicines - Transport - User fees	Money spent on medicine	Longitudinal Social Survey. Fedesarrollo	Annual	Survey	National

Government Assistance:					
- Applied for government assistance	Percentage of Respondents	Household Behavior Survey (HBS). Fedesarrollo	Monthly	Survey	Urban (main cities)
- Subsidized Regime - <i>Familias en Acción</i> - <i>Hogares Comunitarios</i> - <i>Desayunos infantiles</i> - <i>Adulto Mayor</i> - SENA - Public Schools - Public Universities - <i>Vivienda de Interés Social</i> - <i>Red Juntos</i>	Percentage of Respondents	Household Behavior Survey (HBS). Fedesarrollo	Monthly	Survey	Urban (main cities)
Perception of Government's assistance capacity	Changes in the number of beneficiaries	Household Behavior Survey (HBS). Fedesarrollo	Monthly	Survey	Urban (main cities)
Private Health Insurance	Number of affiliates	ACEMI.	Quarterly and annual	Administrative Records	National
Voluntary pensions	- Number of contributors - Amount	Superintendence of Finance. RUAF.	Monthly and annual	Administrative Records	National
Profits of the pensions fund	Rate or percentage	Superintendence of Finance	Monthly and annual	Administrative Records	National
Wage contribution base	Number of minimum wages	Superintendence of Finance	Monthly and annual	Administrative Records	National

Finally, pension coverage is highly dependent on having enough resources to open a voluntary savings account or on having a formal job in which the employers contribute with 12% of the employee's contribution. In this sense, pension coverage is influenced by the economic cycle; when the economic activity sinks, the value of the pension funds (compulsory and voluntary) and their profit margin diminishes, as well as the average wage of the contributors. These could be good indicators that capture how intertemporal decisions change when negative income shocks translate into reduction in the consumption levels.

a) Traditional Indicators

The data on public health expenditure is available through the information system of the Social Protection Ministry. This is an annual record of the public resources spent on the health care system as a whole, including resources spent on public health programs and on the treatment of non-affiliated individuals. On the other hand, the data on affiliation with health care systems and pensions is gathered by the *Sistema de Gestión y Seguimiento a las Metas del Gobierno* (SIGOB) and the Finance Superintendence respectively. Both sources gather annual data on the number of people affiliated with the subsidized regime, the contributive regime and the pension funds. These indicators could be used as proxy variables for formal salaried employment as the social protection program in Colombia is closely associated with the performance of the labor market.

b) Non-traditional Indicators

The indicators based on household perceptions come from the Life Quality Survey and the National Health Survey. These are two surveys managed by the DANE that capture direct information about the main difficulties to access and/or pay for medical and hospitalization services. Additionally, the Colombian Association of Integral Medical Companies (ACEMI by its Spanish acronym) collects quarterly information about the number of people affiliated with private health insurance programs (prepaid medical plans). This information is useful to determine when people start perceiving a negative situation as they have the tendency to cancel this sort of plan in order to save money.

In addition, Fedesarrollo's Longitudinal Social Survey has information that allows for the determination of the amount of money spent during the last visit to the doctor. This information is useful as it helps reveal whether households are cutting back on their expenditures on medicines, transportation costs and user's fees during financial recessions. The HBS also contains information about the presence of diseases and the main reasons for not receiving formal medical attention. This survey also includes monthly information about the number of beneficiaries of the Government's social programs such as the Subsidized Regime, *Familias en Acción*, *Hogares Comunitarios*, *Red Juntos*, etc. Most importantly, this survey includes a question that asks individuals of households classified as *Sisbén* 1 and 2 about their perception of the program, specifically about the number of beneficiaries. This information could be useful to determine the Government's capacity to respond to economic downturns.

Finally, the Superintendence of Finance gathers detailed information about the size, profit rate and average wage of the contributors of each pension fund periodically. The close monitoring of this information could help anticipate economic downturns as they depend fundamentally on the dynamics of the labor market. In particular, the amount of affiliates of voluntary pension funds could easily predict the behavior of the economy in the sense that, as a household's financial situation tightens, the amount contributed to these funds rapidly decreases.

E. Assets and Access to Financial Markets

Assets sales have proven to be a very useful coping mechanism used by households in the Philippines, Russia and Colombia during past episodes of financial crisis. Nonetheless, this strategy is related to the presence of large distortions in the financial markets that exclude and prevent people, especially the poor, from accessing the formal credit channel available. In other words, asset sales is a last resort strategy used by households that are excluded from financial markets and have no other way to mitigate the momentary loss of income. This turns out to be a harmful strategy as it is very difficult for households to recuperate the assets they had (house, and car among others) before the shock took place. Table 5 includes the traditional and alternative indicators proposed to monitor access to financial services and the possession of different assets.

There are different kinds of traditional indicators of this sort. The percentage of people affiliated with unemployment funds is an indicator that captures how many individuals have lost their jobs recently therefore being able to use the resources saved on their unemployment accounts. Additionally,

the evolution of consumption credits and mortgages are clear indicators of a household's well-being. When the Colombian economy was booming during 2006-7, consumption credit presented a real growth rate that exceeded 40% whereas the real growth of mortgages exceeded 10%. On the other hand, as we have learned from the recent experience in the United States with the subprime segment that when households begin to avoid paying their obligations it is a serious sign that something is not functioning properly. Credit delinquency rates tend to increase rapidly as a negative income shock hits the household.

Table 5. Assets and Access to Financial Markets Indicators

TRADITIONAL					
	Indicator	Source	Periodicity	Type	Representativeness
Unemployment funds (Fondos de Cesantías)	People affiliated to Unemployment Funds	Finance Superintendence	Monthly	Administrative Records	National
Household Credit	- Consumption loans/GDP - Mortgages/GDP	Finance Superintendence	Monthly	Administrative Records	National
Loan Quality	Non-performing loans and mortgages/Total loans	Finance Superintendence	Monthly	Administrative Records	National
Loan Quality Reports	Number of individuals reported	DataCredito	Monthly	Administrative Records	National
NON-TRADITIONAL					
	Indicator	Source	Periodicity	Type	Representativeness
Non-Bank Correspondents	- Number of NBC - Transactions and applications made through NBC	Banca de las Oportunidades	Monthly	Administrative Records	National
Credit card use	Number of credit cards per 1,000 people	Finance Superintendence	Monthly	Administrative Records	National
Insurance	Millions of pesos of premiums	Finance Superintendence	Monthly	Administrative Records	National
Access to financial services					
- Savings account - Credit card - Checking account - Loan with a non-financial institution - Mortgage with a financial institution	Percentage of households that have access to financial products	Longitudinal Social Survey. Fedesarrollo	Annual	Survey	Urban
- Have you loaned any money? - Whom did you lend the money to?	Percentage of Respondents	Household Behavior Survey (HBS). Fedesarrollo	Monthly	Survey	Urban (main cities)
Asset sales:					
- House - Car - Other assets	Percentage of households that sold assets	Longitudinal Social Survey. Fedesarrollo	Annual	Survey	Urban
Use of internet services to sell their assets	- Number of registers per webpage - Number of sales	tucarro.com metrocuadrado.com	N/A	Raw date	People with internet access.
Have you fallen back on your monthly payments?	Percentage of Respondents	Consumption Trends Survey - Fedesarrollo	Monthly	Survey	Urban (main cities)

As mentioned earlier, there is a clear link between assets sales and exclusion from financial markets. Following this line of thought, alternative indicators that show this could be related to the access of households to financial services. Non-bank correspondents (NBCs) have proven to be a very cost-effective way to facilitate the access to financial services in developing countries (Prieto 2006). Thus, the amount of non-bank correspondents could be a proxy of access to financial markets, especially among the rural sector and the isolated regions of the country. The use of credit cards and savings accounts could also easily help identify which households would definitely have to resort to selling their assets instead of acquiring loans. However, there are clear patterns that show that use of formal credit channels diminishes during a recession as people tend to conduct more transaction in cash in order to avoid taxes associated with the use of financial services, i.e. 4x1000. In fact, the Yanhaas survey mentioned earlier shows that 38.8% of the households report cutting back on the use of credit cards as a significant way to reduce households' costs.

1. Traditional Indicators

The Superintendence of Finance collects detailed data on a monthly basis of the people affiliated with unemployment funds (*fondos de cesantías*), the size of consumption credit and mortgages granted by banks and, most importantly, the quality of these loans. This information is extremely useful to characterize households that have access to financial markets but suffer such a negative shock that they had to use their unemployment savings account or had to default on the financial obligations acquired in order to mitigate their expenses. These are indicators of the households' financial soundness that may help anticipate future reductions of economic activity.

Loan quality reports are generated by financial information centers such as DataCrédito, which gather historical financial information on every individual that has access to the financial sector. This is a detailed source that records if the individual has a good or bad credit score. This information is very useful to help identifying at which precise moments households start falling back on the payments of their financial obligations therefore registering negative credit scores.

2. Non-traditional Indicators

The information of the amount of Non-bank correspondents is available in a monthly basis through the webpage of the Government's program *Banca de las Oportunidades*. Most importantly, this information allows the identification of regions most excluded from the financial market, which kind of transactions are made and the amount of resources channeled through these access points. On the other hand, the Superintendence of Finance has monthly information about the use of credit and debit cards, as well as information about the insurance premiums paid by households to protect their homes and cars against robbery and destruction. This information is pertinent as it helps to identify when households reduce the use of financial services (credit and debit cards) and insurance in order to attenuate the loss of income caused by the negative shock.

Finally, Fedesarrollo's Longitudinal Social Survey gathers detailed information about the strategies that households had to use in order to get through a negative shock during the past year and

the access to financial services. This information includes how many households had to sell their house, car or any other asset in order to get through the negative shock suffered. The value of this information resides on the longitudinal aspect of the survey, as it follows the same households every year and provides first-hand evidence of how they react during difficult times.

F. Social Networking

Social networking strategies refer to the temporary receipt of assistance from individuals or organizations outside of the household. The benefactor may be formal, as in the case of government social programs such as *Familias en Acción* or *Empleo en Acción*, or it might be informal, as in the case of a friend or relative who lends assistance during difficult economic times. Social networking strategies have been identified as a common response to adverse income shock, particularly among the poorest income strata and specifically for single mothers (Fiszbein *et al.* 2003). Lokshin and Yemtsov, using evidence from Russia, confirm the importance of social networking as well as a gender asymmetry in its employment; according to survey respondents, 20 percent of women sought assistance from outside the home compared to only 15 percent of men. Table 6 summarizes the formal and informal indicators of social networking proposed.

Table 6. Social Networking

FORMAL					
	Indicator	Source	Periodicity	Type	Representativeness
Demand for social programs:					
- <i>Familias en Acción</i> - <i>Empleo en Acción</i> - <i>Jóvenes en Acción</i> - <i>Red Juntos</i> - Learning Programs (SENA)	Number of beneficiaries of social programs	SIGOB.	Annual	Administrative Records	National
Asked for or received help from:					
- Government - NGO's - Cooperative - Other	Percentage of households that had a shock during the last year	Longitudinal Social Survey. Fedesarrollo	Annual	Survey	Urban
INFORMAL					
	Indicator	Source	Periodicity	Type	Representativeness
Asked for or received help from:					
- Family - Friends - Neighbors - Religious Association - Political Association	Percentage of households that had a shock during the last year	Longitudinal Social Survey. Fedesarrollo	Annual	Survey	Urban

1. Formal: Public Programs

Traditional indicators of social networking behavior in Colombia during an economic downturn are centered on increased demand for government social services. The System of Programming and Management by Objectives and Results (SIGOB, following its Spanish acronym) collects annual data on demand for the social programs *Familias en Acción*, *Empleo en Acción*, and *Jóvenes en Acción*. As described previously, these programs are targeted at low income and vulnerable individuals undergoing

acute income shock. Given the minimum compensation provided (in the case of *Empleo en Acción*) as well as the necessity of foregoing supplemental sources of income (as in the case of *Jóvenes en Acción*), in addition to the strict eligibility requirements, demand for these programs is a strong indicator of families and individuals undergoing severe income stress.

In addition to demand for social programs as provided by SIGOB, Fedesarrollo's Longitudinal Social Survey (FLSS) collects data on the percentage of individuals who have requested assistance from the government or another formal organization during an income crisis. This annual survey provides self-reported indicators of reliance on government assistance as part of a social networking strategy.

2. Informal: Friends and Relatives

One alternative measure of social networking strategies is the extent to which individuals rely on family members and friends during an economic crisis. This may be a more anticipatory measure of household behavioral changes than the traditional indicators discussed previously, as many individuals, faced with an adverse income shock, choose to borrow first from family members and friends rather than through formal markets (Jensen and Richter 2003). Thus, private transactions amongst personal social networks may be a more reliable early indicator of economic stress than increased demand for government assistance. One way to measure increased transfers among private social networks is through Fedesarrollo's Longitudinal Social Survey (FLSS), which includes questions about the extent to which respondents have relied on friends, family, and neighbors, as well as informal organizations, for financial assistance.

IV. Concluding remarks and further developments

The purpose of this report has been the exploration of non-traditional indicators of household behavior in Colombia. The initial section presented the theoretical framework for household behavior during economic crises. The three principal household strategies for responding to economic crisis, adaptive, active, and social networking, were outlined, along with their empirical implications. Adaptive strategies center around changes in the quality or quantities of consumption, whereas active strategies include increasing labor force participation, selling assets, or using savings and credit to finance consumption. Finally, social networking strategies involve seeking assistance from formal or informal non-household sources.

The second section presented international evidence to support the theories of household behavior and indicated traditional and non-traditional indicators of socio-economic performance that have been used in international crises. International evidence finds particularly strong support for changes in consumption patterns during a crisis. In addition to traditional indicators, alternative measures such as the sales of men's underwear and ladies' mascara, have shown a reliable correlation with economic performance during international crises.

In the third section, Colombia's 1999 fiscal crisis and government response were reviewed. The social programs developed as a response to the crisis, including Manos a la Obra, RAS, and ACCES, as well as several additional public initiatives funded by the World Bank and the Inter-American Development

Bank, were shown to have targeted the most vulnerable populations through job training, temporary employment, conditional cash transfers, and loans for higher education. Potential avenues for improvement in future social programs were proposed.

Sections III.A through III.F presented traditional social and economic indicators as well as proposed additional, non-traditional indicators based on under-utilized data sources. These non-traditional indicators were demonstrated to correlate strongly with economic performance. Additionally, the proposed measures will assist the World Bank in its initiative to develop a database of readily accessible indicators to anticipate more accurately the development of an economic crisis. The indicators proposed are based on available data which are easy to monitor and will permit a timely policy response. In some cases these indicators are based on currently inexistent data bases. In particular the Household Behavior Survey (HBS) proposed by Fedesarrollo could easily capture more accurate indicators of how households respond to economic crises. This survey would represent an alternative to gather this information with a high cost-effectiveness since Fedesarrollo has a vast experience in the development of this kind of surveys.

An important next step in developing these non-traditional indicators is further evaluation of their temporal relationship with national economic performance. Ideally, the proposed indicators will exhibit predictive qualities to a greater extent than have traditional indicators. Additionally, evaluation of the specific behavioral changes implied by the non-traditional indicators allows for the development of more targeted policy responses. For example, whereas traditional aggregate measures of consumption relay little information about consumption trade-offs, non-traditional measures of consumption such as entertainment and travel expenditures offer detailed accounts of sectoral revenue change. With more detailed information on changes in consumer behavior, the World Bank in conjunction with client countries should be able to develop policy initiatives which target the populations and industries most affected by an economic downturn.

Although the current economic crisis has not resulted in changes in macroeconomic performance or household behavior as dramatic as those experienced during the 1999 crisis, reliable indicators continue to be an essential component of government policy response. The indicators proposed in this report offer a useful alternative approach to providing timely feedback to governments regarding economic and household trends.

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VI. Appendixes

Appendix 1. Ranking of colleges and universities - Methodology

The model for our proposal is the U.S. News and World Reports (USNWR) ranking system, which is used to evaluate and compare U.S. colleges and universities as well as other institutions. USNWR first disaggregates colleges by type or mission; in the U.S., this corresponds to national universities, liberal arts colleges, baccalaureate colleges, and universities-master's institutions. The indicators used to capture institutional quality fall into seven broad categories: peer assessments, retention of students, faculty resources, student selectivity, financial resources, alumni giving, and graduation rate performance (U.S. News and World Report).

The peer assessment is weighted 25%, and consults the opinions of presidents, provosts, and deans of admissions, who are asked to rank peer institutions' academic programs on a scale of 1 (marginal) to 5 (distinguished). These assessments are conducted by a private opinion research firm; approximately 4200 surveys were sent out in 2008, with a 46% response rate (U.S. News and World Report). The retention of students (20%) is measured by a six-year graduation rate (weighted 4/5) and a freshman year retention score (weighted 1/5). Retention rate attempts to capture the extent to which a school offers the classes and services that students need to succeed in their educational pursuits.

Faculty resources (20%) attempts to capture both the quality of faculty as well as their availability to students. It is composed of six measures: 1) the proportion of classes with fewer than 20 students (30%); 2) the proportion of classes with more than 50 students (10%); 3) faculty salary, adjusted for regional differences in the cost of living (35%); 4) proportion of professors with the highest degree in their fields (15%); 5) student-faculty ratio (5%), and 6) the proportion of faculty who are full time (5%). Student selectivity (15%) is based on the Critical Reading and Math portions of the SAT or composite ACT score (50%), the proportion of enrolled freshmen who graduated in the top 10 percent of their high school classes (for national universities and liberal arts colleges) or the top 25 percent (for universities-master's and baccalaureate colleges) (40%), and the acceptance rate (ratio of admitted students to applicants, 10%).

Financial resources (10%) include the portion of a school's budget that goes toward educating students (i.e., instruction, research, and student services expenditures count; sports, dorms, and hospitals do not). The indicator is constructed by measuring the average spending on education per student enrolled. Graduation rate performance (5%) is a measure of added value which controls for spending and student characteristics such as test scores. Schools with graduation rates higher than that which would be predicted on the basis of objective characteristics receive higher marks. Finally, alumni giving rate (5%) is the average percentage of living alumni with bachelor's degrees who made financial donations to their school, a proxy for student satisfaction.

Rankings are assigned by calculating the weighted sum of scores and then rescaling the scores so that the top institution in each category receives a value of 100, and other scores are assigned proportionally.

Although some of the indicators used by USNWR to calculate U.S. college rankings, such as alumni giving rates, may be less applicable in the case of Colombia, the general approach could provide a paradigm for constructing a ranking system of Colombian superior education institutions, which would in turn serve to illustrate educational trends. A ranking system of Colombian institutions could include four broad categories: peer assessment (25%), student selectivity (25%), financial and faculty resources (25%), and student retention/graduation (25%). Based on the typology developed by the Colombian Ministry of Education (ICFES 2002), institutions of superior education can be divided into four categories: universities, technological institutions, technical professional institutions, and technical schools or university institutions⁹.

The peer assessment component of the ranking would be conducted in a fashion similar to that of U.S. News and World Report. Whereas USNWR distributes surveys and bases its ranking on responses received (with less than a 50% response rate), the significantly smaller number of superior education institutions in Colombia might allow for such a peer assessment to be conducted either in person or by phone, mitigating the potential for non-response bias in the U.S. assessment. Assessments of peer programs should include the opinions of both administrators and top level faculty (e.g., department heads).

For student selectivity, the indicator would be constructed slightly differently than the USNWR has done for U.S. colleges. Whereas the best available standardized measure of student quality (SAT/ACT) in the U.S. is assessed prior to college entry, the best standardized measure in Colombia (*Exámen de Estado de Calidad de la Educación Superior (ECAES)*), is taken during the final year of study in a superior education institution. The difference between the U.S. measure and the Colombian measure is that the Colombian measure, because it is taken toward the end of post-secondary education, aggregates student capacity in the absence of institutional training as well as the 'value-added' component of the institution. Nonetheless, a measure of student capacity pre-institution could be developed based on grades and class rankings from preparatory schooling. Student selectivity measures could also be drawn from ICFES data, which would eliminate any potential data bias associated with an unrepresentative sample of students taking the ECAES exam. Information about the admittance rate of institutions is readily available through the Ministry of Education based on a ratio of students admitted to the number of applications received.

Data to calculate faculty and financial resources scores are available through the Ministry of Education. The *Instituto Colombiano Para el Fomento de la Educación Superior (ICFES)* collects annual data on professors employed by institutions, as well as their educational background (master's, doctorate, technical degree) and position (department chair, full-time and part-time faculty). ICFES (2002) also includes information on student enrollment, such that a student-faculty ratio could easily be calculated. Additionally, school tuition charges (publicly available either through institution websites or admissions

⁹ For a detailed description of these classifications, as well as a list of Colombian superior education institutions, see ICFES (2002).

material) could be used as a measure of financial resources. Further information such as faculty salaries, endowment, and class size could be obtained relatively easily through surveys either from the institutions themselves or from a sample of faculty. Information on hours of instruction, published by the Ministry of Education, could serve as an additional resource to determine the amount of time that students spend interacting directly with faculty. The final component of the Colombian superior education indicator, retention/graduation rate, could be calculated at a relatively low cost using school records of registration and graduation/alumni status.

Appendix 2. Household Behavior Survey (HBS) – Questionnaire

This survey is designed to be asked by phone (via cellphone) to any household member of legal age (+18) in households classified as Sisbén 1 and 2. An urban sample of these households can be selected in the country¹⁰. This survey is designed to be conducted monthly to capture immediate changes in household behavior. This survey should be conducted during the whole month, capturing responses every day of the week and every day of the month, in order to remove seasonality.

Consumption Module

1) How many meals did you eat yesterday?

1 _____ 1

2 _____ 2

3 _____ 3

More than 3 _____ 4

2) Did you consume one or more servings of the following foods yesterday (dairy products, fish, meat, chicken, eggs, etc.)?

Yes _____ 1

No _____ 2

N/A _____ 3

3) How many servings?

Number _____

4) Did you consume one or more servings of the following foods yesterday (breads, pastas, beans, potatoes, bran, rice, cereals, etc.)?

Yes _____ 1

No _____ 2

N/A _____ 3

5) How many servings?

Number _____

6) Did the money spent on food this month allow you to buy more, less or the same amount of food with respect to the previous month?

More _____ 1

Less _____ 2

Same _____ 3

¹⁰ A similar sample to the one used by the Consumer Opinion Survey (COS) should be used. This survey uses a sample of households of all socioeconomic sectors in four of the largest cities of Colombia (Bogotá, Medellín, Cali and Barranquilla)

- 7) Did you buy clothes or shoes during the past month?
 Yes _____ 1
 No _____ 2
 N/A _____ 3
- 8) Have you gone to the hairdresser or barber during the past month?
 Yes _____ 1
 No _____ 2
 N/A _____ 3
- 9) Which of the following was your principal means of transport to get to work yesterday (or the last day you worked)?
 Car _____ 1
 Taxi _____ 2
 Transmilenio/Metro _____ 3
 Bus _____ 4
 Bicycle _____ 5
 Walking _____ 6
- 10) Do you feel that it takes you more, less, or the same amount of time to get to and from work than it did last month?"
 More _____ 1
 Less _____ 2
 Same _____ 3
- 11) How much did you spend in transport yesterday?
 Amount _____
- 12) Have you bought a prepaid charge for your cellphone during the past month?
 Yes _____ 1
 No _____ 2
 N/A _____ 3
- 13) Did you spend more, less or the same amount of your free time watching TV during this month compared with the previous month?
 More _____ 1
 Less _____ 2
 Same amount _____ 3
- 14) Is your current place of residence owned or leased?
 Owned _____ 1 (Pass to question 15)
 Leased _____ 2 (Pass to question 16)
- 15) Has your family made any type of home improvements during the past month?
 Yes _____ 1
 No _____ 2

- 16) Are you paying more, less or the same amount of money for rent during this month compared with the past month?
- More _____ 1
- Less _____ 2
- Same amount _____ 3

Social Protection Module

- 17) Are there any members of your household under the age of 16?
- Yes _____ 1 (Continue with question 18)
- No _____ 2 (Pass to question 19)
- 18) Did some of these individuals stop attending school during the past week for one of the following reasons?
- Illness _____ 1
- Stayed and helped with families chores _____ 2
- Worked _____ 3
- Other _____ 4
- 19) Did you or any member of your household get sick during the past week?
- Yes _____ 1 (Continue with question 20)
- No _____ 2 (Pass to question 22)
- N/A _____ 3
- 20) Did that person receive formal medical attention?
- Yes _____ 1 (Continue with question 22)
- No _____ 2 (Pass to question 21)
- N/A _____ 3
- 21) What was the main reason for not receiving medical attention?
- Lack of money _____ 1
- Lack if time _____ 2
- No health insurance _____ 3
- Does not like doctors _____ 4
- N/A _____ 5
- 22) Have you applied for government assistance or are you a beneficiary of its social programs?
- Yes _____ 1 (Continue with question 23)
- No _____ 2 (Pass to question 25)
- N/A _____ 3

23) In which of the following programs do you participate?

- Subsidized Regime _____ 1
- Familias en Acción* _____ 2
- Hogares Comunitarios* _____ 3
- Desayunos infantiles* _____ 4
- Adulto mayor* _____ 5
- Education programs (SENA) _____ 6
- Public Schools _____ 7
- Public Universities _____ 8
- Vivienda de interés social* _____ 9
- Red Juntos* _____ 10

24) Do you have the impression that the number of beneficiaries have increased, decreased or stabilized during the past month?

- Increased _____ 1
- Decreased _____ 2
- Stabilized _____ 3

25) Are you currently employed?

- Yes _____ 1 (Continue with question 26)
- No _____ 2 (Pass to question 27)
- N/A _____ 3

26) Which of these benefits do you have at your current workplace?

- Health insurance _____ 1
- Pension _____ 2
- Professional Risk (ARP) _____ 3

Financial Services Module

27) Have you been asked for a loan in the past month?

- Yes _____ 1 (Continue with question 28)
- No _____ 2 (Skip to question 29)
- N/A _____ 3

28) Who asked you for the loan?

- Neighbors or Friends _____ 1
- Family _____ 2
- N/A _____ 3

29) Have you fallen back on your monthly payments of utilities, rent or credit charges?

- Yes _____ 1
- No _____ 2
- N/A _____ 3