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Estimating the National Impact of the
Financial Crisis in Indonesia by
Combining a Rapid Qualitative Study
with Nationally Representative Surveys

Neil McCulloch and Amit Grover
October 2010

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October 2010

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Summary

This paper draws on a rapid qualitative assessment of the impact of the financial crisis in Indonesia, to generate hypotheses about the potential national impacts. We test these hypotheses using nationally representative labour force surveys from before and after the onset of the financial crisis. We find that Indonesia weathered the storm rather well: there is no evidence for increased school dropout; labour force participation fell, particularly for young workers, whilst unemployment rose for the young, but fell for workers over 25. The changes for female workers were the same as those for male workers and there do not appear to have been any major sectoral shifts in labour. Surprisingly, we find that real wages for employees rose significantly during the crisis period, although those in the informal sector did not benefit to the same extent. Our results are similar to those from the earlier qualitative study, except that, because it focused on areas harder hit by the crisis, the qualitative study did not observe the significant gains made by employees over the crisis period.

Keywords: Indonesia; financial crisis; labour; unemployment.

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Contents

Summary, keywords, author notes	3
Acknowledgements	7
Acronyms	7
1 Introduction	9
2 Indonesian macroeconomic context	10
3 Qualitative evidence on the impact of the crisis	13
3.1 Key findings from the qualitative studies	15
4 Data	16
5 Results	18
5.1 School enrolment and attendance	18
5.2 Labour force participation, unemployment and hours worked	20
5.3 Wage and income changes	22
5.4 Reasons for ending employment	25
5.5 Multivariate analysis	27
5.6 Comparing qualitative and quantitative results	29
6 Summary and conclusions	30
Appendix	32
References	38

Figures

Figure 5.1	Employment by education attainment	25
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Tables

Table 2.1	Selected macroeconomic variables for Indonesia before, during, and after the crisis	12
Table 5.1	School enrolment and attendance by age and gender	19
Table 5.2	Participation, unemployment and hours of work by age and gender	21
Table 5.3	Share of employment and hours worked by sector	22
Table 5.4	Share of workers and hours worked by work category	22
Table 5.5	Nominal and real wages by age and gender	24
Table 5.6	Nominal and real wages by sector	24
Table 5.7	Real wages/income by work category	25
Table 5.8	Reasons for ending employment	26
Table 5.9	Changes in termination due to falling demand by sector	26
Table 5.10	Comparing the qualitative and quantitative results	29
Table A1	Determinants of being no longer in school	32
Table A2	Determinants of labour force participation	34
Table A3	Determinants of unemployment	35
Table A4	Determinants of changing/losing job for labour demand reasons of those that lost/changed their job	36

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Acronyms

BPs	Statistics Indonesia
CPO	crude palm oil
FGD	focus group discussions
NGO	non government organisation
PNPM	Mandiri National Community Empowerment Program
Saternas	Indonesian Labour Force Survey
YOY	year on year

1 Introduction

During 2009 a large number of papers were written about the impact of the global financial crisis on developing countries (Griffith-Jones and Ocampo 2009; IMF 2009; Mendoza 2009; Naude 2009; ODI 2009; World Bank 2009b). Most of these papers focused on the macroeconomic impact of the crisis, elaborating the effect of the crisis on GDP growth, current and capital account balances, debt, and inflation. However, policymakers have also been keen to understand the microeconomic impact of the crisis, most notably on poverty and employment. In previous crises, researchers have attempted to estimate such impacts by simulating the impact of the crisis based on pre-crisis data, along with macroeconomic data on the shocks and some assumptions about the pathways through which households are likely to have been affected (e.g. Friedman and Levinsohn 2002). Such papers can be extremely valuable in giving policymakers an indication of the groups within society that are likely to be most affected in order to put in place suitable policy responses. However, inevitably they are dependent on the assumptions made about the channels of transmission and therefore, may not accurately reflect what has actually happened.

An alternative way of obtaining timely information about the impact of the crisis on households is to undertake rapid qualitative evaluations in selected locations. These have been done in several countries.² These are extremely valuable in that they give detailed accounts of what has actually happened in the selected communities. They also help to uncover the pathways through which impacts have been felt and to provide preliminary indications about the effectiveness of various assistance programmes. However, budget and time constraints mean that such studies can usually be done only in a small number of locations in the country and therefore, it is not clear to what extent the results are typical of those that might be found elsewhere.

Fortunately, for Indonesia – and a few other countries – there is now national survey data from both before and after the crisis. This provides an opportunity to draw on the strengths of both qualitative and quantitative analysis: qualitative case studies can be used to derive hypotheses about which groups are likely to be most affected and through which channels; the nationally representative quantitative data can then be used to test these hypotheses. Conversely, quantitative data may provide interesting results which can then be explored in more depth through subsequent qualitative work (Kanbur 2002).

To preview our main results, we find that despite being done in only a handful of locations, the qualitative studies paint a reasonably accurate picture of how the crisis has (or has not) affected households throughout Indonesia. The macroeconomic shocks experienced by Indonesia have – relative to many other countries – been quite mild. For Indonesia, this crisis is only a shadow of the Asian Financial Crisis of 1997/1998. However, growth did slow sharply at the end of 2008 and there was a rapid contraction in trade and major falls in commodity

² See IDS (2009) for syntheses of qualitative country case studies.

prices of importance to Indonesia. One might therefore expect to see a significant impact on unemployment or wages, at least in the affected sectors. One might also expect to see children withdrawn from school, particularly at the more senior levels. In fact, we see little evidence for changes in school dropouts or attendance, except for younger students where the level of dropouts decreased and attendance improved. Similarly, labour participation is unchanged for most, but reduces for younger workers. Unemployment declines and there is no evidence for sectoral shifts in employment. Perhaps our most surprising finding is of significant and large *increases* in real wages for formal sector employees over the period of the financial crisis, although those outside the formal sector do not share in this improvement.

Our paper proceeds as follows. Section 2 explains Indonesia's macroeconomic performance prior to and during the crisis period. Section 3 summarises the results from an early qualitative study of the impact of this financial crisis in two villages in Indonesia. Section 4 describes our data and its limitations. Section 5 then describes our results focusing on changes in school dropout and attendance, as well as changes in the labour market, notably in employment, hours worked and wages, using cross-sectional data from February 2008, August 2008, and February 2009. Section 6 concludes.

2 Indonesian macroeconomic context³

Indonesia's economy was performing reasonably well prior to the onset of the current crisis in the last quarter of 2008. GDP growth averaged more than 5 per cent a year from 2001–2008 and was on an increasing trend – in the year up to the third quarter of 2008 GDP growth was 6.4 per cent (Yudo *et al.* 2009). Unemployment was falling, as were poverty numbers, albeit slowly. Inflation, which peaked at 11 per cent in mid-2008 due to the global food price crisis and reductions in government fuel subsidies, was falling steadily. Investment had been growing at 12 per cent (year on year/YOY), with large increases in capital goods imports and this, along with the higher price of imported fuel, resulted in import growth of 65 per cent in the year to the third quarter of 2008. But exports had also been performing well in the preceding years, driven by the boom in commodity prices. Total exports reached US\$136 billion in 2008, 20 per cent above 2007's exports, which in turn were 13 per cent higher than in 2006. Agricultural and natural resource goods contributed most to export growth – notably, crude palm oil (CPO), rubber, ores, minerals, petroleum, and natural gas. Exports of certain manufactured products such as clothing, footwear, and automotive parts also increased considerably (World Bank 2009a). Indonesia's strong merchandise trade surplus, particularly in 2006 and 2007, gave rise to

3 This section draws heavily on World Bank (2009) and Yudo *et al.* (2009).

surpluses on the current account, which resulted in a balance of payments of more than 3 per cent of GDP when added to inflows of foreign capital. Although the collapse in commodity prices in 2008 pushed the balance of payments into deficit, Indonesia's foreign reserves were still almost US\$58 billion by mid-2008.

In fact, the macroeconomic shock experienced by Indonesia did not start with the global financial crisis. Commodity prices collapsed in the latter half of 2008, stabilising in early 2009 at around 40 per cent of their mid-2008 peaks. The price falls particularly affected the sectors which had contributed most to export growth in the preceding years. The financial crisis compounded these falls. As a result, export values dropped sharply – by January 2009 export values were 36.1 per cent below the level of a year earlier – with the fall in oil prices by more than two-thirds driving much of this drop. But export volumes also fell with reduced demand from key markets and, by the first quarter of 2009, were almost a fifth lower than the previous year. Imports also fell at least as fast as exports. Total import values in the first quarter of 2009 were down one third relative to the previous year. Again this was driven by the sharp falls in the price of oil, but import volume was also down by 28 per cent with falls in intermediate goods as well as capital and transport goods contributed to this.

On the capital account, sharp reversals of portfolio flows in the last quarter of 2008 contributed to a major fall in the value of shares on the Indonesian Stock Exchange. At the end of 2008, domestic equity market capitalisation was down 51 per cent. The exchange rate also came under significant pressure and fell from around Rp9,200 to Rp11,325 per US\$ by the end of the final quarter of 2008 (Yudo *et al.* 2009). Real investment dropped in the first quarter of 2009 due to lower spending on machinery, appliances, and transport equipment, in contrast to growth rates of around 12 per cent in much of 2007 and 2008. Credit also fell sharply – approvals for new loans were down by 50 to 60 per cent in March 2009 (YOY).

Taken on its own, therefore, Indonesia experienced a significant macroeconomic shock at the end of 2008. But, of course, Indonesia was not on its own. Indeed, Indonesia was one of the least affected countries in South East Asia. Although its GDP growth slowed markedly to 4.4 per cent in the first quarter of 2009, it did not experience the collapse in growth experienced by countries such as Korea, Thailand, and Malaysia. In part, this was because the major impact has been through exports and the share of Indonesia's output that is exported is the smallest of all the major South East Asian economies (World Bank 2009a). Growth in recent years has been driven predominantly by nontradeables rather than tradeables and, although the crisis reduced growth across the board, sectors such as transport and communications as well as utilities have continued to grow in double digits. At the same time, the tradeable sector having performed best is agriculture, which, at 4.8 per cent, has experienced its strongest growth since the East Asian crisis, helping to compensate for the effects of the crisis.

Moreover, Indonesia's economic performance in 2009 has been remarkably good, with full-year GDP growth of 4.5 per cent. The stock market has restored all of the substantial losses associated with the crisis and inflation had declined to 2.78 per cent by the end of 2009 due to the falls in international commodity and fuel

prices.⁴ Food inflation has fallen particularly fast, helping poor households. Domestic credit growth continues to be much lower than in 2008, but this may reflect declining demand for loans as well as more stringent lending conditions.

Indonesia's relatively good performance in the crisis may also be due to strong responses on the part of the government. Interest rates, while initially high to counter the inflation caused by high food prices and booming bank credit, were brought down quickly from 9.5 per cent in June 2008 to 6.5 per cent by September 2009. Careful management by the Central Bank, including the arrangement of foreign exchange swaps and setting up with donors a large public expenditure support facility of US\$4 billion, have restored confidence in the markets, bringing the exchange rate down to pre-crisis levels. Steps were also taken to bolster confidence in the banks, providing greater deposit insurance, along with a series of measures to provide greater liquidity.

In addition, the government approved a major fiscal stimulus of 2.4 per cent of GDP. More than half of this took the form of tax reductions in Corporate and Personal Income Tax, although Payroll tax subsidies and additional infrastructure expenditure also played a role. The government has also expanded the National Community Empowerment Program (PNPM Mandiri) to focus on labour intensive employment creation and SME development. During the peak of the crisis it also temporarily reintroduced its Unconditional Cash Transfer programme for 19 million households, although this was stopped at the end of March 2009. The 2009 budget has also provided for access to free healthcare for all at local clinics. Finally, although not an explicit support programme, the nationwide elections in April 2009 and the subsequent presidential election in July gave rise to large quantities of local expenditure by the competing parties from around March 2009 onwards.

Table 2.1 shows the key macroeconomic variables for Indonesia before the crisis, during the last quarter of 2008, and for mid-2009.

Table 2.1 Selected macroeconomic variables for Indonesia before, during, and after the crisis

Growth % (YOY)	3rd Quarter 2008	1st Quarter 2009	3rd Quarter 2009
GDP	6.4	4.4	4.2
Inflation	13.5 ^a	8.48 ^a	2.83 ^a
Exports	10.6	-19.1	-22.3 ^b
Imports	11	-24.1	-30.84 ^b
Exchange rate (Rp/US\$)	9,331	11,517	9,633
Investment	12.2	3.5	4

Source: Statistics Indonesia, World Bank (2009a).

^a Inflation figures are YOY figures for the end of the last month of each quarter.

^b Jan–Oct 2009 over Jan–Oct 2008.

4 See www.bps.go.id for latest inflation figures.

The macroeconomic evidence above makes it clear that, for Indonesia, this was no East Asian Crisis. Indonesia's macroeconomic management has been good and macroeconomic indicators have been remarkably stable given the size of the shock experienced. Nonetheless, the experience of the East Asian Crisis should lead us to expect very heterogeneous impacts upon households. Although the average economic performance may suggest little impact, it is possible that particular subgroups in society may have been severely affected. The macroeconomic data give some pointers to the sorts of effects which we might expect to observe at the household level. In particular, the large decline in exports would lead us to expect strong effects on communities that are dependent on commodities which have experienced major price declines. Similarly, the two sectors most affected appear to be manufacturing as well as the trade, hotel, and restaurant sectors. The decline in manufacturing output would lead us to expect firms to lay off workers, particularly those on short term (or non formal) contracts. This is likely to have affected predominantly medium-skilled young urban workers in the areas in which these industries are concentrated. In addition, the trade, hotel, and restaurant sector is a major employer. Declining output in this sector would lead us to expect either falling employment or reductions in real wages.

Moreover, the macroeconomic data say little about whether the crisis has affected the young more or less than the older, the worse educated more than the better educated, women more than men, and the poor more than the non poor. To address these questions, we need to examine the effects experienced directly by communities, households, and individuals.

3 Qualitative evidence on the impact of the crisis⁵

When the financial crisis first broadened beyond the US in the last quarter of 2008, the Institute of Development Studies undertook a set of rapid qualitative assessments with its research partners in five countries (IDS 2009), one of which was Indonesia.⁶ A set of participatory methods were employed to explore the impact of the crisis, the pathways through which that impact had been felt, and both government and household level responses. The work was done over two weeks in February 2009 in two villages, purposively chosen because it was felt that they would be most likely to illustrate the impact of the crisis.⁷ One rural and one urban village were selected.

5 This section draws heavily on Fillaili *et al.* (2009).

6 The others were Kenya, Jamaica, Zambia, and Bangladesh.

7 The speed with which the assessment had to be fielded also meant that villages which were already known to the researchers were chosen.

The urban village, Gandasari, is in the district of Bekasi, just outside the capital city Jakarta. It is the site of a major Industrial Park, home to over 170 mostly large Japanese, Korean, and US manufacturing firms and with a total employment of around 73,000 employees. As a result, the village of Gandasari houses a large number of migrant workers from other parts of Indonesia who work in the Industrial Park. Anecdotal reports (and the macroanalysis above) suggested that this was one of the hardest hit groups.

The rural village, Simpang Empat, in the district of Banjar, in South Kalimantan⁸ is heavily dependent on local rubber plantations. A large number of households are dependent on rubber for livelihood, either directly as tappers, or indirectly through trading activities, or the provision of goods and services to the local community. In addition, nearby coal stockpiles can also generate significant employment. Both coal and rubber prices have dropped dramatically from their mid 2008 peaks. The study in this area focused on the impact that this shock has had.

The methodology in both areas combined a wide range of participatory and qualitative research methods over a two week period. Information was collected on changes in prices of local consumer and producer prices, as well as other measures of overall wellbeing. People were asked to describe how these had changed over the previous year, as well as how this crisis compared with the 1997/1998 crisis. In addition, information was collected about household responses to the shock and their coping strategies, as well as the responses of the government, nongovernment organisations (NGO), and the community. Finally, the study noted local perceptions about how the crisis had affected social life, security, and intra-household relations.

The data were collected through a series of in-depth interviews, focus group discussions (FGD), and direct observations. In-depth interviews were conducted with the head of the village, village officials, and local leaders. The village level FGDs were held with the village elites and hamlet representatives. The village level FGD was used to generate a matrix ranking of the most affected groups. A further four FGDs were then conducted separately for men and women in the two most affected groups. These FGDs identified a timeline of shocks and underlying trends, identified and ranked the problems faced by the participants, discussed the causes of those problems and the coping mechanisms adopted by the community. In addition, the FGDs used a Venn Diagram to identify the various institutions that support the community and assess the extent to which different groups can access these institutions and their relative importance.

The FGDs were complemented with a set of in-depth interviews with a minimum of six households in each village, including at least two female-headed households. These interviews were used to get a better understanding on the impact of the crisis at the household level, their coping strategies, and the forms of institutional support available. In-depth interviews were also conducted with local economic players, nongovernment organisations, government officials, and

8 Kalimantan is the Indonesian part of the island of Borneo.

programme implementers. Finally, a transect walk was undertaken to provide a direct observation of the local housing conditions, land use, as well as the availability and the condition of various public services.⁹

3.1 Key findings from the qualitative studies

The qualitative studies provided a rich and nuanced picture of the impact of the crisis in the two selected villages. We highlight here the key findings relating to the impact on employment, wages, and schooling that relate to our subsequent quantitative analysis.

Perhaps the most common complaint in both locations was the persistence of high prices for food, agricultural inputs, and transport. This reflected the rapid rise in food and fuel prices during 2008 as a result of the spike in world food and fuel prices during 2008 and the subsequent reduction in national fuel subsidies. Respondents were aware that world fuel prices have fallen significantly since, but said that these had not yet translated into reductions in prices for food and agricultural inputs (the price of fuel is fixed by the government). Thus respondents felt that the financial crisis was adding to the problems that they were already facing due to high prices.

In the rural location, it was clear that the economy has been severely affected by the collapse in rubber and coal prices. The decline in production has reduced the income of workers in both sectors and this, in turn, has led to a decline in other economic activities in the village, including food stalls, traders, and shops selling agricultural inputs. The reduction in job opportunities has forced some men to shift to service activities – such as car/motorbike cleaning, repairs, and *ojek* (motorcycle taxi) – or to migrate to other regions for work, e.g., by participating in illegal gold mining in Sulawesi.

In the urban village, reduced foreign demand for automotive, electronic, and consumer goods has led to a reduction in working hours in the factories, the removal of overtime for workers, reductions in additional benefits (such as transport and food allowances), the temporary layoff of permanent workers, and the discontinuation of contract workers. Most migrant workers that had been dismissed had already returned to their hometown; the few that have stayed said that their savings can only support them for a couple of months. As in Simpang Empat, the decline in production activities has had a knock on the impact on economic activities of related business (e.g., catering, waste handling, and transport) as well as broader village economy (e.g., dormitory rental, food stalls, shops, and *ojek*).

Interestingly, both communities felt that this crisis was worse than that of 1997/98. In the rubber plantation and coal mining region, the sharp depreciation of the Rupiah in the 1997/98 crisis led to a large increase in the prices of food and other consumable goods, but this was compensated by a sharp increase in the price of

9 For full details see Fillaili *et al.* (2009).

rubber and coal. Similarly in the industrial region, the depreciation during the 1997/1998 crisis had increased exports from the industrial park, so there were no layoffs and their purchasing power was maintained.

Notwithstanding these effects, neither community saw reductions in primary, junior high, or senior high school attendance, although there were cases of arrears in school payment. Similarly neither community reported any changes in health, although there was a shift towards using cheap government health clinics rather than going directly to a doctor which is more expensive. There has also been no reduction in meal frequency, although some households are consuming less or have reduced the quality of the rice that they consume and are eating less protein or shifted to less expensive forms of protein. There is no indication of increasing child labour or domestic violence (although there were reports of increased crime and insecurity in the urban location). There was also almost no indication of increased female participation in the labour force due to the crisis, but there was some evidence that those in the informal sector are having to work longer hours to make ends meet. Finally, in the rural area, there was evidence of weaker participation in *arisan*¹⁰ and, because these *arisan* are linked to other forms of social gatherings, there were worries that this might lead to forms of social exclusion for those worst affected.

4 Data

Turning to our quantitative analysis, we draw statistics for employment, working status, schooling, income, and hours worked from the 2008 and 2009 Indonesian Labour Force Survey (known by its Indonesian acronym Sakernas). Data from three waves of this survey are used: February 2008, August 2008 and February 2009. The period between the first two waves marks the run-up to the financial crisis during the midst of the global food crisis; the financial crisis hit Indonesia between the second and third waves of the survey.

The main annual Sakernas survey is conducted by the Statistics Indonesia (BPS) every August. In August 2008, 931,890 individuals were sampled from 291,689 households across all of Indonesia. This large sample is designed to provide estimators which are representative at the *kabupaten* (district) level. The February Sakernas surveys cover a random subset of the August sample. In 2008 and 2009, they sampled 218,833 individuals (69,114 households) and 291,689 individuals (68,535 households) respectively. The February surveys are representative at the provincial level. The Sakernas surveys are stratified into rural and urban samples. However, census blocks in each stratum are geographically ordered within each *kabupaten* and the *kabupaten* are geographically ordered within each province, so that systematic sampling provides implicit stratification by province and *kabupaten*.¹¹ There is also a

10 An *arisan* is a regular social gathering in which the members operate a rotating savings scheme.

clustering of the sample at the household level. All estimators take into account stratification and clustering and use sample weights to calculate population estimates.

The sampling design makes it possible to compare estimators between survey waves. Differences between February and August 2008 can give some indication of how the food crisis was affecting households, whilst differences between August 2008 and February 2009 can provide evidence about the immediate impact of the financial crisis. Having both annual and sub-annual comparisons also helps to identify the extent to which observed changes in indicators are due to seasonal variation.

The Sakernas questionnaire is designed to collect data on the workforce for individuals aged 10 and over. Households are only sampled if they live in a physical building and are either a family living together, an individual renting a room independently, or as a group of lodgers living with less than 10 people. Lodgings with more than 10 people and those whose daily needs are provided for by a foundation or organisation, such as a prison or dormitory, are not sampled. This may have implications for our analysis, since the qualitative study described above suggested that many of those affected by the crisis in industrial areas could be migrant workers. Many young migrant workers tend to live in rented blocks of one or two person rooms, known as *kos*. Whether or not these groups are included in the sample will depend on whether the rooms are individually rented or rented collectively, e.g., by a contract labour supply company. If migrant workers are only partly sampled, depending on their living arrangements, indicators may not fully capture the impact of the crisis on some groups of migrant workers and some sections of the poor who do not live in physical buildings.

Because the Sakernas questionnaire is restricted to respondents aged 10 and over, analysis of changes in participation in primary school and of child labour is limited. It is possible to give an indication of the trade-off between work and school for older school children by breaking down employment rates and school participation measures for children aged 10 to 17.

Descriptive statistics are calculated for labour and schooling outcomes as well as changes in working status. We use the Statistics Indonesia definitions of employment and unemployment. A person is employed if they are of working age (15 or over in Indonesia) and have had paid work in the last week; or are not working temporarily but usually have a job. A person is unemployed if they are not working and either looking for work or establishing a new business; or not looking for work because they feel discouraged, or are waiting to start a new job (see Cuevas *et al.* 2009). The Statistics Indonesia definition of unemployment is broader than the ILO definition as it includes people who are not working and not looking for work because they feel discouraged (Suryadarma *et al.* 2005). We use the standard definition of the labour force as the total employed and unemployed population.¹²

11 See Colledge (2009) for full details of the sampling methodology.

12 We report measures using the Statistics Indonesia BPS definitions – results using the ILO definitions are available on request.

Net monthly wages from the main work activity are defined as ‘the income received by a worker/employee which is paid in cash or in goods (in local price) paid by the establishment/employer after deducted with discounts, obligatory contribution, income taxes’ (Statistics Indonesia 1996). The net monthly income from the main work activity is reported for single-handed enterprises, and casual agricultural and nonagricultural workers. However, the survey does not ask owners of businesses that employ paid workers about their income since it would be difficult to distinguish between the income of the business and their personal income. Thus, the Sakernas survey provides evidence about the wages of employees and the income levels for informal workers and single-handed enterprises, but cannot make any statements about the impact of the financial crisis on larger businesses.

Moreover, wage and income figures only ask for income from main activity and therefore may underestimate total income; the respondent’s income will be higher if they have more than one job or if they are employed and simultaneously run a business. Thus, if the effect of the financial crisis is to reduce income from a secondary activity, this will not be reflected in the wages or income figures reported. Conversely, if the crisis forces people to increase hours in a secondary job to compensate for reduced income in their primary job, our results will not capture this. Qualitative work gives some support to the idea that there was an increase in portfolio working or livelihood diversification (Hastuti *et al.* 2010). We therefore have a significant limitation in our ability to assess changes in average wages and average incomes since around 14 per cent of working individuals have a secondary job and individuals with a secondary job typically spend just over a quarter of their working hours on this job. However, because we know hours worked in the secondary job, it is possible to assess the extent of the bias by observing whether secondary working activity is being substituted for main work.

Nominal income and wages are adjusted for inflation using CPI deflators for each province. We follow Friedman and Levinsohn (2002) by calculating provincial deflators by mapping the 66 cities in which the Statistics Indonesia collect price data to the 33 provinces using population weighted averages.

5 Results

5.1 School enrolment and attendance

One of the key concerns when a crisis hits is that it will result in children being withdrawn from school. This issue was extensively studied for the Indonesian crisis in 1997/1998 – Frankenberg *et al.* (1999) found an increase in the percentage of 13–19 year olds not currently enrolled in school between 1997 and 1998. The percentage of 7–12 year olds that dropped out of school also tripled. However, Cameron (2000), using a survey of 100 villages, found only a slight drop in school enrolment, and Levine and Ames (2003) found that, overall, enrolments were stable or increasing, despite substantial cuts in household expenditure on education.

The qualitative study described above suggested that the households in the sampled *kabupaten* had not withdrawn their children from school. However, it is possible that this may simply reflect the overall income levels of the people in these villages or their attitudes towards education. Fortunately, the Sakernas datasets record information for all individuals in the household aged 10 and above, including whether they have never gone to school, are in school, or have finished school. We therefore used this to calculate the share of children of each age from 10–17 who are no longer in school, as well as the share that were in school last week. Table 5.1 reports the results.

Table 5.1 shows that, for most age cohorts, there was either no change in school enrolment between February 2008 and February 2009 or an improvement (for 13 and 14 year-olds). These figures are consistent with the statistically significant improvements in the share of the cohort who were in school the previous week. However, breaking down the results for boys and girls provides a slight note of caution. The share of girls no longer in school increased from February 2008 to August 2008, although by February 2009 the share was insignificantly different from that of the previous year. Similarly both female and overall attendance fell from February to August 2008. A possible explanation for this would be if households badly affected by the strong food price rises during 2008 tended to withdraw their girls temporarily from school to help with household management, but, as food price inflation fell markedly towards the end of 2008, had put them back into school by February 2009.

Table 5.1 School enrolment and attendance by age and gender

Age and gender	No longer in school			In school last week		
	Feb-08	Aug-08	Feb-09	Feb-08	Aug-08	Feb-09
10	0.008	0.006	0.005 **	0.987	0.988	0.990
11	0.011	0.011	0.010	0.983	0.981	0.986
12	0.037	0.034	0.036	0.958	0.956	0.959
13	0.079	0.070 *	0.065 **	0.915	0.919	0.928 **
14	0.131	0.110 ***	0.112 **	0.860	0.879 ***	0.881 ***
15	0.201	0.200	0.191	0.791	0.786	0.800
16	0.279	0.287	0.275	0.712	0.698	0.713
17	0.386	0.408 **	0.386	0.602	0.575 ***	0.605
Male	0.157	0.154	0.149	0.836	0.834	0.844 *
Female	0.135	0.144 **	0.137	0.857	0.845 ***	0.856
Total (10–17)	0.146	0.149	0.143	0.846	0.839 **	0.850

Source: Sakernas data for respective years.

Note: Asterisks in Aug 2008 column indicate statistically significant changes from February 2008; asterisks in Feb 2009 column indicate statistically significant changes from February 2008, i.e., from one cohort to the next.

*10% Significance.

**5% Significance.

***1% Significance.

Our description of the macroeconomic context above suggests that some sectors were worse hit than others. In particular, sectors dependent on commodities (e.g., mining), export-oriented industry, as well as the trade, hotel, and restaurant sectors appear to have suffered the worst effects of this crisis. However, data on school enrolment by the sector of employment of the household head (not shown), suggest that there were no clear changes in enrolment or attendance by sector. (The only exception is that the children in households in which the head was in the construction sector were less likely to be in school in August 2008 than in February 2008, but this effect vanished by the following February.)

5.2 Labour force participation, unemployment and hours worked

In 1997/98 there was a sharp increase in labour force participation among women and a small increase in participation overall (Manning 2000). Frankenberg *et al.* (1999) also report little evidence of change in aggregate, in participation or hours of work, although they also find considerably higher proportions of women working in 1998 relative to 1997. Similarly, Levine and Ames (2003) find an increase in the labour force participation of female heads of over 10 per cent between 1997 and 1999.

In the current crisis, it is therefore interesting to see that there is no statistically significant change in labour force participation for men or women (Table 5.2). There are small increases in participation for older workers, but the main finding is the large falls in participation for children. Participation in the labour force for workers aged between 12 and 14 fell by between 17 per cent and 24 per cent year on year. Participation for those aged 15–17 declined by 9 per cent. This, combined with the increases in enrolment and attendance found above, suggests that families may have responded to the current crisis by keeping their children in school rather than by removing them.

The changes in unemployment are also revealing. In the 1997/98 crisis, unemployment increased only slightly, with the increase greatest amongst female workers aged 15–24 and younger rural males (Manning 2000). For the current crisis, we find a sharp contrast between younger and older workers. Unemployment rates have risen for workers aged under 25 and are particularly high for children under 15 in August 2008. The latter undoubtedly reflects the influence of recent school leavers and may also help to explain falling participation and rising – enrolment – there is no point in leaving school if you are unlikely to get a job. By contrast, unemployment rates have been falling for workers between the ages of 25 and 55 and there is evidence for a small decrease in overall female unemployment.

In keeping with the findings from the previous crisis, we find very little change in hours of work. There is some evidence for increases in hours of work of younger workers between February and August 2008, but no clear evidence for major reductions in working hours caused by falling labour demand or, conversely, of people increasing their working hours to compensate for lost income. However, we would expect these effects to be sectorally concentrated. Table 5.3 presents the share of employment by sector as well as the hours of work. Had the crisis had a major impact on employment in any sector we would expect to see the

share of employment of that sector shrinking. However, we find no evidence for this. The only sector where employment falls is in agriculture, but this effect is seasonal; employment in construction also rises in August for the same reason. There is also little support for the idea that hours of work fell in key-affected sectors. There are no statistically significant changes in hours worked between February 2008 and February 2009. Again, the small changes in hours worked in Agriculture, Construction, and Social and Personal Services between February and August 2008 are likely to be seasonal.

Although we see little change in the sectoral allocation of jobs, it is possible that the financial crisis pushed out some workers into the informal sector. Table 5.4 shows the share of workers by different categories of work as well as their hours worked.¹³

Consistent with the story of increasing informality, there is an increase in the share of workers that own their single-person business, as well as in the share of workers doing casual nonagricultural work. However, both of these changes happen between February and August 2008 – over the full year there is no significant increase in the share of workers in the informal sector. The changes in hours worked are also small and mostly seasonal, although hours spent by unpaid workers and owner of businesses with nonpermanent or unpaid workers increased slightly over the year.

Table 5.2 Participation, unemployment and hours of work by age and gender

Age and gender	Participation			Unemployment			Hours of work		
	Feb-08	Aug-08	Feb-09	Feb-08	Aug-08	Feb-09	Feb-08	Aug-08	Feb-09
10	0.015	0.015	0.013	0.065	0.148 **	0.066	15.2	17.2	17.8
11	0.031	0.023 ***	0.025	0.051	0.138 ***	0.095	15.0	18.5	14.5
12	0.057	0.040 ***	0.043 ***	0.079	0.109	0.052	17.4	18.7	19.1
13	0.090	0.066 ***	0.070 ***	0.078	0.151 ***	0.090	20.2	22.9	20.8
14	0.133	0.102 ***	0.111 ***	0.130	0.142	0.132	24.4	26.3	23.6
15–17	0.263	0.242 ***	0.238 ***	0.211	0.249 ***	0.223	33.3	35.7 ***	33.7
18–25	0.643	0.659 ***	0.648	0.198	0.216 ***	0.214 ***	41.1	41.1 ***	41.3
26–35	0.754	0.753	0.757	0.087	0.082 *	0.082 *	42.6	42.8	42.6
36–45	0.798	0.793	0.796	0.051	0.036 ***	0.043 ***	42.2	42.3	42.1
46–55	0.777	0.790 ***	0.801 ***	0.023	0.017 ***	0.016 ***	40.4	40.6	40.4
56+	0.543	0.530 ***	0.549	0.008	0.013 ***	0.008	34.8	35.2	35.1
Male (15+)	0.836	0.835	0.836	0.079	0.076 **	0.077	42.1	42.6	42.1
Female (15+)	0.512	0.511	0.518	0.093	0.097 *	0.088 *	37.6	38.0	38.0
Total (15+)	0.673	0.672	0.676	0.085	0.084	0.081 *	40.4	40.9	40.5

13 Cuevas *et al.* (2009), define formality as the first four of these categories and informality as the last three. However, in practice, most single-handed businesses in Indonesia are informal in the sense that very few are registered or have formal business licenses (Asia Foundation 2008). We therefore include these in our definition of informality.

Table 5.3 Share of employment and hours of work by sector

Sector of the individual	Share of employment			Hours of work		
	Feb-08	Aug-08	Feb-09	Feb-08	Aug-08	Feb-09
Agriculture	0.421	0.405 ***	0.414	32.4	33.2 ***	32.6
Mining and Quarrying	0.010	0.010	0.011	45.2	44.2	44.0
Industry	0.122	0.122	0.120	43.8	43.7	43.6
Electricity, Gas and Water	0.002	0.002	0.002	42.6	44.0	42.8
Construction	0.046	0.053 ***	0.044	46.0	47.0 *	45.8
Trade Restaurant and Acc	0.203	0.207	0.209 *	49.3	49.3	48.9
Transport and Comm	0.058	0.060	0.056	48.4	49.1	48.9
Financial Inst, Real Estate	0.014	0.014	0.014	44.1	42.9	43.0
Social Services, Social & Pers	0.124	0.127	0.130 **	43.0	42.0 ***	43.3

Table 5.4 Share of workers and hours worked by work category

Category of work	Share of workers			Hours of worked		
	Feb-08	Aug-08	Feb-09	Feb-08	Aug-08	Feb-09
own business	0.195	0.203 ***	0.198	42.1	43.2 ***	41.8
business owners with non permanent or unpaid workers	0.209	0.210	0.205	39.8	40.0	40.4 **
business owners with permanent or paid workers	0.029	0.029	0.028	45.4	46.1	45.5
employee	0.277	0.273	0.275	46.4	46.0 **	46.2
casual work agriculture	0.060	0.058	0.061	34.7	36.2 ***	34.5
casual work non-agriculture	0.047	0.051 ***	0.049	44.0	44.3	43.3
unpaid work	0.183	0.175 ***	0.184	30.4	31.0 ***	31.1 **

5.3 Wage and income changes

The overriding story of the 1997/1998 crisis in Indonesia was of collapsing real wages. Manning (2000) shows that the evidence strongly supports a neoclassical view of the labour market, with little change in employment but large reductions in real wages. This phenomenon is not unique to Indonesia. McKenzie (2004) shows that Argentina suffered from large falls in real wages across all sectors in the wake of the 2002 financial crisis there.

The Sakernas data from the current crisis provide strong support for the idea that labour markets in Indonesia are highly flexible, but this time in an upwards direction.

Table 5.5 shows real and nominal wages for employees by age category and gender, while Table 5.6 provides the same information by sector. The data suggest that there was a large increase in average real wages between February 2008 and February 2009. The average real wage increased by 11 per cent. Moreover, this increase occurred entirely between August 2008 and February 2009, precisely the period spanning the onset of the global financial crisis in Indonesia. It is interesting to note that the only age group who did not benefit from this increase was young workers below the age of 25. These are precisely the workers whom the qualitative evidence would suggest were hardest hit, both by contract termination and reduction in overtime and other benefits; however, the data suggest that, at least on average, even these workers saw no decline in their real wage.

Breaking down these real wages changes by sector shows that these wages increases were not uniform. Mining and quarrying in particular – the sector most likely to be negatively affected by falling commodity prices – saw a significant 9 per cent drop in real wages. But most other sectors saw an increase. Real wages in industry rose by 9 per cent, those in construction by 12 per cent and those in the transport and communications sector by a remarkable 23 per cent.

The large increase in real wages for employees does not necessarily mean increases in real income for all categories of workers. Table 5.7 shows the real wages and incomes for all categories of workers. Those owning their own single-person business saw a significant increase in their real income between February and August 2008, but this fell markedly between August 2008 and February 2009, leaving no statistically significant increase over the year. A similar pattern prevailed for casual workers both in agriculture and in nonagriculture, with none of the non-employee categories of worker experiencing a statistically significant increase in real income over the year. Thus there would appear to be a widening gap between employees in the formal sector and workers running single-person businesses or undertaking casual work.

Although the macroeconomic evidence suggests that Indonesia was not hit hard by the financial crisis, the collapses in exports and commodity prices over the last quarter of 2008 were far from trivial. It is therefore extremely surprising to see such large increases in real wages. These results are not driven by outliers – a 1 per cent trimmed sample produces much the same pattern of results. Moreover, it appears to be true across the wage and income distribution in the sense that the same pattern emerges if one looks at median wages/income or the lower or upper quartile.¹⁴ One possibility may be that the higher inflation of mid-2008 led to demands for higher nominal wages. If formal sector employment contracts are decided after August but before the onset of the crisis in October, then employers may have agreed to relatively large nominal wage increases. But, as noted above, the collapse in commodity and world food prices led to a rapid reduction in domestic inflation, greatly increasing the value of any nominal wage increases given.

14 With the exception that income from single-person businesses increases by 14 per cent from February 2008 to February 2009 at the median, but barely changes for the lower and upper quartile suggesting a narrowing of the distribution.

Another possible explanation for the increase in average wages may be that there are compositional changes in the workforce. Specifically, it may be the case that employers used the crisis as an opportunity to release lower paid workers, thereby increasing the average wage. Table 5.2 indicated that employment fell most amongst young workers, who earn around two thirds of the national average wage. Moreover, employers may have removed the less skilled workers in each age class. Figure 5.1 provides some support for this idea. It shows total employment by education attainment for all three years. It is clear that employment is lower in February 2009 for those with only primary or junior secondary schooling, whereas it is higher for those who have completed senior secondary school.

Table 5.5 Nominal and real wages by age and gender

Age and gender	Real wage (Rupiah per month)			Nominal wage (Rupiah per month)			Percentage changes			
	Feb-08	Aug-08	Feb-09	Feb-08	Aug-08	Feb-09	Real wages		Nominal wages	
							Feb08-Aug08	Feb08-Feb09	Feb08-Aug08	Feb08-Feb09
15–17	469,651	470,892	487,492	493,976	502,855	529,973	0%	4%	2%	7%
18–25	724,545	700,371	766,104	761,080	747,424	831,871	-3%	6%	-2%	9%
26–35	1,005,889	998,353	1,079,065 *	1,056,669	1,065,434	1,171,276 ***	-1%	7%	1%	11%
36–45	1,311,045	1,332,889	1,465,920 ***	1,377,236	1,423,376	1,591,641 ***	2%	12%	3%	16%
46–55	1,608,741	1,641,481	1,789,487 ***	1,689,170	1,752,972	1,943,712 ***	2%	11%	4%	15%
56+	1,243,424	1,216,640	1,497,141 **	1,305,101	1,298,746	1,623,825 **	-2%	20%	0%	24%
Male	1,162,348	1,173,385	1,293,014 ***	1,221,163	1,252,976	1,404,218 ***	1%	11%	3%	15%
Female	886,075	909,449	984,577 ***	930,151	970,307	1,068,290 ***	3%	11%	4%	15%
Total	1,070,200	1,082,360	1,190,994 ***	1,124,099	1,155,490 *	1,293,105 ***	1%	11%	3%	15%

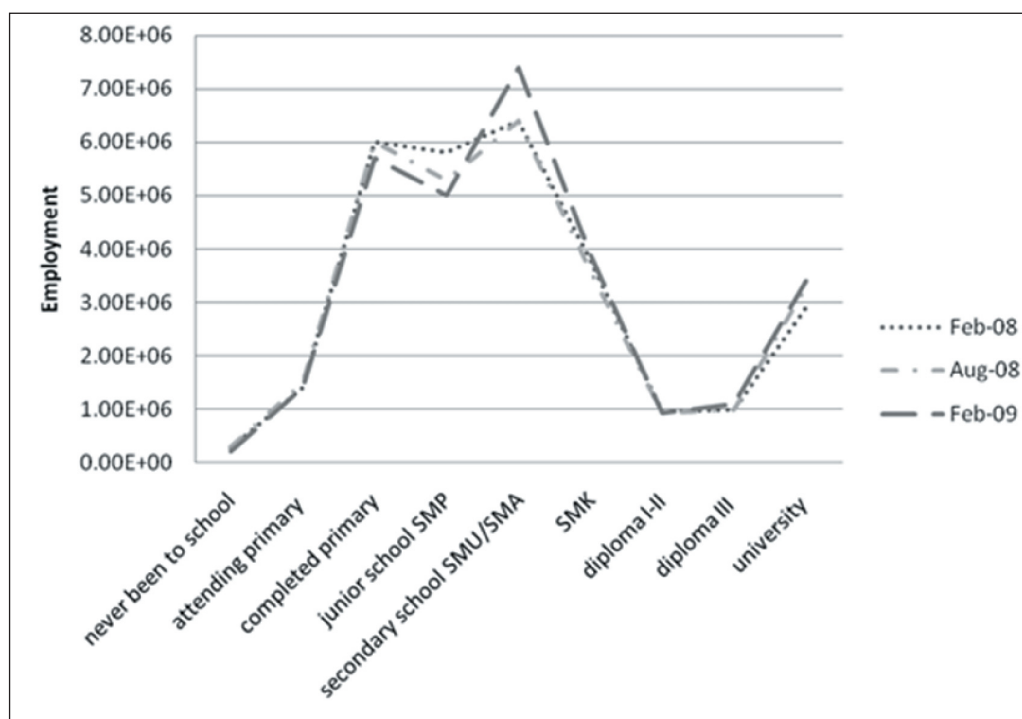
Table 5.6 Nominal and real wages by sector

Sector of the individual	Real wage (Rupiah per month '000s)			Nominal wage (Rupiah per month '000s)			Percentage changes			
	Feb-08	Aug-08	Feb-09	Feb-08	Aug-08	Feb-09	Real wages		Nominal wages	
							Feb08-Aug08	Feb08-Feb09	Feb08-Aug08	Feb08-Feb09
Agriculture	717,624	795,119 ***	723,491	756,034	851,767 ***	788,112	11%	1%	13%	4%
Mining and Quarrying	2,015,396	2,102,264	1,840,817 ***	2,125,965	2,258,565 *	2,015,873	4%	-9%	6%	-5%
Industry	920,908	869,769 ***	1,002,005 ***	966,614	927,115 **	1,085,574 ***	-6%	9%	-4%	12%
Electricity, Gas and Water	1,848,231	1,767,199	1,806,329	1,941,746	1,888,439	1,959,084	-4%	-2%	-3%	1%
Construction	1,084,087	1,024,250 *	1,218,448 ***	1,138,929	1,093,257	1,324,231 ***	-6%	12%	-4%	16%
Trade Restaurant and Acc	902,201	914,102	955,810 **	946,907	974,677	1,035,862 ***	1%	6%	3%	9%
Transport and Comm	1,273,183	1,277,662	1,569,649 ***	1,337,079	1,362,912	1,703,966 ***	0%	23%	2%	27%
Financial Inst, Real Estate	1,744,726	1,652,934 **	1,831,938 **	1,830,455	1,761,249	1,984,687 ***	-5%	5%	-4%	8%
Social Services, Social and Pers	1,181,987	1,246,432 ***	1,344,543 ***	1,241,538	1,331,335 ***	1,461,161 ***	5%	14%	7%	18%

Table 5.7 Real wages/income by work category

Category of work	Real income/real wage		
	Feb-08	Aug-08	Feb-09
own business	706,257	825,304 ***	722,141
business owners with nonpermanent or unpaid workers			
business owners with permanent or paid workers			
employee	1,070,200	1,082,360	1,190,994 ***
casual work agriculture	362,462	385,016	357,935
casual work nonagriculture	588,261	607,836	562,252
unpaid work			

Note: Real wage is reported for employees; real income is reported for other categories. The question on income/wages was not asked for the shaded rows.

Figure 5.1 Employment by education attainment

5.4 Reasons for ending employment

Even though unemployment is falling and wages are rising, it may still be the case that the financial crisis has caused reductions in the demand for particular types of worker. If this is the case we would expect to see that a larger share of workers that have recently stopped working did so because of labour demand reasons (e.g. being fired or made redundant, or the firm that they were working for downsizing or going bankrupt as a result of a drop in demand) relative to labour supply reasons (e.g. the worker disliking the pay or conditions of employment).

Table 5.8 shows the change in the reasons for finishing a job between August 2008 and February 2009.¹⁵

Table 5.8 Reasons for ending employment

Reason for ending work/changing job	Aug-08	Feb-09	
Fired/made redundant	0.050	0.060	***
No demand or firm went bankrupt	0.141	0.177	***
Income too low	0.205	0.195	*
Unsuitable work environment	0.093	0.094	
Contract finished	0.157	0.165	
Other	0.353	0.310	***

Consistent with our expectations, there is a statistically significant increase in the share of workers ending work or changing job as a result of being fired or made redundant, as well as an increase in the share of those doing so because of firms scaling down or going bankrupt. On the other hand, there is a small decrease in those leaving jobs because they were dissatisfied with the income. Thus labour demand reasons for quits appear to dominate during the period of the financial crisis.

Focusing on those who have ended work or changed their jobs is also likely to be a much more sensitive indicator of the impact of the crisis on different sectors. Table 5.9 shows, for each sector, the share of workers ending work or changing jobs as a result of reductions in labour demand (i.e. the sum of being fired/made redundant and a drop in demand or firm bankruptcy). The large increase in this share, particularly for both mining and industry, suggests that the job losses that did occur were increasingly driven by reductions in the labour demand due to the crisis.

Table 5.9 Changes in termination due to falling demand by sector

Sector of the individual	Redundant or no demand		
	Aug-08	Feb-09	
Agriculture, Plant, Forest, Hunt	0.230	0.274	***
Mining and Quarrying	0.116	0.232	***
Industry	0.247	0.307	***
Electricity, Gas and Water	0.131	0.145	
Construction	0.258	0.342	***
Trade Restaurant and Acc	0.168	0.161	
Transport, Storage and Comm	0.139	0.185	**
Financial Inst, Real Estate	0.098	0.119	
Social Services, Social & Pers	0.082	0.118	***

¹⁵ Unfortunately, the question was not asked in February 2008.

5.5 Multivariate analysis

The description statistics presented above provide a valuable picture of the impact of the crisis. However, they do not control for the wide variety of individual, household and locational characteristics which can influence schooling and labour force outcomes. To account for these we follow Levine and Ames (2003) and estimate regressions of our outcomes against these characteristics. Because Sakernas is not designed as a panel, it is not possible to explore the determinants of job entry and exit. Instead, we interact dummy variables for August 2008 and February 2009 with gender, sector, and rural/urban location. We can therefore determine whether the influence of gender, sector, and location on our variables of interest have changed over the period.

Table A1 shows the results for school enrolment. We obtain common results on the determinants of school dropouts: older children are more likely to drop out, as are those from larger households with high dependency ratios, and those living in rural areas. Boys are more likely to drop out than girls, although the effect is very small. Similarly there is little to distinguish the dropout rates among households whose head works in different sectors, although children in households headed by casual workers, particularly in agriculture, are more likely to drop out. Unsurprisingly the educational achievements of the household head and spouse have a strong influence on dropout rates. Even after controlling for all of these factors, we see large differences in the dropout rates among different provinces.

However, our key variable of interest is the wave variable. Here the general result obtained from the descriptive statistics is confirmed; there is no statistically significant change in the number of children no longer in school across the three waves of the survey. Column 2 of Table A1 shows the same regression with interaction effects for age. These results suggest that the probability of no longer being in school rises by almost 1 per cent in August 2008 for children aged 17, but falls by the same amount for children aged 10. For February 2009, the differences are even smaller. In effect, there is virtually no change in school dropouts across the waves.

Levine and Ames (2003) were particularly concerned to explore the impact on girls during the 1997/1998 crisis. Column 3 therefore shows the interaction with gender. Again we find no change in school dropouts across the waves, except for a very small (0.5 of a percentage point) increase in the probability of girls being no longer in school in August 2008, but this disappears in February 2009. Column 4 reports interactions with sector of the household head. In general the sector of the household head does not appear to have any significant impact on the small declines in the share of children no longer in school in August 2008 and February 2009. The only significant result (at the 10 per cent level) is an increase in the probability of dropping out of school for those children who live in households whose head works in the transportation, storage, or communication sector in August 2008, although the significance of this result disappears in February 2009. Finally, column 5 shows interaction terms with rural or urban location. These suggest a small increase in school dropouts by February 2009 for those in urban areas, while the share no longer in school continued to decline in rural areas. Very similar results were obtained when looking at the share of

children in school last week, rather than the share of children no longer in school.¹⁶

Looking at labour force participation, we again find a range of standard (and large) influences on labour force participation: participation increases with age and education; men are much more likely to participate than women; and those in living in urban areas as well as those in large households with high dependency ratios are less likely to be in the labour force (Table A2). Contrary to our descriptive analysis, our regression results suggest a small overall reduction in participation in both August 2008 and February 2009 relative to February 2008. Column 2 of Table A2 confirms the earlier finding that the reduction in labour force participation is stronger for younger workers; and column 3 confirms that there is no difference in the rates of change of participation between male and female workers. Column 5 shows that rural participation fell by more than 2 percentage points in August 2008, but this was probably seasonal since there was no difference in the small overall reduction in participation between rural and urban areas by February 2009.

Turning to unemployment, we find that the probability of being unemployed increases with household size and with education. Women are more likely to be unemployed than men, while older workers and households with a higher dependency ratio are less likely to be unemployed (Table A3). After accounting for these characteristics, we find that there is no statistically significant change in unemployment between February 2008 and either August 2008 or February 2009. When the age interaction term is included (column 2), we see a confirmation of the earlier finding that unemployment may have increased for younger workers, but declined for older workers. The gap between male and female unemployment increased in August 2008 but narrowed during the crisis. Also the gap in unemployment between people living in urban areas and those in rural areas closed both for August 2008 and February 2009, but this result is not significant.

Finally, looking at the reasons why people had left their previous work (Table A4), we find that a higher proportion of older workers left their previous work because they were made redundant or the firm in which they worked went bankrupt. Similarly, urban households are significantly more likely than rural households to have ended their employment due to a fall in labour demand. Women and those who had achieved a higher level of education were less likely to cite these reasons. In terms of sectors people were more likely to cite they were made redundant or went bankrupt if they previously worked in industry or construction whereas those working in finance, transport, trade, or social services were less likely to cite these reasons. Our results also confirm that there was a significant increase in these two cited reasons for ending employment in February 2009 in comparison to August 2008. The only significant result of the interaction terms, which is perhaps unexpected, is that those working in the financial sector saw a decrease in the share of people citing that they were made redundant or went bankrupt.

16 Results are available on request.

5.6 Comparing qualitative and quantitative results

Finally, it is instructive to briefly compare the results which were obtained from the rapid qualitative study with the results that we obtain (Table 5.10). It is important to recognise that the qualitative study made no claims for national representativeness, so this exercise should in no way be considered a ‘verification’ of its results. Its aim was to provide a rich and informative portrait of what had happened in two specific locations and no Sakernas dataset is sufficiently detailed to provide meaningful results at the village level. However, given that the powerful stories provided by qualitative studies often inform the thinking of national policymakers, it is interesting to note the way in which the two approaches inform each other’s work.

Table 5.10 Comparing the qualitative and quantitative results

	Qualitative (Feb 2009)	Quantitative (Feb 08 – Aug 08 – Feb09)
School enrolment/ attendance	No change, but some arrears in payment	Generally no change or continued improvement for 13/14 year olds. But possible evidence for seasonal withdrawal in August for girls and 17 year olds. No sector specific changes.
Female labour participation	No change	No change
Child labour	No change	Significant falls in the participation of 12–17 year olds in the labour force
Unemployment	Increase for young migrant industrial workers; and workers associated with the rubber industry	Rising for 15–25 year olds; falling for 25–55 year olds
Hours of work	Reduced for contract workers	Virtually no significant changes by age or sector
Informality	Some suggestions of increased informality	Evidence for increased own business and casual non-agricultural work in 2008, but little overall change
Wages and income	Large falls in take home pay for contract workers; reductions in income for local businesses	Significant and large increases in real wages for employees; but little change in incomes in the informal sector

Source: Fillaili *et al.* (2009) and the current study.

Three features strike us about the results of the two studies.

First, despite the small, purposively selected sample for the qualitative study, the overall conclusions which they draw about there being little change in both schooling and participation in the labour force are broadly similar to those obtained from the national data.

Second, the qualitative study highlighted the specific vulnerability of younger workers in an urban setting. This corresponds well with our results which show increasing unemployment and no increase in wages for workers under 25. The qualitative study also points to potential weaknesses in the way in which the labour force survey surveys migrant workers, which may explain why our results do not show a stronger negative impact for this group.

Finally, studies (whether qualitative or quantitative) which purposively select areas which are likely to have been negatively affected by a shock, inevitably tend to miss potential gainers from that shock. None of the many interviews and discussions carried out in the two selected villages gave any indication of large real wage increases for employees. This may well be because this did not happen in these two locations as a result of the larger shock that they received; however, the national data provide strong evidence for such increases.

We therefore find the approaches quite complementary. Each approach helps to identify gaps in the other as well as to identify hypotheses which can be better explored with the other approach.

6 Summary and conclusions

Indonesia has weathered the financial crisis of 2008/2009 reasonably well. The macroeconomic shock it suffered was much less than those of neighboring countries and merely served to slow its already respectable growth rate. Nonetheless, the nature of the shock – acting through dramatically reduced exports and large declines in commodity prices – would lead us to expect some strong localised effects. In fact, we find very little evidence of subgroups which have been particularly badly affected. The share of children dropping out of school stayed the same or continued to improve, with only small differences by gender, age, and rural/urban location. Labour force participation fell, particularly for children; it would seem that parents kept children in school as the labour market deteriorated for younger workers. But, as unemployment rose for workers between 18 and 25, it continued to fall for workers above this age. Average hours worked remained roughly the same and there was no evidence for significant sectoral shifts in employment. While it is clear that labour demand reductions have become a much more important reason for ending or changing jobs, the continued fall in aggregate unemployment suggests that these have been absorbed within normal labour turnover and the crisis does not seem to have altered the share of workers in the informal sector.

The big surprise from our analysis is what has happened to real wages for employees. In a reversal of the experience of the 1997/98 crisis, where adjustment was achieved through a substantial fall in real wages, the period between August 2008 and February 2009 saw large increases in real wages for employees over 25. Although real wages in mining fell, reflecting the collapse in commodity prices, wages in industry, construction, and transport and communications increased quickly. However, it was employees that primarily gained; workers in the informal sector, whether operating single-handed enterprises or casual workers, did not see significant increases.

There are a number of reasons why Indonesia may have come out of this financial crisis reasonably well. The first is structural. Indonesia, as a large country, is much less dependent on international trade than many other countries in the region. The large drop in exports and imports, therefore, had a commensurately smaller effect on the domestic economy. In addition, the government's macroeconomic management of this crisis appears to have been good. Arrangements were made rapidly to provide confidence to the market, limiting the fall in the value of the currency, and hastening its early recovery. This minimised the impact on import-dependent firms and avoided major shifts in resources between the tradeable and nontradeable sectors. Moreover, the global nature of the crisis meant that investors did not have safe havens to which to flee, limiting capital outflows.

The nature of our data however, can say little about the welfare impact of the crisis. The large increase in real wages may have protected employees during the highly volatile period between August 2008 and February 2009, but the informal sector was not as well protected. Moreover, our data cannot identify the impact of the various government social programmes put in place in response to the crisis which may have ameliorated the situation for selected groups. Ongoing qualitative and quantitative research should shed light on these issues (Hastuti *et al.* 2010; World Bank 2010).

Notwithstanding these limitations, the Indonesian experience may have some useful broader lessons about the impact of the crisis. First, the nature of the shock was relatively narrowly focused on export sectors, particularly commodities and manufacturing. This poses a policy challenge, since it was engagement with the world market in these sectors that was driving growth prior to the crisis. Countries with large domestic markets, such as Indonesia, may be able to reduce their vulnerability to such shocks through boosting domestic demand, but this is not an option for smaller developing countries. Second, Indonesia's policy environment and responses to the crisis would appear to provide a positive example of how to deal with such shocks. Careful monetary management prevented a long lasting shock to the exchange rate, while a long period of prudential budget management had created the fiscal space for Indonesia to respond. At the same time, relatively flexible labour markets meant that affected firms could shed temporary labour rapidly, preventing widespread corporate failures as occurred during the East Asian crisis.

Third, Indonesia's experience suggests some priorities which have also emerged from studies of the impact of the crisis in other countries (e.g. Green *et al.* 2010). These include the importance of food prices, the impact on migrant workers, and the need to understand the informal sector better. The qualitative work strongly suggests that the persistence of high food prices is the single most important influence on the welfare of the poor, and that therefore the run-up in food prices during 2008 may have had a much stronger impact than the financial crisis itself. The disconnect between the qualitative findings of strong negative impacts on migrant workers and the lack of major negative impact on workers in our dataset highlight the fact that labour force surveys often omit precisely the group that may be most negatively affected. Similarly, the difference between the fortunes of formal sector workers and those in the informal sector points to the need to understand much better the ways in which the informal sector is affected by such crises. Developing the tools to improve our understanding of these issues could enable governments to provide better responses to future crises.

Appendix

Table A1 Determinants of being no longer in school

<i>Independent variables</i>	Marginal effect (DP/DX)				
	<i>wave</i>	<i>wave*age</i>	<i>wave*gender</i>	<i>wave*sector</i>	<i>wave*urban</i>
age	0.0890*** (0.00444)	0.0879*** (0.00445)	0.0890*** (0.00444)	0.0889*** (0.00444)	0.0890*** (0.00444)
age squared	-0.00177*** (0.000159)	-0.00178*** (0.000159)	-0.00177*** (0.000159)	-0.00177*** (0.000159)	-0.00177*** (0.000159)
female	-0.00551*** (0.00115)*	-0.00549*** (0.00115)	-0.00549*** (0.00115)	-0.00975*** (0.00226)	-0.00549*** (0.00115)
urban/rural	0.0182*** (0.00438)	0.0182*** (0.00438)	0.0182*** (0.00438)	0.0182*** (0.00438)	0.0147*** (0.00515)
hhsiz	0.00270*** (0.000393)	0.00270*** (0.000392)	0.00270*** (0.000393)	0.00270*** (0.000392)	0.00271*** (0.000392)
dependency ratio	0.0142*** (0.00111)	0.0141*** (0.00111)	0.0142*** (0.00111)	0.0142*** (0.00111)	0.0142*** (0.00111)
household head characteristics					
own business	0.00223 (0.00227)	0.00224 (0.00226)	0.00224 (0.00227)	0.00220 (0.00227)	0.00221 (0.00227)
bus nonperm/unpaid wrkers	0.00265 (0.00227)	0.00263 (0.00226)	0.00266 (0.00227)	0.00263 (0.00227)	0.00265 (0.00227)
bus perm/paid wrkers	0.00248 (0.00361)	0.00253 (0.00361)	0.00253 (0.00361)	0.00248 (0.00361)	0.00254 (0.00361)
cas work agric	0.0336*** (0.00446)	0.0335*** (0.00446)	0.0336*** (0.00447)	0.0335*** (0.00446)	0.0336*** (0.00446)
cas wrk non agric	0.0162*** (0.00369)	0.0163*** (0.00369)	0.0162*** (0.00368)	0.0163*** (0.00369)	0.0162*** (0.00368)
unpaid work	-0.00159 (0.00686)	-0.00161 (0.00685)	-0.00173 (0.00686)	-0.00159 (0.00686)	-0.00172 (0.00685)
Mining	0.00881 (0.00544)	0.00873 (0.00543)	0.00460 (0.0114)	0.00877 (0.00543)	0.00884 (0.00545)
Industry	-0.000820 (0.00267)	-0.000795 (0.00267)	-0.000416 (0.00470)	-0.000855 (0.00267)	-0.000867 (0.00266)
Electricity, Gas & Wat	0.000173 (0.0131)	0.000325 (0.0131)	0.00235 (0.0241)	0.000146 (0.0130)	0.000276 (0.0131)
Construction	-0.00875*** (0.00269)	-0.00876*** (0.00268)	-0.0120*** (0.00424)	-0.00873*** (0.00269)	-0.00869*** (0.00269)
Fin~cl Inst, Real Est	-0.0101*** (0.00188)	-0.0100*** (0.00188)	-0.0129*** (0.00329)	-0.0101*** (0.00188)	-0.0100*** (0.00188)
Transprt, Stor. & Comm	-0.0120*** (0.00239)	-0.0119*** (0.00239)	-0.0169*** (0.00383)	-0.0120*** (0.00239)	-0.0119*** (0.00239)
Trade, Restaurnt & Acc	-0.0168*** (0.00518)	-0.0168*** (0.00518)	-0.0212** (0.0102)	-0.0168*** (0.00519)	-0.0168*** (0.00519)
Social Services	-0.0184*** (0.00236)	-0.0184*** (0.00235)	-0.0198*** (0.00376)	-0.0184*** (0.00235)	-0.0184*** (0.00236)
female	0.00946*** (0.00253)	0.00945*** (0.00253)	0.00944*** (0.00253)	0.00945*** (0.00253)	0.00948*** (0.00253)
never been to school	0.0312*** (0.00372)	0.0312*** (0.00372)	0.0312*** (0.00372)	0.0313*** (0.00373)	0.0312*** (0.00372)
attending primary	0.0151*** (0.00187)	0.0151*** (0.00186)	0.0151*** (0.00187)	0.0151*** (0.00187)	0.0152*** (0.00187)
junior school SMP	-0.0257*** (0.00148)	-0.0256*** (0.00147)	-0.0257*** (0.00148)	-0.0257*** (0.00148)	-0.0256*** (0.00148)
secondary school SMU/SMA	-0.0362*** (0.00173)	-0.0361*** (0.00173)	-0.0362*** (0.00173)	-0.0361*** (0.00173)	-0.0362*** (0.00173)
SMK	-0.0413*** (0.00182)	-0.0412*** (0.00182)	-0.0412*** (0.00182)	-0.0413*** (0.00182)	-0.0412*** (0.00182)
diploma I-II	-0.0444*** (0.00370)	-0.0443*** (0.00369)	-0.0443*** (0.00371)	-0.0444*** (0.00370)	-0.0444*** (0.00369)
diploma III	-0.0336*** (0.00400)	-0.0335*** (0.00400)	-0.0335*** (0.00402)	-0.0336*** (0.00400)	-0.0335*** (0.00401)
university	-0.0238*** (0.00315)	-0.0237*** (0.00315)	-0.0237*** (0.00315)	-0.0237*** (0.00315)	-0.0237*** (0.00315)

Spouse's education					
never been to school	0.0268*** (0.00361)	0.0268*** (0.00360)	0.0269*** (0.00361)	0.0268*** (0.00360)	0.0270*** (0.00361)
attending primary	0.0144*** (0.00191)	0.0144*** (0.00191)	0.0144*** (0.00191)	0.0144*** (0.00191)	0.0144*** (0.00191)
junior school SMP	-0.0285*** (0.00159)	-0.0285*** (0.00158)	-0.0285*** (0.00159)	-0.0285*** (0.00158)	-0.0285*** (0.00158)
secondary school SMU/SMA	-0.0369*** (0.00188)	-0.0369*** (0.00188)	-0.0369*** (0.00188)	-0.0369*** (0.00188)	-0.0369*** (0.00188)
SMK	-0.0445*** (0.00200)	-0.0445*** (0.00200)	-0.0445*** (0.00200)	-0.0445*** (0.00200)	-0.0446*** (0.00200)
diploma I-II	-0.0394*** (0.00377)	-0.0394*** (0.00376)	-0.0394*** (0.00377)	-0.0394*** (0.00378)	-0.0394*** (0.00377)
diploma III	-0.0110* (0.00637)	-0.0110* (0.00636)	-0.0112* (0.00634)	-0.0110* (0.00638)	-0.0111* (0.00636)
university	-0.0132*** (0.00430)	-0.0132*** (0.00429)	-0.0132*** (0.00429)	-0.0132*** (0.00430)	-0.0133*** (0.00429)
Aug2008	-0.000846 (0.00164)	-0.0361*** (0.0102)	-0.00268 (0.00215)	-0.00482** (0.00198)	-0.00166 (0.00201)
Feb2009	-0.00383* (0.00197)	-0.0254** (0.0128)	-0.00592** (0.00260)	-0.00562** (0.00242)	-0.00601** (0.00239)
Aug2008-Mining			0.0107 (0.0137)		
Aug2008-Industry			-0.00255 (0.00508)		
Aug2008-Electrc~ty			0.00249 (0.0299)		
Aug2008-Constrct~n			0.00791 (0.00600)		
Aug2008-Finance			0.00430 (0.00460)		
Aug2008-TransptComm,			0.0110* (0.00653)		
Aug2008-TradeRest~ant			0.00711 (0.0196)		
Aug2008-Socialsrv~ce			-9.23e-05 (0.00530)		
Feb2009-Mining			0.000191 (0.0137)		
Feb2009-Industry			0.00149 (0.00682)		
Feb2009-Electrc~ty			-0.00969 (0.0288)		
Feb2009-Constrct~n			0.00305 (0.00712)		
Feb2009-Finance			0.00547 (0.00567)		
Feb2009-TransptComm			0.00834 (0.00787)		
Feb2009-TradeRest~ant			0.0123 (0.0236)		
Feb2009-Socialsrv~ce			0.00548 (0.00685)		
Aug2008*age		0.00250*** (0.000774)			
Feb2009*age		0.00152 (0.000940)			
Aug2008*female				0.00892*** (0.00287)	
Feb2009*female				0.00398 (0.00338)	
Aug2008*urban					0.00269 (0.00357)
Feb2009*urban					0.00741 (0.00461)
Observations	246591	246591	246591	246591	246591

Table A2 Determinants of labour force participation

<i>Independent variables</i>	Marginal effect (DP/DX)			
	wave	wave*age	wave*gender	wave*urban
age	0.0734*** (0.000312)	0.0731*** (0.000328)	0.0734*** (0.000312)	0.0734*** (0.000312)
age squared	-0.000830*** (4.06e-06)	-0.000831*** (4.05e-06)	-0.000830*** (4.06e-06)	-0.000831*** (4.05e-06)
female	-0.393*** (0.00188)	-0.393*** (0.00188)	-0.394*** (0.00329)	-0.393*** (0.00188)
urban/rural	-0.212*** (0.0136)	-0.212*** (0.0135)	-0.212*** (0.0135)	-0.225*** (0.0141)
household size	-0.00375*** (0.000724)	-0.00374*** (0.000725)	-0.00375*** (0.000724)	-0.00375*** (0.000724)
dependency ratio	-0.0329*** (0.00166)	-0.0330*** (0.00166)	-0.0329*** (0.00166)	-0.0330*** (0.00165)
Highest education				
never been to school	0.00632 (0.00485)	0.00599 (0.00486)	0.00631 (0.00485)	0.00635 (0.00484)
attending primary	-0.0887*** (0.00248)	-0.0892*** (0.00248)	-0.0887*** (0.00247)	-0.0887*** (0.00248)
junior school SMP	-0.0180*** (0.00236)	-0.0182*** (0.00236)	-0.0180*** (0.00236)	-0.0181*** (0.00236)
secondary school SMU/SMA	0.0411*** (0.00311)	0.0410*** (0.00312)	0.0411*** (0.00311)	0.0410*** (0.00311)
SMK	0.111*** (0.00364)	0.111*** (0.00364)	0.111*** (0.00364)	0.111*** (0.00364)
diploma I-II	0.170*** (0.00627)	0.170*** (0.00628)	0.170*** (0.00627)	0.170*** (0.00628)
diploma III	0.148*** (0.00611)	0.148*** (0.00611)	0.148*** (0.00611)	0.149*** (0.00611)
university	0.185*** (0.00425)	0.185*** (0.00426)	0.185*** (0.00425)	0.185*** (0.00425)
Aug2008	-0.00351 (0.00294)	-0.00606 (0.00552)	-0.00398 (0.00321)	-0.0168*** (0.00410)
Feb2009	0.00342 (0.00351)	-0.0266*** (0.00677)	0.00125 (0.00385)	-0.00106 (0.00499)
Aug2008*age		7.59e-05 (0.000150)		
Feb2009*age		0.000902*** (0.000181)		
Aug2008*female			0.000782 (0.00425)	
Feb2009*female			0.00366 (0.00506)	
Aug2008*urban				0.0291*** (0.00569)
Feb2009*urban				0.00992 (0.00693)
Observations	1346553	1346553	1346553	1346553

Table A3 Determinants of unemployment

<i>Independent variables</i>	Marginal effect (DP/DX)			
	wave	wave*age	wave*gender	wave*urban
age	-0.00625*** (0.000170)	-0.00578*** (0.000185)	-0.00625*** (0.000170)	-0.00626*** (0.000170)
age squared	3.57e-05*** (2.28e-06)	3.47e-05*** (2.28e-06)	3.57e-05*** (2.28e-06)	3.57e-05*** (2.28e-06)
female	0.0109*** (0.000714)	0.0108*** (0.000709)	0.0116*** (0.00141)	0.0109*** (0.000714)
household size	0.00309*** (0.000214)	0.00306*** (0.000213)	0.00309*** (0.000214)	0.00309*** (0.000214)
dependency ratio	-0.0132*** (0.000798)	-0.0130*** (0.000794)	-0.0131*** (0.000797)	-0.0131*** (0.000798)
Highest education				
never been to school	-0.0189*** (0.00205)	-0.0189*** (0.00203)	-0.0189*** (0.00205)	-0.0189*** (0.00205)
attending primary	-0.0111*** (0.00127)	-0.0110*** (0.00126)	-0.0111*** (0.00127)	-0.0111*** (0.00127)
junior school SMP	0.0127*** (0.00115)	0.0126*** (0.00115)	0.0127*** (0.00115)	0.0127*** (0.00115)
secondary school SMU/SMA	0.0417*** (0.00160)	0.0412*** (0.00159)	0.0416*** (0.00160)	0.0416*** (0.00160)
SMK	0.0554*** (0.00227)	0.0549*** (0.00225)	0.0554*** (0.00227)	0.0554*** (0.00227)
diploma I-II	0.0772*** (0.00528)	0.0768*** (0.00526)	0.0771*** (0.00528)	0.0772*** (0.00528)
diploma III	0.0519*** (0.00392)	0.0517*** (0.00391)	0.0519*** (0.00392)	0.0519*** (0.00392)
university	0.0726*** (0.00333)	0.0723*** (0.00331)	0.0726*** (0.00333)	0.0726*** (0.00333)
urban/rural	0.00836*** (0.00189)	0.00838*** (0.00189)	0.00836*** (0.00189)	0.0102*** (0.00251)
Aug2008	-0.00151 (0.000996)	0.0188*** (0.00282)	-0.00189 (0.00119)	-0.000226 (0.00150)
Feb2009	-0.00192 (0.00120)	0.0129*** (0.00330)	-0.000671 (0.00145)	-0.000419 (0.00186)
Aug2008*age		-0.000698*** (7.92e-05)		
Feb2009*age		-0.000514*** (9.47e-05)		
Aug2008*female			0.000882 (0.00158)	
Feb2009*female			-0.00301* (0.00181)	
Aug2008*urban				-0.00239 (0.00195)
Feb2009*urban				-0.00281 (0.00235)
Observations	812473	812473	812473	812473

Table A4 Determinants of changing/losing job for labour demand reasons of those that lost/changed their job

<i>Independent variables</i>	Marginal effect (DP/DX)				
	wave	wave*age	wave*gender	wave*sector	wave*urban
age	0.0163*** (0.00138)	0.0161*** (0.00138)	0.0163*** (0.00138)	0.0163*** (0.00138)	0.0163*** (0.00138)
age squared	-0.000173*** (1.69e-05)	-0.000173*** (1.69e-05)	-0.000173*** (1.69e-05)	-0.000173*** (1.68e-05)	-0.000173*** (1.68e-05)
female	-0.0348*** (0.00693)	-0.0349*** (0.00692)	-0.0401*** (0.00817)	-0.0344*** (0.00694)	-0.0348*** (0.00693)
Highest education					
never been to school	0.0127 (0.0200)	0.0125 (0.0200)	0.0126 (0.0200)	0.0130 (0.0201)	0.0119 (0.0200)
attending primary	0.0254** (0.0119)	0.0253** (0.0119)	0.0253** (0.0119)	0.0255** (0.0119)	0.0250** (0.0119)
junior school SMP	-0.00112 (0.00926)	-0.00114 (0.00926)	-0.00118 (0.00926)	-0.00131 (0.00928)	-0.00158 (0.00927)
secondary school SMU/SMA	-0.0388*** (0.00998)	-0.0389*** (0.00997)	-0.0389*** (0.00997)	-0.0379*** (0.01000)	-0.0390*** (0.00997)
SMK	-0.0395*** (0.0114)	-0.0395*** (0.0114)	-0.0395*** (0.0114)	-0.0392*** (0.0114)	-0.0397*** (0.0114)
diploma I-II	-0.131*** (0.0179)	-0.131*** (0.0179)	-0.131*** (0.0179)	-0.132*** (0.0178)	-0.131*** (0.0178)
diploma III	-0.102*** (0.0183)	-0.102*** (0.0183)	-0.102*** (0.0183)	-0.102*** (0.0182)	-0.102*** (0.0182)
university	-0.0856*** (0.0166)	-0.0857*** (0.0166)	-0.0856*** (0.0166)	-0.0855*** (0.0166)	-0.0856*** (0.0166)
urban/rural	0.0304* (0.0160)	0.0304* (0.0160)	0.0304* (0.0160)	0.0303* (0.0160)	0.0477*** (0.0176)
hhsz	0.000430 (0.00216)	0.000442 (0.00216)	0.000430 (0.00216)	0.000322 (0.00216)	0.000379 (0.00217)
dependency ratio	0.00763 (0.00631)	0.00759 (0.00631)	0.00763 (0.00631)	0.00781 (0.00632)	0.00757 (0.00632)
Previous sector of work					
Mining	-0.0407 (0.0299)	-0.0408 (0.0299)	-0.0406 (0.0299)	-0.0870*** (0.0233)	-0.0413 (0.0298)
Industry	0.0692*** (0.0161)	0.0692*** (0.0161)	0.0692*** (0.0161)	0.0610*** (0.0179)	0.0692*** (0.0162)
Electricity, Gas & Wat	-0.0705 (0.0569)	-0.0704 (0.0570)	-0.0705 (0.0569)	-0.0683 (0.0896)	-0.0706 (0.0571)
Construction	0.0524*** (0.0157)	0.0523*** (0.0157)	0.0526*** (0.0157)	0.0630*** (0.0224)	0.0519*** (0.0157)
Fin~cl Inst, Real Est	-0.0429*** (0.0128)	-0.0430*** (0.0128)	-0.0430*** (0.0128)	-0.0205 (0.0157)	-0.0432*** (0.0128)
Transprt, Stor. & Comm	-0.0642*** (0.0139)	-0.0643*** (0.0139)	-0.0642*** (0.0139)	-0.0729*** (0.0147)	-0.0643*** (0.0139)
Trade, Restaurnt & Acc	-0.0779*** (0.0186)	-0.0779*** (0.0186)	-0.0778*** (0.0186)	-0.0775*** (0.0210)	-0.0779*** (0.0186)
Social Services	-0.106*** (0.0115)	-0.106*** (0.0115)	-0.106*** (0.0115)	-0.118*** (0.0126)	-0.106*** (0.0115)
Interaction terms					
Feb2009	0.0385*** (0.00911)	0.0276 (0.0191)	0.0354*** (0.00959)	0.0350* (0.0210)	0.0514*** (0.0135)
Feb2009-Mining				0.104 (0.0789)	

Feb2009-Industry				0.0116 (0.0259)	
Feb2008-Electrc~ty				0.00662 (0.15727)	
Feb2008-Constrct~n				0.0269 (0.0283)	
Feb2009-Finance				-0.0395* (0.0224)	
Feb2009-TransptComm				0.0208 (0.0362)	
Feb2009-TradeRest~ant				-0.000911 (0.0479)	
Feb2009-Socialsrv~ce				0.0312 (0.0319)	
Feb2009*age		0.000320 (0.000516)			
Feb2009*female			0.00908 (0.0129)		
Feb2009*urban					-0.0276 (0.0171)
Observations	34870	34870	34870	34870	34870

Standard errors in
parentheses

*** p<0.01, ** p<0.05, * p<0.1

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