ONLINE APPENDIX FOR INFLATION EXPECTATIONS AND MISALLOCATION OF RESOURCES: EVIDENCE FROM ITALY*

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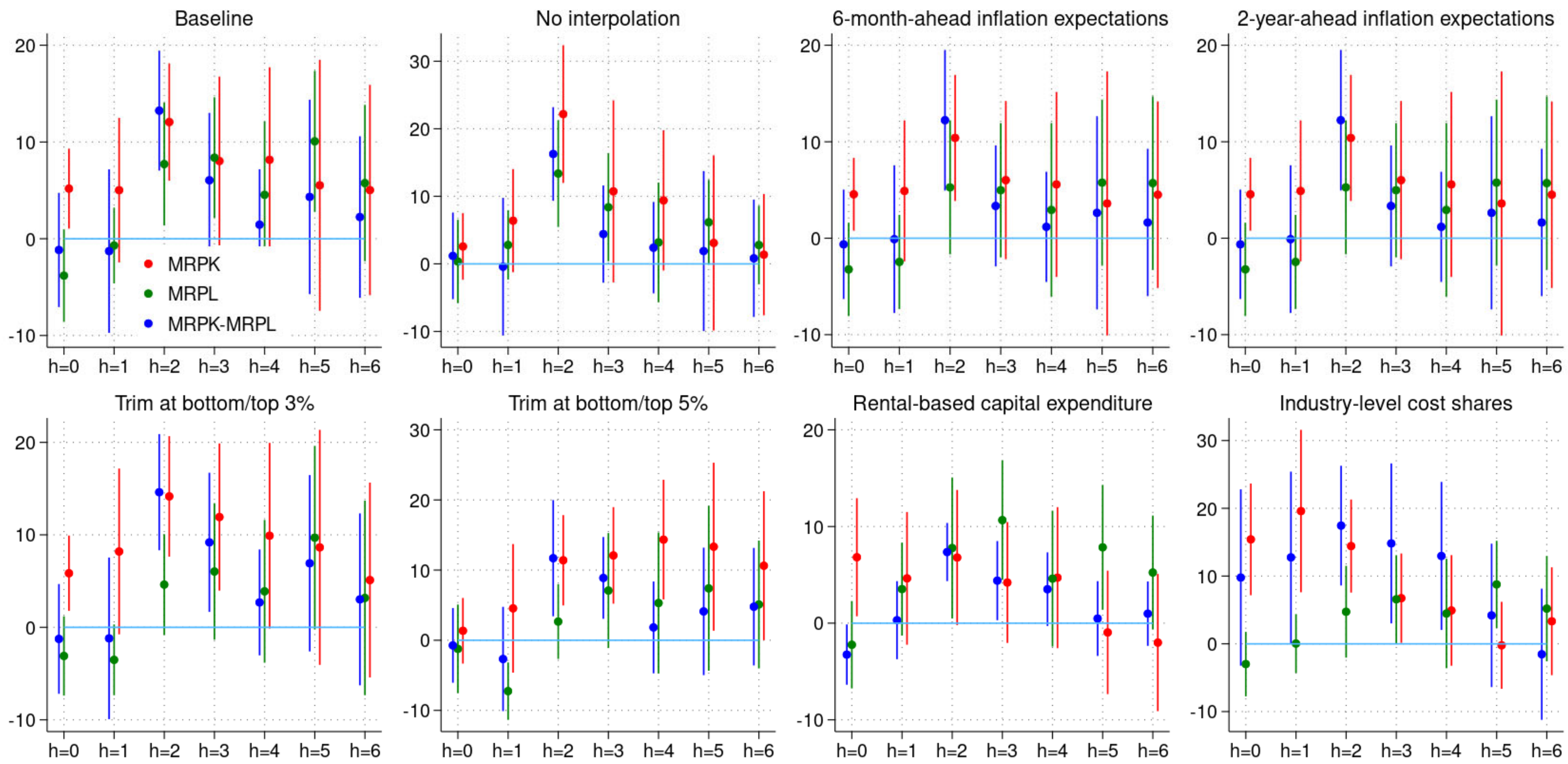
Appendix A. Robustness checks

Appendix Figure 1. Robustness checks to Baseline Estimates.



Notes: This figure shows the estimates of the coefficient β_0^h (see notes in Table 1) for alternative data treatments (no interpolation and trimming at bottom and top 5 or 3 percent), use of inflation expectations at different horizons (6-month and 24-month ahead), use of rental-based measurement of capital expenditure and use of industry-level cost shares. The baseline estimates are shown in the top left panel. Circles represent the point estimates while the whiskers the 90 percent confidence interval.

Appendix B: Derivations

We consider the textbook New Keynesian model (e.g., Gali 2015) to assess how the dispersion of inflation expectations should be related to the misallocation of resources.

We assume that the demand function for a variety produced by firm $i \in [0,1]$ is given by $Y_{it} = Y_t \left(\frac{P_{it}}{\bar{P}_t}\right)^{-\sigma}$ where i, t index firms and time, Y_{it} is output, P_{it} is the price of variety i, $\bar{P}_t$ is the price level. The production function is $Y_{it} = Z_t K_{it}^{\alpha} L_{it}^{1-\alpha}$ where Z_t is the level of technology that is common across firms, L_{it} is the labor input, K_{it} is the capital input. Workers are freely mobile across firms so that the wage is the same across firms. We assume that capital is a quasi-fixed factor that is set to the optimal "steady-state" level $\bar{K}$. If follows that the revenue (and value added since there are no intermediate inputs) for firm i is given:

$$R_{it} = P_{it}Y_{it} = P_t Y_t^{1/\sigma} Y_{it}^{1-1/\sigma} = P_t Y_t^{\frac{1}{\sigma}} \left(Z_t K_{it}^{\alpha} L_{it}^{1-\alpha}\right)^{1-1/\sigma} = P_t Y_t^{\frac{1}{\sigma}} Z_t^{1-1/\sigma} K_{it}^{\alpha(1-1/\sigma)} L_{it}^{(1-\alpha)(1-1/\sigma)}$$
$$= X_t K_{it}^{\alpha(1-1/\sigma)} L_{it}^{(1-\alpha)(1-1/\sigma)}$$

where $X_t \equiv P_t Y_t^{\frac{1}{\sigma}} Z_t^{1-1/\sigma}$ is common across firms. Marginal revenue products for firm i are given by

$$MRPL_{it} \equiv \frac{\partial P_{it}Y_{it}}{\partial L_{it}} = X_t(1-\alpha)\left(1-\frac{1}{\sigma}\right)\bar{K}^{\alpha(1-1/\sigma)} L_{it}^{(1-\alpha)(1-1/\sigma)-1},$$
$$MRPK_{it} \equiv \frac{\partial P_{it}Y_{it}}{\partial K_{it}} = X_t \alpha\left(1-\frac{1}{\sigma}\right)\bar{K}^{\alpha(1-1/\sigma)-1} L_{it}^{(1-\alpha)(1-1/\sigma)}.$$

In what follows, we will use lower-case letters to denote logs of the corresponding variables, e.g., $l_{it} = \log(L_{it})$. The cross-sectional dispersion of log marginal revenue product is given by

$$var_i(mrpl_{it}) = \left[(1-\alpha)\left(1-\frac{1}{\sigma}\right)-1\right]^2 var_i(l_{it}),$$

$$var_i(mrpk_{it}) = \left[(1-\alpha)\left(1-\frac{1}{\sigma}\right)\right]^2 var_i(l_{it}).$$

Note that becasue we treat capital as a quasi-fixed factor,

$$L_{it} = Z_t^{-\frac{1}{1-\alpha}} Y_{it}^{\frac{1}{1-\alpha}} \bar{K}^{\frac{\alpha}{1-\alpha}} = Z_t^{-\frac{1}{1-\alpha}} \left(Y_t\left(\frac{P_{it}}{\bar{P}_t}\right)^{-\sigma}\right)^{\frac{1}{1-\alpha}} \bar{K}^{\frac{\alpha}{1-\alpha}} = Z_t^{-\frac{1}{1-\alpha}} Y_t^{\frac{1}{1-\alpha}} P_t^{\frac{\sigma}{1-\alpha}} P_{it}^{\frac{-\sigma}{1-\alpha}} \bar{K}^{\frac{\alpha}{1-\alpha}} = Q_t P_{it}^{\frac{-\sigma}{1-\alpha}}$$

where $Q_t \equiv Z_t^{-\frac{1}{1-\alpha}} Y_t^{\frac{1}{1-\alpha}} P_t^{\frac{\sigma}{1-\alpha}} \bar{K}^{\frac{\alpha}{1-\alpha}}$ is common across firms. It follows that the cross-sectional dispersion of labor input is related to the cross-sectional dispersion of prices $var_i(l_{it}) = \left(\frac{\sigma}{1-\alpha}\right)^2 var_i(p_{it})$ and hence

$$var_i(mrpl_{it}) = \left[(1-\alpha)\left(1-\frac{1}{\sigma}\right)-1\right]^2 \left(\frac{\sigma}{1-\alpha}\right)^2 var_i(p_{it})$$
$$var_i(mrpk_{it}) = \left[(1-\alpha)\left(1-\frac{1}{\sigma}\right)\right]^2 \left(\frac{\sigma}{1-\alpha}\right)^2 var_i(p_{it})$$

As we discuss in the paper, it is also useful to compute the cross-sectional dispersion in the difference of marginal revenue products:

$$var_i(mrpk_{it} - mrpl_{it}) = var_i(l_{it}) = \left(\frac{\sigma}{1-\alpha}\right)^2 var_i(p_{it}).$$

To make further progress, we need to make assumptions about how firms set prices. We posit that firms use Calvo pricing with the probability of price adjustment equal to $1 - \lambda$.

From Werning (2022, p. 11), we know that the log approximation for the optimal reset price for the Calvo pricing is given by:

$$p_{it}^* - \bar{p}_{t-1} = \frac{1}{1-\beta\lambda}\pi_{it}^e + a_{it}$$

where β is the discount factor, $1-\lambda$ is the probability of price resets, $\bar{p}_t$ is the average price (i.e., $\bar{p}_t = E_i(p_{it})$ which gives the price level), a_t collects terms that do not depend on inflation expectations (e.g., future real marginal costs). Note that this expression does not require firms resetting their prices to have the same expectations but each firms' inflation expectations is assumed to be constant across horizons.

In the next step, we relate prices dispersion to the dispersion of inflation expectations and other factors. Using the basic properties of Calvo pricing, we find

$$\begin{aligned}
var_i(p_{it}) \equiv \Delta_t &= var_i(p_{it} - \bar{p}_{t-1}) = E_i\{p_{it} - \bar{p}_{t-1}\}^2 - [E_i\{p_{it} - \bar{p}_{t-1}\}]^2 \\
&= \lambda E_i\{p_{i,t-1} - \bar{p}_{t-1}\}^2 + (1-\lambda)E_i\{p_{it}^* - \bar{p}_{t-1}\}^2 - [\bar{p}_t - \bar{p}_{t-1}]^2 = \\
&= \lambda\Delta_{t-1} + (1-\lambda)E_i\left\{\frac{1}{1-\beta\lambda}\pi_{it}^e + a_{it}\right\}^2 - [\bar{p}_t - \bar{p}_{t-1}]^2 = \\
&= \lambda\Delta_{t-1} + (1-\lambda)E_i\left\{\frac{1}{1-\beta\lambda}(\pi_{it}^e - \bar{\pi}_t^e) + \frac{1}{1-\beta\lambda}\,\bar{\pi}_t^e + a_{it}\right\}^2 - [\bar{p}_t - \bar{p}_{t-1}]^2 \\
&= \lambda\Delta_{t-1} + (1-\lambda)\left(\frac{1}{1-\beta\lambda}\right)^2 var_i(\pi_{it}^e) + (1-\lambda)E_i\left\{\frac{1}{1-\beta\lambda}\,\bar{\pi}_t^e + a_{it}\right\}^2 \\
&\quad + 2\frac{1-\lambda}{1-\beta\lambda}E_i\left\{(\pi_{it}^e - \bar{\pi}_t^e)\left(\frac{1}{1-\beta\lambda}\,\bar{\pi}_t^e + a_{it}\right)\right\} - [\bar{p}_t - \bar{p}_{t-1}]^2
\end{aligned}$$

To simplify this expression, we note that by definition, $\bar{\pi}_t \equiv \bar{p}_t - \bar{p}_{t-1}$and that

$$\begin{aligned}
E_i\left\{(\pi_{it}^e - \bar{\pi}_t^e)\left(\frac{1}{1-\beta\lambda}\,\bar{\pi}_t^e + a_{it}\right)\right\} &= E_i\left\{(\pi_{it}^e - \bar{\pi}_t^e)\left(\frac{1}{1-\beta\lambda}\,\bar{\pi}_t^e\right)\right\} + E_i\{(\pi_{it}^e - \bar{\pi}_t^e)a_{it}\} \\
&= E_i\{(\pi_{it}^e - \bar{\pi}_t^e)(a_{it} - \bar{a}_t + \bar{a}_t)\} = E_i\{(\pi_{it}^e - \bar{\pi}_t^e)(a_{it} - \bar{a}_t)\} + E_i\{(\pi_{it}^e - \bar{\pi}_t^e)\bar{a}_t\} \\
&= E_i\{(\pi_{it}^e - \bar{\pi}_t^e)(a_{it} - \bar{a}_t)\} = cov_i(\pi_{it}^e, a_{it})
\end{aligned}$$

This covariance may be time varying because the source of shocks in the economy can differentially affect expectations about real marginal costs and inflation. It follows that

$$var_i(p_{it}) \equiv \Delta_t = \lambda\Delta_{t-1} + (1-\lambda)\left(\frac{1}{1-\beta\lambda}\right)^2 var_i(\pi_{it}^e) + 2\frac{1-\lambda}{1-\beta\lambda}cov_i(\pi_{it}^e, a_{it})$$

$$+ (1-\lambda)E_i\left\{\frac{1}{1-\beta\lambda}\,\bar{\pi}_t^e + a_{it}\right\}^2 - \bar{\pi}_t^2$$

$$= \lambda\Delta_{t-1} + (1-\lambda)\left(\frac{1}{1-\beta\lambda}\right)^2 var_i(\pi_{it}^e) + 2\frac{1-\lambda}{1-\beta\lambda}cov_i(\pi_{it}^e, a_{it})$$

$$+ (1-\lambda)E_i\left\{\frac{1}{1-\beta\lambda}\,\bar{\pi}_t^e + \bar{a}_t + a_{it} - \bar{a}_t\right\}^2 - \bar{\pi}_t^2$$

$$= \lambda\Delta_{t-1} + (1-\lambda)\left(\frac{1}{1-\beta\lambda}\right)^2 var_i(\pi_{it}^e) + 2\frac{1-\lambda}{1-\beta\lambda}cov_i(\pi_{it}^e, a_{it})$$

$$+ (1-\lambda)\left\{\frac{1}{1-\beta\lambda}\,\bar{\pi}_t^e + \bar{a}_t\right\}^2 + (1-\lambda)var_i(a_{it}) - \bar{\pi}_t^2$$

Note that this expression holds for any group of firms. That is,

$$\Delta_t^{control} = \lambda\Delta_{t-1}^{control} + (1-\lambda)\left(\frac{1}{1-\beta\lambda}\right)^2 var_i^{control}(\pi_{it}^e) + 2\frac{1-\lambda}{1-\beta\lambda}cov_i^{control}(\pi_{it}^e, a_{it})$$

$$+ (1-\lambda)\left\{\frac{1}{1-\beta\lambda}\,\bar{\pi}_t^{control,e} + \bar{a}_t^{control}\right\}^2 + (1-\lambda)var_i^{control}(a_{it}) - \bar{\pi}_t^{control,2}$$

$$\Delta_t^{treat} = \lambda\Delta_{t-1}^{treat} + (1-\lambda)\left(\frac{1}{1-\beta\lambda}\right)^2 var_i^{treat}(\pi_{it}^e) + 2\frac{1-\lambda}{1-\beta\lambda}cov_i^{treat}(\pi_{it}^e, a_{it})$$

$$+ (1-\lambda)\left\{\frac{1}{1-\beta\lambda}\,\bar{\pi}_t^{treat,e} + \bar{a}_t^{treat}\right\}^2 + (1-\lambda)var_i^{treat}(a_{it}) - \bar{\pi}_t^{treat,2}$$

Hence,

$$\Delta_t^{treat} - \Delta_t^{control}$$

$$= \lambda\left(\Delta_{t-1}^{treat} - \Delta_{t-1}^{control}\right) + (1-\lambda)\left(\frac{1}{1-\beta\lambda}\right)^2 \left\{var_i^{treat}(\pi_{it}^e) - var_i^{control}(\pi_{it}^e)\right\}$$

$$+ 2\frac{1-\lambda}{1-\beta\lambda}\left(cov_i^{treat}(\pi_{it}^e, a_{it}) - cov_i^{control}(\pi_{it}^e, a_{it})\right)$$

$$+ (1-\lambda)\left\{\frac{1}{1-\beta\lambda}\left(\bar{\pi}_t^{treat,e} - \bar{\pi}_t^{control,e}\right) + \left(\bar{a}_t^{treat}\right.\right.$$

$$\left.\left. - \bar{a}_t^{control}\right)\right\}\left\{\frac{1}{1-\beta\lambda}\left(\bar{\pi}_t^{treat,e} + \bar{\pi}_t^{control,e}\right) + \bar{a}_t^{treat} + \bar{a}_t^{control}\right\}$$

$$+ (1-\lambda)\left\{var_i^{treat}(a_{it}) - var_i^{control}(a_{it})\right\} - \left\{\bar{\pi}_t^{treat} - \bar{\pi}_t^{control}\right\}\left\{\bar{\pi}_t^{treat} + \bar{\pi}_t^{control}\right\}$$

If we assume that the control group has expectations close to those of the treatment group on average, then $\bar{\pi}_t^{treat,e} - \bar{\pi}_t^{control,e} \approx 0$ and $\bar{\pi}_t^{treat} - \bar{\pi}_t^{control} \approx 0$ on average so that the terms in red could be small (i.e., could be higher order terms). The term in blue does not include inflation expectations directly but it may be corelated with expectations and it may be varying over time. The term in green may vary over time if e.g., treatment and control groups have different beliefs about the sources of fluctuations in the economy.

Let $\Xi_t \equiv \Delta_t^{treat} - \Delta_t^{control}$ be the difference in price dispersion between treatment and control groups. Let $\Psi_t \equiv var_i^{treat}(\pi_{it}^e) - var_i^{control}(\pi_{it}^e)$ be the difference in dispersion of inflation expectations between treatment and control groups. Using these definitions, we can re-write the expression above as

$$\Xi_t = \lambda \Xi_{t-1} + (1-\lambda)\left(\frac{1}{1-\beta\lambda}\right)^2 \Psi_t + residual$$

where the residual maybe correlated with other variables on the right-hand side, thus underscoring the importance of using exogenous variation in inflation expectations. Because the dispersion of the marginal revenue product is proportional to the dispersion of prices, we have

$$\Upsilon_t \equiv var_i^{treat}(MRPL_{it}) - var_i^{control}(MRPL_{it}) = \left[(1-\alpha)\left(1-\frac{1}{\sigma}\right)-1\right]^2 \left(\frac{\sigma}{1-\alpha}\right)^2 \Xi_t$$

and therefore

$$\frac{\partial \Upsilon_{t+h}}{\partial \Psi_t} = \left[(1-\alpha)\left(1-\frac{1}{\sigma}\right)-1\right]^2 \left(\frac{\sigma}{1-\alpha}\right)^2 \lambda^h (1-\lambda)\left(\frac{1}{1-\beta\lambda}\right)^2$$

If we work with standard deviations and assume zero dispersion in the steady state (which is the standard result for the case with zero trend inflation), the response of the standard deviation for the marginal revenue product to a unit shock in the standard deviation for inflation expectations is given by

$$\frac{\partial\, std(\log(MRPL_{it}))}{\partial\, std(\pi_{it}^e)} = \sqrt{\left[(1-\alpha)\left(1-\frac{1}{\sigma}\right)-1\right]^2 \left(\frac{\sigma}{1-\alpha}\right)^2 (1-\lambda)\left(\frac{1}{1-\beta\lambda}\right)^2}.$$

Using the same logic we can derive

$$\frac{\partial\, std(\log(MRPK_{it}))}{\partial\, std(\pi_{it}^e)} = \sqrt{\left[(1-\alpha)\left(1-\frac{1}{\sigma}\right)\right]^2 \left(\frac{\sigma}{1-\alpha}\right)^2 (1-\lambda)\left(\frac{1}{1-\beta\lambda}\right)^2},$$

$$\frac{\partial\, std(\log(MRPK_{it}) - \log(MRPL_{it}))}{\partial\, std(\pi_{it}^e)} = \sqrt{\left(\frac{\sigma}{1-\alpha}\right)^2 (1-\lambda)\left(\frac{1}{1-\beta\lambda}\right)^2}.$$

The table below presents the value of this response for various calibrations of the parameters. When elasticity of substitution is low, the production function is closer to be linear in labor (α closer to zero), and the frequency of price changes is high (λ is smaller), the response is weaker. This table suggests that the range of plausible responses likely goes from 3 to 10 which is close to the responses we observe empirically.

Appendix Table B1. Contemporaneous response of the standard deviation for the marginal revenue product to a unit shock in the standard deviation for inflation expectations.

	Parameterizations						
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Parameters							
α	0.3	0.1	0.3	0.1	0.3	0.3	0.1
β	0.99	0.99	0.99	0.99	0.99	0.99	0.99
λ	0.75	0.75	0.75	0.75	0.5	0.5	0.5
σ	10	10	5	5	10	5	5
Response							
$std(\log(MRPL_{it}))$	10.3	4.1	6.1	3.0	6.6	4.0	2.0
$std(\log(MRPK_{it}))$	17.5	17.5	7.8	7.8	11.3	5.0	5.0
$std(\log(MRPK_{it}) - \log(MRPL_{it}))$	27.7	21.6	13.9	10.8	18.0	9.0	7.0

Appendix C: Survey questionnaire

INDUSTRY EXCLUDING CONSTRUCTION AND SERVICES

***Instructions**: For percentage changes. indicate the sign in the first box on the left (+ :for increases; —: for decreases).*

SEZIONE A – GENERAL INFORMATION

A1. Number of employees: |__| ADD

A2. Share of sales revenues coming from exports: |__|

(1= more than 2/3; 2= Between 1/3 and 2/3; 3= Up to 1/3 and more than zero; 4=Zero) EXPORT4

SECTION B – GENERAL ECONOMIC SITUATION OF THE COUNTRY

	...in December 2015?	...in June 2016?	...in June 2017?	... on average between June 2018 and June 2020 ?
B1a. (about 2/3 of the sample) In April consumer price inflation. measured by the 12-month change in the HARMONIZED INDEX OF CONSUMER PRICES was -0.1 per cent in Italy and 0.0 per cent in the euro area. What do you think it will be in Italy...	IT6 |__| |__|__|,|__|%	IT12 |__| |__|__|,|__|%	IT24 |__| |__|__|,|__|%	IT48 |__| |__|__|,|__|%
B1b. (about 1/3 of the sample) What do you think consumer price inflation in Italy. measured by the 12-month change in the HARMONIZED INDEX OF CONSUMER PRICES. will be...	IT6N |__| |__|__|,|__|%	IT12N |__| |__|__|,|__|%	IT24N |__| |__|__|,|__|%	IT48N |__| |__|__|,|__|%

B2. Compared with 3 months ago. do you consider Italy's general economic situation is ...? ❑ Better ❑ The same ❑ Worse SITGEN

B3. What do you think is the probability of an improvement in Italy's general economic situation in the next 3 months? PROMIG

❑ Zero ❑ 1-25 per cent ❑ 26-50 per cent ❑ 51-75 per cent ❑ 76-99 per cent ❑ 100 per cent

SECTION C – YOUR FIRM'S BUSINESS CONDITIONS

How do you think business conditions for your company will be:

C1. in the next **3 months?** ❑ Much better ❑ Better ❑ The same ❑ Worse ❑ Much worse SITMP5

C2. in the next **3 years**? ❑ Much better ❑ Better ❑ The same ❑ Worse ❑ Much worse SIMP36C5

For each of the above forecasts imagine there are 100 points available; distribute them among the possible forecasts according to the probability assigned to each one. How do you think business conditions for your company will be:

	SITM3M Better SITM3A			SITU3M The same SITU3A			SITP3M Worse SITP3A			Total		
C3. in the next **3 months**										1	0	0
C4. in the next **3 years**										1	0	0

Please indicate whether and with what intensity the following FACTORS **will affect your firm's business** in the next 3 months.

Factors affecting **your firm's business** In the next 3 months	*Effect on business*			***Intensity** (if not nil)*		
	Negative	*Nil*	*Positive*	*Low*	*Average*	*High*
C5. Changes in demand DISIT	1|__|	2|__|	3|__|	1|__|	2|__|	3|__|
C6. Changes in YOUR PRICES PRSIT	1|__|	2|__|	3|__|	1|__|	2|__|	3|__|
C7. AVAILABILITY and the COST OF CREDIT CRSIT	1|__|	2|__|	3|__|	1|__|	2|__|	3|__|
C7.Bis UNCERTAINTY DUE TO ECONOMIC AND POLITICAL FACTORS POLIT	1|__|	2|__|	3|__|	1|__|	2|__|	3|__|
C7.Ter EXCHANGE RATE DYNAMICS TACAM	1|__|	2|__|	3|__|	1|__|	2|__|	3|__|
C7. Quarter OIL PRICE DYNAMICS PRPET	1|__|	2|__|	3|__|	1|__|	2|__|	3|__|

C8. Compared with 3 month ago. do you think conditions for investment are ... ? ❑ Better ❑ The same ❑ Worse SITINV

C9. What do you think your liquidity situation will be in the next 3 months. given the expected change in the conditions of access to credit? ❑ Insufficient ❑ Sufficient ❑ More than sufficient LIQUID

C10. Compared with three months ago. is the **total** demand for your products ... ? ❑ Higher ❑ Unchanged ❑ Lower DOMTOT

C11. How will the **total** demand for your products vary in the next 3 months? ❑ Increase ❑ No change ❑ Decrease PRETOT

(Answer to questions C12-C13 only if the share of sales revenues coming from exports is positive. otherwise go to C14)

C12. Compared with three months ago. is the **foreign** demand for your products ... ? ❑ Higher ❑ Unchanged ❑ Lower DOMEST

C13. How will the **foreign** demand for your products vary in the next 3 months? ❑ Increase ❑ No change ❑ Decrease PREEST

C14. Compared with three months ago. are credit conditions for your company ...? ❑ Better ❑ Unchanged ❑ Worse SITCRE

C15 Overall. do you think your firm passed the most difficult stage of the economic situation? ❑ No ❑ Yes CONSUP

C16 Do you expect a solid improvement of your production/work rates in the coming months? ❑ No ❑ Yes RITPRO

SECTION D – CHANGES IN YOUR FIRM'S SELLING PRICES

D1. In the last 12 months. what has been the average change in your firm's prices? DPRE |__| |__|__|.|__|%

D2. For the next 12 months. what do you expect will be the average change in your firm's prices? DPREZ |__| |__|__|.|__|%

Please indicate direction and intensity of the following **FACTORS** as they will affect your firm's selling prices in the next 12 months:						
Factors affecting your firm's **prices** in the next 12 months	***Effect on firm's selling prices***			***Intensity*** *(if not nil)*		
	Downward	*Neutral*	*Upward*	*Low*	*Average*	*High*
D3. TOTAL DEMAND DPR	1|__|	2|__|	3|__|	1|__|	2|__|	3|__|
D4. RAW MATERIALS PRICES MPPR	1|__|	2|__|	3|__|	1|__|	2|__|	3|__|
D5. LABOUR COSTS CLPR	1|__|	2|__|	3|__|	1|__|	2|__|	3|__|
D6. PRICING POLICIES of your firm's main competitors PRPR	1|__|	2|__|	3|__|	1|__|	2|__|	3|__|

SECTION E – WORKFORCE

	Lower	*Unchanged*	*Higher*
E1. Your firm's TOTAL NUMBER of employees in the next 3 months will be: OCCTOT	1|__|	2|__|	3|__|

SECTION F – INVESTMENT

F1. What do you expect will be the nominal expenditure on (tangible and intangible) fixed investment in 2015 compared with that in 2014? ❐Much higher ❐A little higher ❐About the same ❐A little lower ❐Much lower INVPRE

F2. And what do you expect will be the nominal expenditure in the second half of 2015 compared with that in the first half of 2015: ❐Much higher ❐A little higher ❐About the same ❐A little lower ❐Much lower INVSEM

NOTE: The responses "much higher" and "much lower" also apply when. in the two periods compared. investments are zero.