The Effect of the Minimum Wage on Prices across Income Levels in Brazil

Sara Lemos*

University of Leicester

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Abstract

If the poor are the consumers of minimum wage labour intensive goods, or if these goods represent a large proportion of their consumption bundle, then minimum wage increases might hurt rather than aid the poor. This paper estimates the effect of the minimum wage on prices paid by low, medium and high income consumers using monthly Brazilian household and firm data from 1982 to 2000. Robust results indicate that the minimum wage raises overall prices in Brazil. The resulting inflation is two times higher for the poor than it is for the rich in the short run and four times higher in the long run.

Keywords: minimum wage, labour costs, price effect, cost shock, Brazil.

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*Sara Lemos, University of Leicester, Economics Department, University Road, Leicester LE1 7RH, +44 (0)116 252 2480, +44 (0)116 252 2908 (fax).

Most of the empirical minimum wage literature has focused on employment effects, aiming to test the theory prediction that firms lower employment in response to minimum wage increases (Neumark, and Wascher, 1992; Williams, 1993; Card and Krueger, 1995; Brown, 1999; Machin et al., 2003). This hypothesis, however, has been broadly dismissed empirically. In his survey, Brown (1999, p.2154) remarks: "the minimum-wage effect is small (and zero is often hard to reject)". With small employment responses becoming prevalent, the empirical literature is now turning to price effects, aiming at testing another theory prediction, i.e. that an industry wide shock – such as minimum wage increases – are passed on to prices (Card and Krueger, 1995; Aaronson, 2001; Machin et al., 2003). However, this literature is still very small and it is limited to developed countries (mainly to the US) (Brown, 1999).

The first contribution of this paper is to estimate minimum wage price effects for a developing country. This paper estimates the effects of the minimum wage on prices using Brazilian household and firm data from 1982 to 2000. Brazil is a key non-US example to study price effects. This is because in Brazil wage effects are sizeable and employment effects are small (Lemos, 2004; Neumark et al., 2003; Carneiro, 2002), suggesting that firms pass the higher labour costs associated to minimum wage increases through to prices. Furthermore, minimum wage increases are large and frequent and the proportion of workers affected is large, once again suggesting that price effects might be significant.

The second contribution of this paper is to estimate minimum wage price effects across income levels. This paper estimates the effect of the minimum wage on prices paid by low, medium and high income consumers. Absent employment losses, the minimum wage is an anti-poverty program that transfers money from one group to another (Freeman, 1996). The effectiveness of this program is a question of redistribution. If the poor are the consumers of minimum wage labour intensive goods, or if these goods represent a large share of their consumption bundle, then minimum wage increases might hurt rather than aid the poor. Moreover, if such increases raise overall prices, they might again hurt the poor, who disproportionately suffer from inflation. This is particularly so in the presence of hyperinflation – to

which many developing countries, including Brazil, have been exposed to – when minimum wage increases can trigger wage-price inflation spirals (Gramlinch, 1976; Freeman, 1996). Extending the understanding of minimum wage effects on prices and in developing countries is crucial if the minimum wage is to be used as a policy to help poor people in poor countries.

Robust results indicate that the minimum wage significantly raises overall prices in Brazil. The resulting inflation is two times higher for the poor than for the rich in the short run and four times higher in the long run. This paper is organized as follows. Section 1 presents the data and descriptive analysis. Section 2 discusses the empirical equation, discusses identification (Section 2.1), performs the estimations (Section 2.2) and presents the results (Section 2.3). Section 3 concludes.

I DATA

I.1 MINIMUM WAGE

The minimum wage was introduced in 1940 as a social policy with full coverage (there are no differentiated minimum wage rates for specific demographic groups or labour market categories) to provide subsistence income (diet, transport, clothing, and hygiene) for an adult worker. The associated bundle varied across regions, which was reflected in 14 different minimum wages. At the time, 60% to 70% of workers earned below these initial levels (Wells, 1983). After a steep decrease, the real minimum wage was adjusted and reached its peak during the boom of the 50s, when productivity was high, unions were strong, and the Government was populist. After that, it decreased as a result of the subsequent recession, rising inflation, and non-aggressive unions.

The minimum wage social role changed because of two main reasons. First, the dictatorship installed in 1964 associated high inflation with wage adjustments. The dictatorship limited labour organization, reduced wage militancy, and implemented a centralized wage policy. One of the strategies of this policy was under-indexation of the real minimum wage, via erosion of the nominal minimum wage. According to Carneiro and Faria (1998), the nominal minimum wage was used not only as a

stabilization policy but also as a coordinator of the wage policy. For example, other wages were set as multiples of the minimum wage. More generally, the minimum wage played an indexer role. In the presence of high inflation and distorted relative prices, rational agents took increases in the minimum wage as a signal for price and wage bargains - even after law forbade its use as *numeraire* in 1987. Minimum wage indexation and reinforced inflationary expectations was a phenomenon first noticed by Gramlich (1976) and more recently discussed by Card and Krueger (1995) and Freeman (1996). Maloney and Nunes (2004) show that the *numeraire* effect is a general phenomenon in Latin America. Second, the impact of the minimum wage on the public deficit – uncontrollably large and growing in the 1980s and 1990s – via benefits, pensions, and the Government wage bill was often the criterion for the affordable increase in the nominal minimum wage. This once again resulted in under-indexation of the real minimum wage.

Because of the nominal minimum wage effect both on prices and on the public deficit, the under-indexation of the real minimum wage was used as a deflationary policy. Conversely, nominal minimum wage increases severely affected both prices and the public deficit and were therefore inflationary. The anti-inflation policy became inflationary itself; the remedy became the disease. This effect was often perpetuated into a wage-price inflation spiral. In this context, the minimum wage has been alternately used as a social and anti-inflation policy. The social role is associated with more populist Governments, lower inflation, and stronger unions.

With the end of the dictatorship in 1985, nominal minimum wage adjustments were subject to the rules of five different stabilization plans. Nominal minimum wage increases were large and frequent, but quickly eroded by the subsequent inflation. For example, in early 1986, the nominal minimum wage was increased by 15% and bi-annually adjusted initially, but then adjusted whenever inflation was higher than 20%. Despite of that, the real minimum wage was 25% lower in mid 1987 than it was in early 1986. The nominal minimum wage was then initially frozen for three months before it was indexed monthly by past inflation. In early 1989, it was again frozen, and in mid 1989 it was again indexed monthly. In early 1990, the real minimum wage was 45% lower than it was in early 1989. In late 1991, the nominal

minimum wage was again indexed monthly. In 1993, adjustments were bi-monthly and then monthly. In early 1994, adjustments were daily, which did not prevent the real minimum wage to be 40% lower in mid 1994. In mid 1995 the nominal minimum wage was increased by 42%, and since then it has been adjusted annually. Figures 1 and 2 show the nominal and real minimum wage between 1982 and 2000 (the timing of the five stabilization plans are indicated in the horizontal axis). The highest (lowest) level of the real minimum wage was in November 1982 (August 1991), before the acceleration of inflation.

[Figure 1 here]

[Figure 2 here]

In political terms, three events were important in the 1980s and 1990s: (a) in 1984, the minimum wage became national, after slow regional convergence; (b) in 1988 the new Constitution re-defined the subsistence income (diet, accommodation, education, health, leisure, clothing, hygiene, transport, and retirement) for an adult worker and his/her family – even though such a bundle was unaffordable at the prevalent minimum wage; (c) the union movement re-emerged and became ever stronger, reaching a high union density for a developing country. In economic terms, despite the political changes, the minimum wage continued to be a component of the centralized wage policy.

I.2 PRICE

The price data is the Consumers Price Index (IPC), the National Wide Consumer Price Index (IPCA) and the Necessary Minimum Wage (SMN). The IPC (IPCA) is computed over the consumption bundle of households earning between 1 and 8 (1 and 40) minimum wages; IPC puts more weight on goods consumed by poorer households. SMN is computed over the consumption bundle of households earning 1 minimum wage as defined in the 1988 Constitution (see Section 1.1). Even though such a bundle has been unaffordable at the prevalent minimum wage, this is the effective inflation experienced by a household with subsistence levels of consumption. In short, the SMN measures the inflation experienced by low income consumers,

and IPC and IPCA measure the inflation experienced by respectively medium and high income consumers. SMN is largest during the whole sample period, suggesting that inflation was highest for the poor. The pattern over time is similar for the three indices, suggesting that all consumers were affected by similar inflation growth. The correlation between IPC and IPCA is 0.99 in differences, while the correlation between SMN and IPC/IPCA is 0.88 in differences.

Figure 3 shows that the patterns of IPC and of the nominal minimum wage in differences are remarkably synchronized, with a correlation of 0.55; this synchronized pattern was also documented for the US (Aaronson, 2001) (once again the timing of the five stabilization plans are indicated in the horizontal axis). Although consumer price indices suffer from several drawbacks to study price responses (Poterba, 1996), they have been used in the exchange rate, sale taxes, and minimum wage pass-through literature (Poterba, 1996; Card and Krueger, 1995).

[Figure 3 here]

The remaining data is from PME (Monthly Employment Survey), PIM (Pesquisa Industrial Mensal), SONDA (Sondagem Industrial) and BACEN (Banco Central do Brasil). All data is monthly aggregated across the six main Brazilian metropolitan regions (Salvador, Recife, Belo Horizonte, Rio de Janeiro, Sao Paulo and Porto Alegre) between 1982 and 2000. The data is available from the IBGE (Instituto Brasileiro de Geografia e Estatistica) and FGV (Fundacao Getulio Vargas).

II EMPIRICAL SPECIFICATION

A simple equation, commonly used in the literature of price responses to industry wide shocks – such as sales taxes and exchange rates (Poterba, 1996; Goldberg and Knetter, 1997) and more recently, minimum wage (Aaronson, 2001) – is the inverse of the profit maximizing condition under imperfect competition, where price is a mark up over costs:

(1) $\Delta \ln P_{it} = \alpha + \sum_{l=-k}^{L} \beta_l \Delta \ln MW_{t-l} + \gamma \Delta \ln W_{it} + \delta \Delta r_{it} + \epsilon \Delta \ln E_{it} + \mu \Delta \ln A_{it} + \sum_{m=1}^{M} \rho_m \Delta \ln P_{it-m} + f_i + f_t + v_{it}$,

where for region i and time t, P_{it} is prices; costs are modelled by average wages W_{it},

minimum wage MW_t, real interest rate r_{it} (defined as the national nominal interest rate minus regional inflation), and by a measure of productivity A_{it} (defined as the total industrial production divided by total number of workers directly employed in production in the metallurgic industry); f_i is regional fixed effects; f_t is time fixed effects (modelled with month and year dummies), and v_{it} is the error term. Assuming that the static specification is valid at each period, lags and leads of the shock variable and lags of the dependent variable are included to account for lagged responses. The number of lags and leads is an empirical matter and is discussed in Section 2.3.

Equation (1) is estimated using two different production functions, $Y{=}f_L(L)$ and $Y{=}f_{LK}(L,K)$, where L is labour and K is capital. Assuming that labour is the only variable factor in the long run is equivalent to constraining the coefficients of the real interest rate (δ) to zero. All models are sample size weighted to account for the relative importance of each region (and for heteroskedasticity arising from aggregation), as well as corrected for serial correlation across and within regions, assuming an autoregressive process specific to each region.

II.1 IDENTIFICATION

Because the nominal minimum wage is constant across regions in Brazil, β is not fully identified in Equation (1). The "Kaitz index", defined as the ratio of the minimum wage to average wage adjusted for coverage of the legislation (Kaitz, 1970), commonly used in minimum wage studies is not an option either, because the variation in average wages is what drives the variation in the ratio. As a result, the effect of the inverse of the average wages on prices is what would ultimately be estimated (Welch and Cunningham, 1978). Another variable commonly used in minimum wage studies is "fraction affected", defined as the proportion of workers earning a wage between the old and the new minimum wage (Card, 1992). Card and Krueger (1995) and Spriggs and Klein (1994) used "fraction affected" in their minimum wage price equations. However, "fraction affected" is again not an option, as it has been criticized because it is constant when the nominal minimum wage is constant, and thus does not capture the erosion of the minimum wage in relation

to other wages and prices (Brown, 1999).

A variable closely related to "fraction affected" is "fraction at" the minimum wage, defined as the proportion of workers earning one minimum wage (Dolado et al., 1996) (plus or minus 0.02%, to account for rounding approximations). Unlike "fraction affected", "fraction at" has variation across regions both when the nominal minimum wage is constant and when it is increased. Thus, to ensure identification of the effect of the minimum wage on prices, "fraction at" replaces log nominal minimum wage in Equation (1). To reflect a 10% increase in the minimum wage, all estimates in the paper are multiplied by 0.3, which is the approximate elasticity of "fraction at" with respect to the minimum wage.[1] Card and Krueger (1995) interpret their "fraction affected" estimates in a similar manner.

II.2 ESTIMATION

The standard assumption in the literature is that the largest increase in prices following a minimum wage increase occurs in minimum wage labour intensive goods industries. This means that the consumers of such goods pay proportionately more for the increase. It has been suggested that these are the low income consumers (Freeman, 1996; MaCurdy and McIntyre, 2001). To test that, industry and consumption level data are required to identify what are such goods and who are their consumers. This would make it possible to define the typical low and high income consumption bundle and the respective income share spent on minimum wage labour intensive goods. This is what SMN, IPC and IPCA measure; i.e. the cost of the low, medium and high income typical consumption bundle and the implicit income share spent on minimum wage labour intensive goods. Thus, these indices can be used to provide evidence on the effect of the minimum wage on prices paid by poor, middle-class and rich consumers. The relevant question here is whether the inflation caused by minimum wage increases affects the poor more severely.

[1] The 0.3 estimate is the coefficient of the nominal minimum wage on a regression of "fraction at" on the difference of log nominal minimum wage and the other regressors in Equation (1). However, because the nominal minimum wage does not vary across regions in Brazil, the Kaitz index (using not only average wage, but also median wage as the denominator) was used instead. The 0.3 estimate was robust across specifications.

As discussed in Section 1.2, SMN is largest during the whole sample period, suggesting that inflation was highest for the poor. The pattern over time is similar for the three indices, suggesting that all consumers were affected by similar inflation growth. If, in the absence of minimum wage increases, prices rose equally to all consumers, then the simple comparison of indices would be an estimate of the relative inflation experienced by the poor and the rich following a minimum wage increase. However, changes in prices might also be due to changes in other variables. Regression models are used to control for such variables. SMN, IPC and IPCA are each used in turn to estimate Equation (1). The respective β estimates measure the increase on the prices of goods consumed by poor, middle-class and rich consumers following a minimum wage increase. If this estimate is larger when using SMN, then the poor are exposed to higher inflation following a minimum wage increase.

II.3 RESULTS

II.3.1 LOW INCOME CONSUMERS

Table 1 shows WLS β_0 estimates using SMN, the price index that measures the inflation experienced by low income consumers (see Section 1.2). Panel A1 shows estimates allowing the effect of minimum wage increases on prices to take six months to be complete, i.e. including six lags of the shock variable in the model. A 10% increase in the minimum wage raises prices by 0.43% (0.31%) in the short run and by 1.69% (1.35%) in the long run before (after) controlling for the real interest rate. The estimates are smaller when controlling for the real interest rate, suggesting that the minimum wage variable is picking up some of the negative effect of the real interest rate on prices when $Y=f_L(L)$ is assumed. Panel A2 shows that the short run estimates are remarkably robust when allowing the effect of minimum wage increases on prices to take twelve months to be complete. Nonetheless, the long run estimates are no longer statistically different from zero. That is because the extra lags are not significant, which suggests that all adjustment in prices in response to minimum wage increases happen in the first six months after the increase, with no further adjustments after that. Aaronson (2001) included lags and leads in his specifications and found that most of the price response in the US occurs in the two

month period immediately after a minimum wage increase, while the rest occurs in a two months window around this. Even though the rapid wage-price inflation spiral discussed in Section 1.1 suggests shorter dynamics for Brazil, other factors such as the minimum wage indexer and *numeraire* roles, and long inflationary memory in Brazil might perpetuate the minimum wage effect on prices over time.

[Table 1 here]

Panel A3 shows estimates further allowing six months for price adjustments in response to minimum wage increases, i.e. including six lags of the dependent variable in the model in addition to six lags of the shock variable. The short run estimate after (before) controlling for the real interest rate is unchanged (smaller), and the long run estimates are smaller (compared with Panel A1). A 10% increase in the minimum wage raises prices by 0.34% (0.31%) in the short run and by 1.14% (1.09%) in the long run before (after) controlling for the real interest rate. Panel A4 shows that the results are qualitatively the same when allowing twelve months for price adjustments in response to minimum wage increases (compared with Panel A2). These are quite demanding specifications. First, two forms of dynamics account for lagged effects of a minimum wage increase on prices and for lagged adjustments in prices due to the inability to instantaneously adjust other factors to the increase. Second, the effect of the interest rate is separated from the effect of the minimum wage on prices. Third, region dummies capture the effect of region specific growth trends on prices. Fourth, time dummies separate the effect of common macro shocks from the effect of the minimum wage on prices. Thus, confidence is great that the remaining variation in prices really is due to minimum wage changes. This is confirmed by the robustness of the estimates across specifications (see several rows of column 1 of Panel A).

The preferred specification is the one including six lags of the shock variable (second row of Panel A1). This specification is more parsimonious than the specifications including twelve lags of the shock variable (Panels A2 and A4), which as discussed above, are not statistically significant. This specification is also more parsimonious than the specifications including lags of the dependent variable (Panels A3 and A4), as it focuses on the type of dynamics that is most relevant here

(Card and Krueger, 1995; Spriggs and Klein, 1994; Aaronson, 2001). Incidentally, the estimates are unchanged in the short run and robust in the long run to allowing or not for lagged dependent variable dynamics (compare second row of Panels A1 and A3). Finally, this specification controls for the interest rate, ensuring that the effect of the minimum wage is not confounded with the effect of the interest rate on prices. Using this specification, a 10% increase in the minimum wage raises prices by 0.31% in the month of the increase, and by 1.35% after six months, when the effect of the minimum wage on prices is complete.

This evidence suggests that low income consumers suffer from overall price increases triggered by the minimum wage. This evidence is in line with theory and with previous overall (short run) price effects in the international literature ranging from 0.20% to 0.40% (Sellekaerts, 1981; MacCurdy and McIntyre, 2001), which use US data and an entirely different methodology. Price effects are expected to be larger here because in Brazil, not only are minimum wage increases large and frequent and the proportion of workers affected is large, but also the minimum wage has been used as *numeraire* and as an indexer (see Section 1.1). This is confirmed by the larger long run estimates. Although Brazilian low income consumers are exposed to the same inflation as US consumers on the month of the increase, they are exposed to nearly four times that inflation six months after the increase. The next step is to compare the inflation suffered by poor Brazilians with that suffered by rich Brazilians.

II.3.2 MEDIUM AND HIGH INCOME CONSUMERS

Table 1 shows WLS β_0 estimates using IPC and IPCA, the price indices that measure the inflation experienced by medium and high income consumers (see Section 1.2). Panels B1 and C1 show estimates allowing the effect of minimum wage increases on prices to take six months to be complete. In the short run, a 10% increase in the minimum wage raises prices by 0.28% (0.27%) before, and by 0.15% (0.14%) after controlling for the real interest rate for medium (high) income consumers. In the long run, the estimates are not statistically significantly different from zero, reflecting the fact that only the first lag of the shock variable is significant (the

specifications here include the same number of lags as in Section 2.3.1 for comparison purposes). Panels B2 and C2 confirm that the short run estimates are robust to allowing the effect of minimum wage increases on prices to take twelve months to be complete, but as expected, the long run estimates are again not significant.

Panels B3 and C3 (B4 and C4) show that the estimates are dramatically sensitive to when allowing for six (twelve) months for price adjustments in response to minimum wage increases. Not only are the short run estimates now much smaller, but they are also statistically not different from zero. Furthermore, the long run estimates turn negative, although they are also statistically not different from zero. A tentative explanation is that the wage-price inflation spiral triggered by the minimum wage eventually translates into a fall (stagnation) in production and prices in sectors other than subsistence goods (recall that the minimum wage price effect is consistently positive and robust for low income consumers, who consume subsistence goods). Another tentative explanation is that these are quite demanding specifications, in which the variation in prices is explained by region and time fixed effects and mostly by its own lags. This might be swiping away all the relevant variation in the model.

Using the preferred specification discussed in Section 2.3.1, a 10% in the minimum wage raises prices by 0.15% (0.14%) for medium (high) income consumers in the month of the increase. This evidence suggests that medium and high income consumers are exposed to half the inflation suffered by low income consumers in the short run, and to four times less inflation in the long run.

II.3.3 SUMMARY

The main reading from the evidence above is that minimum wage increases significantly raise overall prices in Brazil and that the poor are exposed to a higher inflation rate following a minimum wage increase than are the rich.

First, this evidence is supportive of the hypothesis discussed in the Introduction that minimum wage increases are passed on to prices and are, therefore, born by consumers. Furthermore, the evidence here suggests that minimum wage increases affect all consumers, as it affects overall prices. This is because minimum wage

workers are present in various sectors throughout the economy and thus the prices of a wide range of goods go up. Furthermore, the indexer and *numeraire* roles, together with wage spillover effects, propagate the increase throughout the economy. As a result, consumers of all income levels (not only low income consumers) spend a substantial income share on goods whose prices went up (which are not only minimum wage labour intensive goods).

Second, although minimum wage increases affect all consumers, different consumers need not be affected in the same way. The evidence above suggests that the poor are exposed to twice the inflation that the rich are exposed to in the short run, and to four times more inflation in the long run. Either poor consumers spend a much larger share of their incomes on minimum wage labour intensive goods, or the prices of such goods go up by much more, or both.

This raises the question whether the inflation costs of minimum wage increases outweigh any transitory benefits for the poor in Brazil. According to Gramlich (1976, p. 449) "the inflationary potential of large increases in the minimum wage is likely to become serious long before the redistributive potential becomes significant". He argued that spillover effects might be as large as to "nullify the increase in the minimum" and that if the minimum wage is high enough, it can have important effects on overall wages and prices, which can grow much more than proportionately. Twenty years later, Freeman (1996) remarked that it only seems inconceivable that changes in the minimum wage could induce national wage inflation in the US because the minimum wage is so low and affects such a small proportion of the work force. He also argues that the redistributive impact of the increase is offset if spillover effects restore wage differentials. In Brazil, large and frequent minimum wage increases, combined with sizeable spillover effects, cause wage-price inflation spirals that quickly erode the benefits of the increase and leave more permanent inflation side effects (see Section 1.1). Thus, even in the best scenario of no employment losses (see Introduction), the minimum wage might hurt those who it is meant to help. MaCurdy and McIntyre (2001) provide evidence for the US which supports this view.

III CONCLUSION

This paper estimates the effect of the minimum wage on prices paid by low, medium and high income consumers using monthly Brazilian household and firm data for the 1980s and 1990s. Robust results suggest that the minimum wage significantly increases overall prices in Brazil and that the poor are exposed to a higher inflation rate following a minimum wage increase than are the rich. A 10% increase in the minimum wage raises prices paid by low (high) income consumers by 0.31% (0.14%) in the month of the increase, and by 1.35% after six months. This indicates that the poor are exposed to twice the inflation the rich are exposed to in the short run, and to four times more inflation in the long run. Either the poor spend a larger share of their incomes on minimum wage labour intensive goods or the prices of such goods go up by more, or both.

The short run effect is in line with theory and with previous empirical results in the international literature, which reports overall (short run) price effects ranging from 0.20% to 0.40%. The long run effect confirms prior expectations that price effects are larger for Brazil, where not only are minimum wage increases large and frequent and the proportion of workers affected is large, but also the minimum wage has been used as *numeraire* and as an indexer.

The main policymaking implication deriving from these results is that the minimum wage might hurt rather than aid the poor. Not only does minimum wage increases raise overall prices – and the poor suffer disproportionately more from any given inflation rate – but also the poor are exposed to a higher inflation rate than are the rich following a minimum wage increase. This raises the question whether the inflation costs of minimum wage increases outweigh any transitory benefits for the poor. Further research into this question is urged. Evidence on the effect of the minimum wage on prices, in particular in developing countries, in particular across income levels really is very limited. Extending the understanding of minimum wage effects on prices and in developing countries is crucial if the minimum wage is to be used as a policy to help poor people in poor countries.

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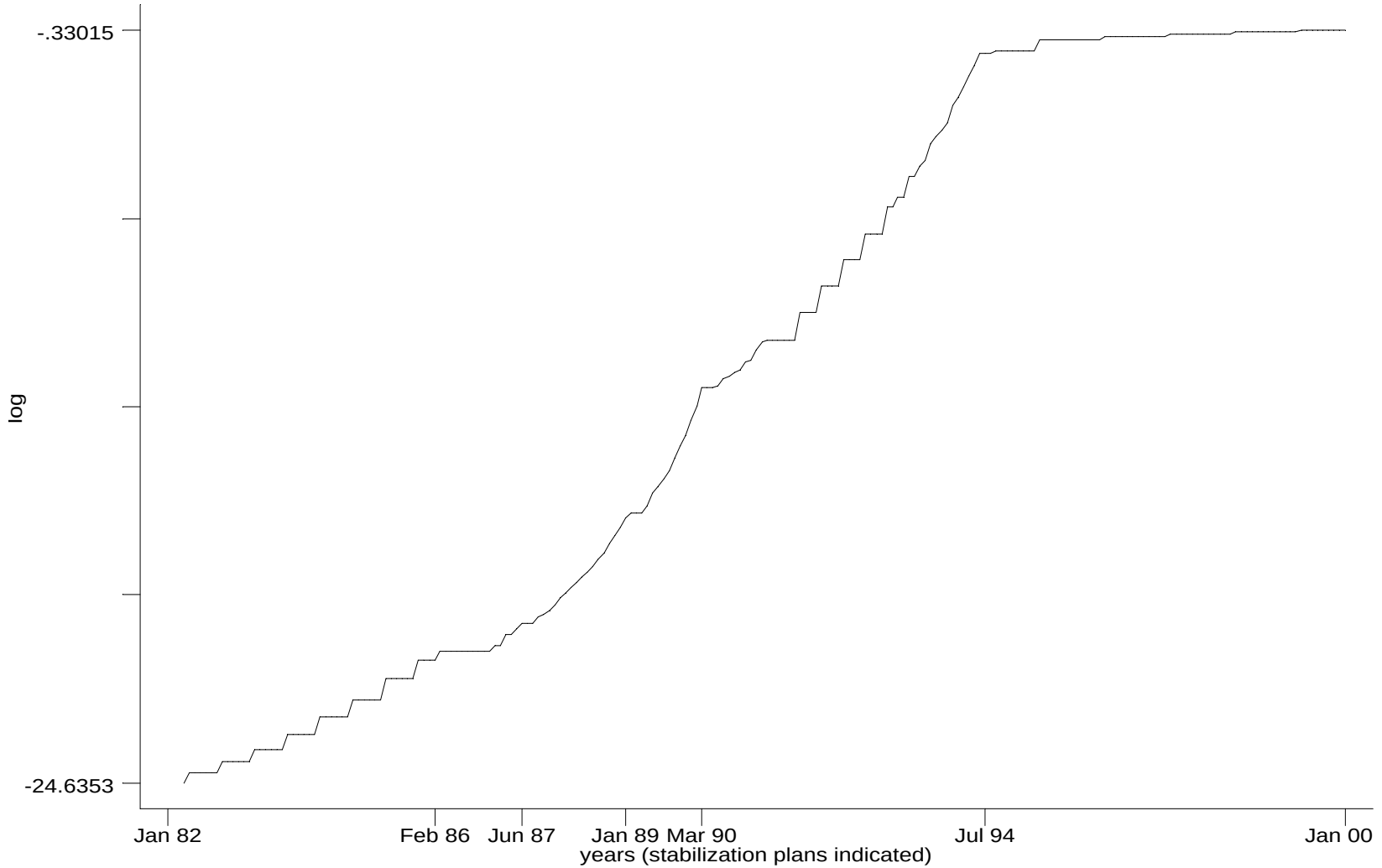

Figure 1 - log NOMINAL MINIMUM WAGE

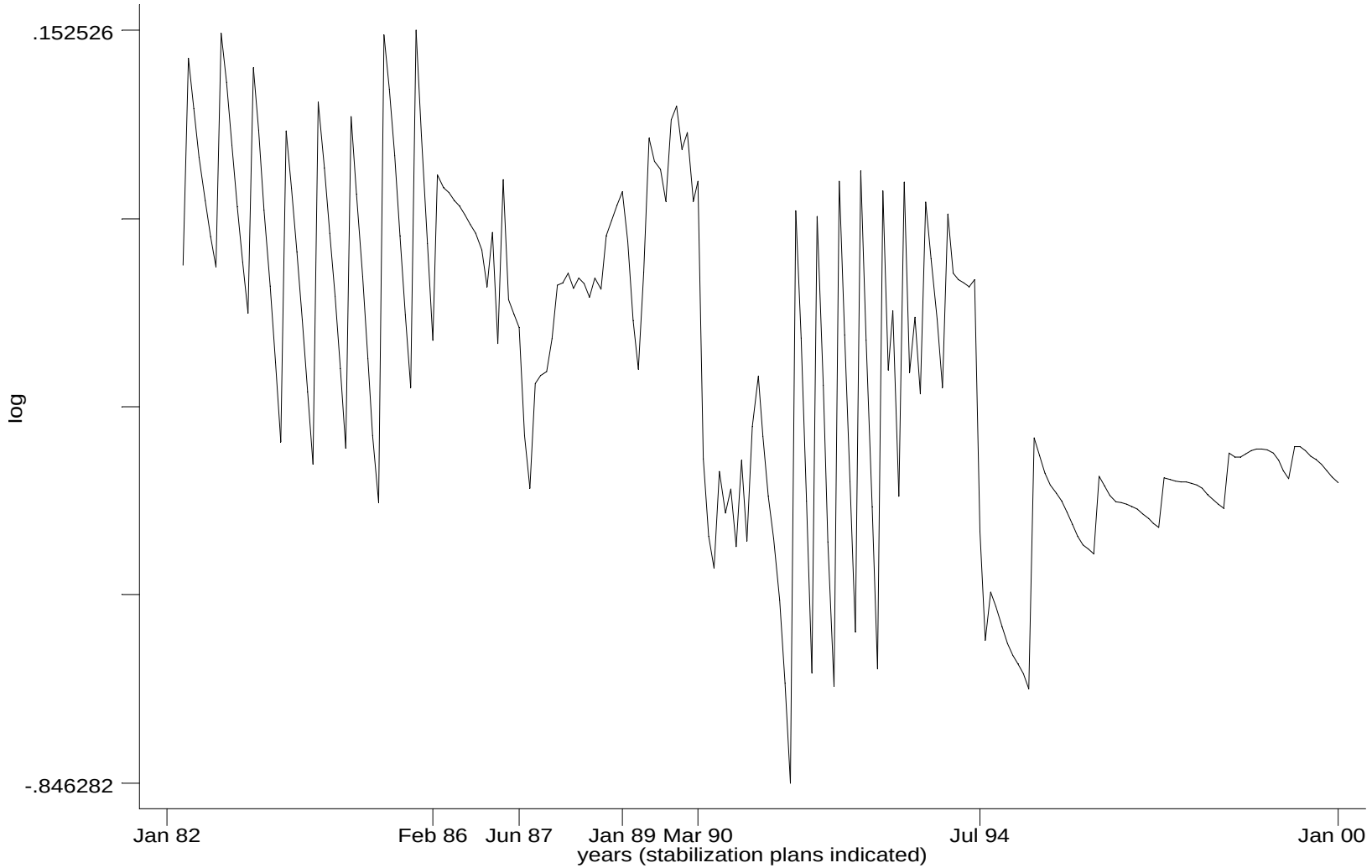

Figure 2 - log REAL MINIMUM WAGE

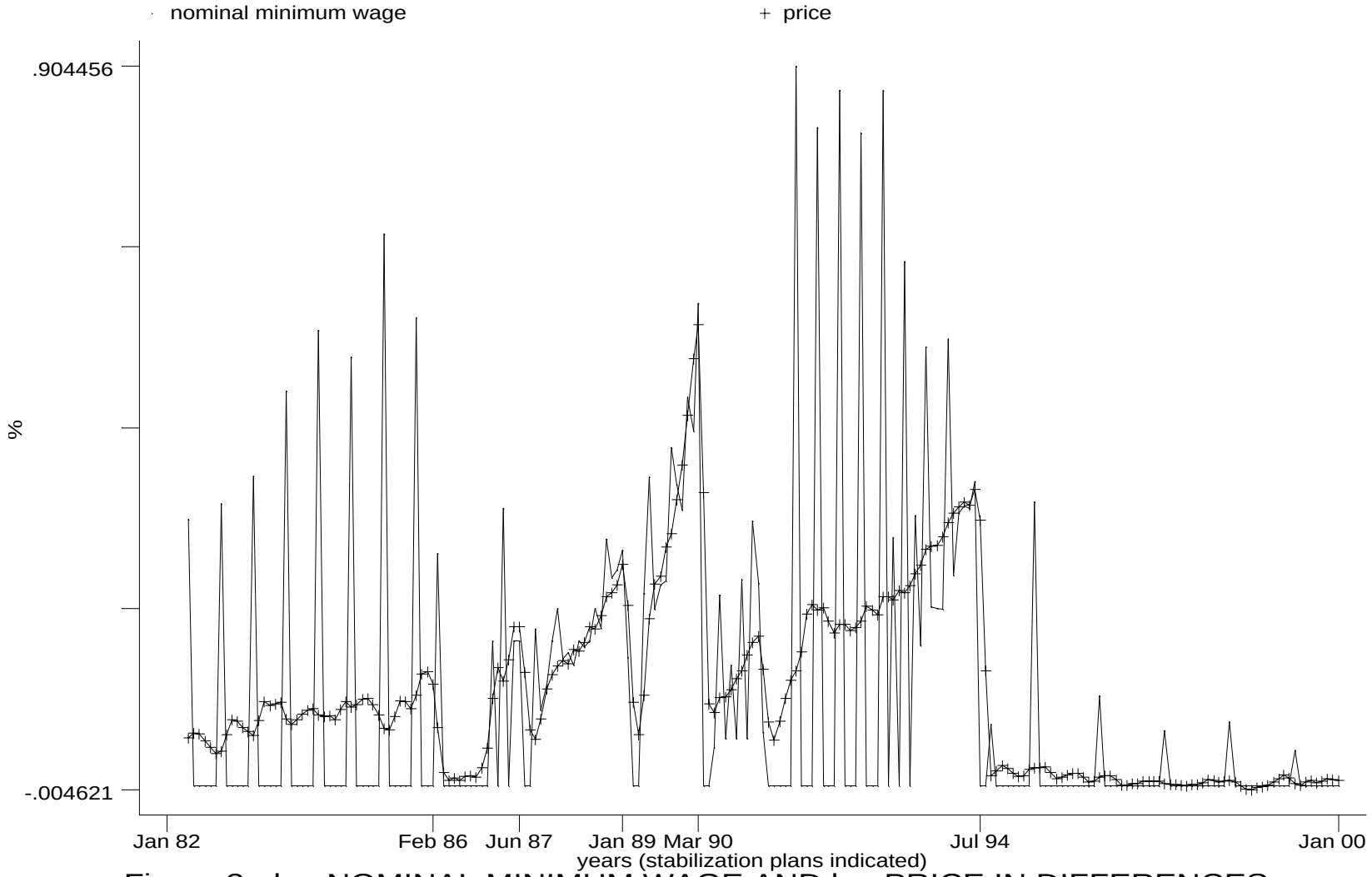

Figure 3 - log NOMINAL MINIMUM WAGE AND log PRICE IN DIFFERENCES

Table 1 - THE EFFECT OF A 10% INCREASE IN THE MINIMUM WAGE ON PRICES ACROSS INCOME LEVELS

	(A) LOW INCOME				(B) MEDIUM INCOME				(C) HIGH INCOME			
	sr		*lr*		**sr**		*lr*		**sr**		*lr*	
	coef	se	*coef*	*se*	**coef**	se	*coef*		**coef**	se	*coef*	*se*
models	(1)		*(2)*		(1)		*(2)*		(1)		*(2)*	
(1) including 6 lags of the shock variable												
$Y=f_L(L)$	**0.43**	0.15	***1.69***	*0.70*	**0.28**	0.09	***0.67***	*0.61*	**0.27**	0.09	***0.61***	*0.60*
$Y=f_{LK}(L,K)$	**0.31**	0.15	***1.35***	*0.69*	**0.15**	0.08	***0.41***	*0.53*	**0.14**	0.08	***0.36***	*0.52*
(2) including 12 lags of the shock variable												
$Y=f_L(L)$	**0.41**	0.16	***2.00***	*1.38*	**0.28**	0.10	***0.20***	*1.33*	**0.27**	0.10	***0.02***	*1.31*
$Y=f_{LK}(L,K)$	**0.30**	0.15	***1.90***	*1.36*	**0.18**	0.09	***0.28***	*1.16*	**0.17**	0.08	***0.11***	*1.14*
(3) including 6 lags of the shock variable and of the dependent variable												
$Y=f_L(L)$	**0.34**	0.14	***1.14***	*0.57*	**0.05**	0.04	***-0.17***	*0.60*	**0.03**	0.04	***-0.45***	*0.59*
$Y=f_{LK}(L,K)$	**0.31**	0.14	***1.09***	*0.52*	**0.05**	0.05	***-0.23***	*0.60*	**0.03**	0.04	***-0.50***	*0.60*
(4) including 12 lags of the shock variable and of the dependent variable												
$Y=f_L(L)$	**0.36**	0.14	***1.37***	*1.45*	**0.07**	0.04	***0.34***	*1.27*	**0.05**	0.04	***-0.30***	*1.28*
$Y=f_{LK}(L,K)$	**0.34**	0.14	***1.45***	*1.42*	**0.06**	0.04	***0.49***	*1.25*	**0.05**	0.04	***-0.24***	*1.28*

(a) The dependent variable is the difference of logs of prices. The shock variable is the "fraction at".

(b) Time effects are modelled with month, year and stabilization plan dummies, region effects are modelled with region dummies; cost shifters are included as controls, depending on which of the two production function is used, $Y=f_L(L)$ or $Y=f_{LK}(L,K)$.

(c) Panels 1 and 2 show estimates of "fraction at" including respectively 6 and 12 lags of the shock variable; Panels 3 and 4 further include 6 and 12 lags of the dependent variable.

(d) Panels A to C show estimates for respectively low, medium and high income consumers.

(e) These are GLS estimates, where the weights are the squared root of the inverse of the sample size. Standard errors are corrected for serial correlation across and within regions (assuming an autoregressive process specific to each region).

(f) Columns 1 and 2 show respectively short and long run coefficients.

(f) To reflect a 10% increase in the minimum wage, the estimates and standard errors were multiplied by 0.3, which is the approximate elasticity of the minimum wage with respect to "fraction at".