

Chapter 2

Ezio Tarantelli: Sketches of an Intellectual Biography

2.1 Deepening Price Theory

Ezio Tarantelli was born in Rome on 11th August 1941. He graduated in Economics in 1965 at “La Sapienza” discussing a thesis on Economic Geography with Ferdinando Milone and Federico Caffé.

His thesis – Caffé says – was edited in the United States of America and its subjects were the differences between different zones; but the economic interests prevailed so much on the geographic ones that [...] Milone wanted to associate me in the thesis discussion.¹

Once Tarantelli graduated, Milone, who was about to retire entrusted his pupil to Caffé, so that he could take care of his formation and help him start his academic career. It was from here that Tarantelli’s career in the Bank of Italy began, where he entered just after obtaining a “Bonaldo Stringher” grant. It is also thanks to the support of the Bank of Italy that Tarantelli perfected his economic studies abroad. After Tarantelli’s death, Caffé, incited by Parlato, expressed himself regarding his pupil like this

Nobody like him has had this cooptation in the international community of economists. I want to say that Tarantelli formed himself outside the so called *idola loci*. These were superimposed after, with deviant effects on the comprehension of his economic thought even with semantic misunderstandings.²

Already a few months after starting work, Tarantelli asked to be discharged from the Bank of Italy because he wanted to improve his knowledge of economic theory. This is the reason why he intended to go to study abroad. The 1960s were the years of the controversy between the two Cambridges, and his first intent was to go to the

¹ Chiaromonte et al. (1985, p. 7). It has to be noted that, as reminded in the documentary *La forza delle idee*, Tarantelli’s interest for labour economics, was also due to biographical reasons. Luca Tarantelli, author of the video, points out that his father had chosen this branch of research having suffered himself the consequences of unemployment because of some unfavourable family matters.

² Caffé (2007b [1985], p. 142)

United Kingdom in order to deepen the capital theory.³ He did so with Joan Robinson, who had just published *The accumulation of capital* and who was assigned to him as tutor. The main solicitations which Tarantelli drew from this first international experience regarded the distributive theory and the mark up principle. Tarantelli indicated the latter as the first card of the Post Keynesian labour market model. As it is known, the main subject of the debate which saw Samuelson and Solow on one hand contrasting with Robinson and Sraffa on the other, was represented by the distributive theory. With regard to this, the Cambridge (UK) economists called into question the concept of capital homogeneity. From here a series of problems arose so much on a theoretical level (the determination of distributive quotas due to capital) as on a political level.⁴ As we will see, Tarantelli with regard to the distributive theory showed, like Caffé, his appreciation for the “flexibility” allowed by the Sraffian set up.⁵ In that case, the determination of distributive shares would have not resulted completely “dominated by prices”. On the contrary, it would have still been possible to identify the sufficient space for institutional interventions able to modify it.

2.2 Joan Robinson and the Subjective Normal Price Principle

The contribution of Joan Robinson to Tarantelli’s economic thought particularly emerged with regard to the mark up analysis.⁶ Robinson had expressed a fundamental concept for Tarantelli’s elaboration, i.e. the notion of subjective normal price. It is the price that allowed entrepreneurs to obtain a profit considered reasonable on the basis of their previous experience, given the framework related to the economic situation, the use of the plant and the businessmen’s expectations

³ A wide work and a remarkable close examination about the Italian economists education, even regarding the period 1950–1975 is (Garofalo and Graziani 2004).

⁴ Even conceiving the “capital” as a complex of capital goods, the problem of taking into account the consequences of the different productivity of the different vintages of production factor still arose.

⁵ Commemorating the disappearing of Piero Sraffa, Caffé said “He provides a convincing demonstration according to which in correspondence of every particular income distribution between wages and profits, exists a corresponding set of relative prices. Consequently, it cannot be said that one set is better than another, because they are all instrumental to the income distribution. The only thing that can be said is that the income distribution can become better or worse. Anyway, it is not dominated by the prices mechanism, but it depends on an institutional choice and who can influence its determination has to be considered responsible for it” Caffé (2007a [1983], pp. 605–606).

⁶ For a close examination of Post Keynesian price theory Lee (1998), Downward (1999), and Holt-Pressman (2001) can be compared.

regarding the selling volumes.⁷ The notion of subjective normal price rested on the definition of normal price.

The *normal price* for any kind of commodity – Joan Robinson argued – consists of prime costs *plus* a gross margin calculated to cover a due share of overhead costs, amortization and profit at the ruling rate on the capital invested, when the plant was being worked at normal capacity.⁸

From this basis it was possible to state the concept of subjective normal price.

[It] is such that the gross margin entering into its calculation to yield a profit that the entrepreneurs concerned had to come to regard as attainable (on the basis of past experience) with the productive capacity in existence in the given short-period situation.⁹

Tarantelli made use of the concept of subjective normal price for formulating the “cyclic principle of the full cost”. This principle found application in a scenery of dynamic disequilibrium characterized by different utilization grades of capital and labour. In such a framework, it was possible to observe an actual sterilization of the effects of short term demand variations on costs. According to Tarantelli, this happened because, instead of maximizing the profit *tout court*, the entrepreneur pursued its stabilization charging a subjective normal price calculated on the basis of the expected average selling rate in a spell of time. In the short term, the effective selling rate could have even differed from the average value, but with regard to the whole economic life of the plant such gaps could have compensated each other if the demand cycle had presented a certain regularity. From the perspective of the stabilization of profits, if the demand had not been sufficiently high, it would have been plausible to hypothesize that increments of costs could have been transferred less than proportionally on prices. The contrary would have happened in the case of sufficiently high demand. Put into a nutshell, this is the meaning of Tarantelli’s “cyclic principle of full cost”. He also warned that while fixing the subjective normal price, entrepreneurs should have taken into account, as well as the objective of profits stabilization, the financing conditions offered by the banking system. According to him, the latter was a remarkable element, especially in a context like the Italian one, which configures

with a strongly non homogeneous capital and in which the possibility of decision of a price more or less high can depend on the evolution of the cycle of bank financing, especially for the smaller firms which are less efficient and have less chances of self finance.¹⁰

⁷ In particular, Tarantelli refers to Robinson (1953) and Robinson (1965), Chap. XIX.

⁸ Robinson (1965, p. 185).

⁹ Robinson (1965, pp. 185–186).

¹⁰ Tarantelli (1970 [1], p. 96). At the same time, Tarantelli specifies that “the aggregation level of empirical verification, which will be done for the total industrial sector, makes it difficult to split these last purely financial effects which can only presumably refer to small firms from the ones connected to the conditions of demand. This also because of the statistic collinearity between appropriate measures of the monetary expansion rate and those referring to the conditions of demand” (Tarantelli 1970 [1], p. 96).

2.3 The Experience of the M1 BI Model

After his experience at Cambridge, Tarantelli went back to Italy in June 1966. In the meantime, in the Bank of Italy he was assigned to the studies and researches service, whose main activity was soon to become the elaboration of the econometric model of the Italian economy (M1 BI). Thanks to a scholarship from “La Sapienza” and an award of the Bank of Italy, in September of the same year he was able to set off to Cambridge (MA); destination MIT. Together with Antonio Fazio, he attended the course “Mathematical approach to economics”, which was held by Samuelson. The lessons were about the theory of differential equations and the calculus of variations beyond applications, as Fazio himself said “to basic subjects of the analysis, such as the economic cycle, growth and savings formation”.¹¹ At the end of 1966, Carli, governor of the Bank of Italy, decided to make use of the MIT economist Franco Modigliani’s collaboration to build an econometric model of the Italian economy.¹² The objective declared by the Bank of Italy’s model was that of “delving into the study of the operative modalities of the monetary and fiscal policies instruments” to prepare an instrument finalized “to establish not only the qualitative relations, but also the quantitative ones which exist between the variables of the Italian economic system”.¹³ M1 BI is a three-sector model (real, fiscal and financial). It is made up of 155 equations, of which 35 are definitional equations, 16 are balance constraints and 104 are behavioural equations. To Tarantelli, who amongst others worked next to economists such as Rey, Vicarelli, Fazio and Filosa, was assigned the part regarding

¹¹ Fazio (2010 [1995], p. 71). With regard to the time that Tarantelli spent in the U.S., there are several anecdotes. Fazio narrates “Ezio turned on the magnetophone at the beginning of every lesson [of Samuelson’s course]; in one of these by mistake he turned the audio on while recording. The lesson was opened that morning by Joan Robinson’s voice; the initial moment of dismay turned into general hilarity” Fazio (2010 [1995], p. 71). Sarcinelli also remembered that “In January 1967 [...] he clearly wanted to show how he felt himself a member of Europe’s left-wing élite and waved *The accumulation of capital* in front of Robert Solow”. See Sarcinelli (2007, p. 24).

¹² On the basis of both the econometric models of US economy set up by Klein in the 1940s and of the FRB-MIT-PENN model (compare Ando et al. 1974) several econometric models of the Italian economy were elaborated between the mid-1960s and mid-1980s. Although the first of them was Sylos Labini’s model (Sylos-Labini 1967), the main one can be considered the M1 BI built up by the study service of the Bank of Italy. Next to these, other models to be considered are the one proposed by the University of Bologna (D’Adda-De Antoni-Gambetta-Onofri-Stagni 1976) which later became Prometeia-Università di Bologna, then the “modellaccio” elaborated by Ancona’s University group (Fuà 1976) and finally the case of Confindustria (Tivegna 1984). A survey of the main qualifying elements of these models is proposed in Chiarini (1989). A list of the econometric models estimated and used in Italy in the years 1960–1980 and a synthetic description of their relation to the problems with the Italian economy is proposed in Valli (1993).

¹³ Banca d’Italia (1970, p. 9).

wages and productivity, referring to the real sector of the econometric model.¹⁴ Modigliani, who supervised the construction of M1 BI, acknowledged Carli's invitation. It was actually the relationship between Modigliani and the central bank, which became more proactive since the end of 1967 (when Masera constituted an *ad hoc* work group) that would ratify the beginning of a fecundated intellectual association between Modigliani and Tarantelli.¹⁵ Modigliani's influence on Tarantelli's economic thought can be considered significative. Like Modigliani, who was influenced by Marschack, Tarantelli applied himself with fervor to the econometric researches, even urging the construction of a labour market econometric model by the side of the trade unions. Tarantelli and Modigliani, furthermore, conjointly elaborated an exhaustive econometric refinement and a generalization of Phillips curve, which Tarantelli identified as the second card of the Post Keynesian labour market model. Their analytical refinements consisted in the extension of Phillips curve to a developing country and in introducing in the regression equation an index to take into account the trade unions strength. They also suggested, but this criticism goes beyond econometric analysis, to reject the in-existence thesis of Friedman and Phelps.

2.4 The Analysis of Phillips Curve

Regarding the generalization of Phillips curve to a developing country, it was necessary to take into account the strong heterogeneity of capital and labour force stocks. In the latter, Modigliani and Tarantelli distinguished skilled from unskilled labour force: the first one was characterized by a higher productivity, the second one by a lower one. Thanks to the developing process, the unskilled unemployed ended up being assumed by firms and trained on the work place. This process determined a progressive improvement in the labour qualification. From this perspective, Phillips curve could be interpreted as a frontier which progressively translated towards the axis origin, with the proceeding of development.¹⁶ Tarantelli

¹⁴ Recent historiographic tendencies underline how, in reality, Modigliani's contribution to M1 BI is not to be considered of crucial importance. In fact it widely suffers from some sort of embryonic model already prefigured in the *Preliminary relationship* of the work group instituted at the Electronic Center of the Bank of Italy in summer 1963, published in 1964. In regard to this, Rey's intervention at the International Conference about employment, industrial relations and human capital can be considered significant. The actuality of Ezio Tarantelli's thoughts (26–27th March 2010) Roma, University "La Sapienza". Rey underlines that as Modigliani's contribution, even Tarantelli's to M1 BI has to be relativized. On the same interpretative line, but with exclusive regard to Modigliani's contribution (Binotti- Ghiani 2008) are collocated.

¹⁵ Modigliani's relationship with Italy have been extensively examined in (Asso 2007). An autobiographic narration regarding the period during which Modigliani supervised the construction of the econometric model M1 BI and his relationship with the Bank of Italy, is proposed in Modigliani (1999).

¹⁶ Tarantelli (1972 [3]) and Tarantelli (1972 [4]).

and Modigliani also recognized the necessity of introducing in the regression equation *à la* Phillips a trade union strength index. They identified this index in the quota of workers whose renewal would not be postponed beyond the contract expiry date.¹⁷ In the presence of a trade union endowed with a significant bargaining power, the counterpart would not have been able to evade from negotiating contractual clauses at the end of the contract. The opposite would have happened in the case of a “weak” trade union.

Let us now turn to Tarantelli and Modigliani’s criticism of Friedman and Phelps’s approach to the analysis of Phillips curve. Friedman and Phelps rejected the possibility of obtaining an inverse relation between wage growth rate and unemployment level. According to them, in the long term the unemployment rate would reach its natural level, in correspondence to which it would be possible to observe any value of the inflation rate. With regard to the validity of such a conclusion, Tarantelli and Modigliani put forward significant doubts.¹⁸ The first one was that a unique value for the natural unemployment rate would not exist, but there are as many of these as there are Phillips curves in the short and long term. It could not be considered licit to assume perfect rationality in the workers expectations, at least within a plausible period of time. In the end, as regards the stagflation phenomenon, which monetarists assumed as an empirical confirmation of their set up validity, Tarantelli concluded that, contrarily to Phillips curve indications, it was possible to observe an increase in unemployment even in the presence of an accelerated price level growth. With a positive inflation rate caused by the wage push up, if policy makers had carried out restrictive policies to contain the inflation rate, the trade off between wage growth rate and unemployment level would have been growing instead of decreasing. This is the reason why Phillips curve would have transformed itself in a boomerang curve aimed against labour force.

Tarantelli’s studies on potential income can be reconnected to that same cultural laboratory and once again to Modigliani’s solicitations. These studies were essentially concentrated on the verification of Okun’s law for the Italian economy, third constitutive card of the Post Keynesian labour market model.¹⁹ Okun’s analysis had evidenced that in econometric terms, an increase of 2.5% of unemployment resulted correlated with a decrease of 1% of the activity level. It was a regularity known as “principle of 2.5:1”, according to which an increase in the activity level contributed

¹⁷ Dicks-Mireaux-Dow had already proposed to take into account the trade union strength. They forwarded an hypothesis regarding the time lag between the moment of claim and the moment of effective wage variations. They calculated an average lag of 6 months between price variations and nominal wage variations. They also observed that with different union bargaining powers, a further delay in the adjustment could be possible, within a maximum of 3 months. Therefore they asserted that the nearer the effective delay was to 9 months, the trade union would have benefited of little contractual power; vice versa in the case in which the delay was nearer to 6 months. Compare Dicks Mireaux-Dow (1959) and Tarantelli (1972 [1]) and Tarantelli (1976 [3]).

¹⁸ Tarantelli (1972 [4]).

¹⁹ Tarantelli (1970 [1]), Tarantelli (1971 [1]), Tarantelli (1971 [2]), Tarantelli (1974 [2]) and Tarantelli (1975 [1]).

to reducing unemployment in the limits of 2.5:1.²⁰ This is that at every percentage point of production increase, there was a reduction of 0.4%. So Okun recognized a positive elasticity of labour demand to income variations, even if less than one. This result implied a pro cyclic productivity theory.

To such a theory, Tarantelli opposed an anticiclic one, i.e. the productivity would show a progressively decreasing trend with the increasing of the system activity level. This was because labour force selection happened according to a Ricardian procedure, which first employed the more efficient labour units. Unskilled workers, without previous experience and training, would be put in the productive process only in presence of a sufficiently high level of demand. On this basis, as opportunely revealed, “the mechanic and simplifying Okun approach was refused” by Tarantelli.²¹

2.5 The Consumption Equation and the Kaldorian Model

A further relevant aspect with regard to which it is possible to perceive Modigliani’s intellectual influence, is represented by Tarantelli’s studies on the consumption function. These contributions allowed him to face the distributive problem.²² On the basis of Modigliani’s life cycle theory, Tarantelli approached a conclusion which was antithetical to the Kaldorian one.²³ From the point of view of the quota destined to savings, it was not possible to identify any systematic difference between incomes such as wages and salaries on one side, and profits (or, from a wider perspective, other kinds of income) on the other. The investments could not be considered financed exclusively by profits anymore, as in the Kaldorian set up. In fact, savings could also be originated from labour incomes. According to Tarantelli, the distributive mechanism ended up being determined by the relative power relationships between social classes, as in the Sraffian set up, or in the terms suggested by Graziani, in the “conflictual scheme”.²⁴

²⁰ Okun (1962).

²¹ Filosa-Rey (1988, p. xvii).

²² Tarantelli (1973 [2]); (1974 [3]); (1979 [4]); (1979 [5]); (1979 [6]).

²³ Modigliani’s life cycle theory of consumption refers to intertemporal choices in an finite horizon (the consumer’s life). In 1957, Friedman developed the permanent income theory, which is a generalization to an infinite horizon (so with inheritance and wealth transmission from one generation to the next) of Modigliani’s life cycle model. Compare Brumberg-Modigliani (1954), Ando-Modigliani (1963), Friedman (1957).

²⁴ With regard to the theory of distribution, Graziani identified four schools of thought in Italy: (a) the marginalists; (b) the neomarginalists or compatibilists, that is those who suggested “updating” marginalism using instruments “of classic derivation and of Kaldorian inspiration”; in particular the full cost theory and “the hypothesis of double propensity to savings, of workers and capitalists”; (c) the marxists, divided in orthodoxies and those who “abandoned the labour value theory even if they still continued being supporters of the marxian doctrine”; (d) the

2.6 Tella's Labour Supply Equation

As much as Modigliani's contribution results less decisive, we still have to enunciate the third card of the Post Keynesian labour market model proposed by Tarantelli. This was the labour supply function formulated by Tella.²⁵ Tella's thesis was that secondary labour force, not the one which Tarantelli and De Cecco would have defined "the bloom of youth", modified itself in a relatively slow way when variations of the system activity level occurred. This phenomenon was to be considered essentially due to the role played by information.²⁶ He distinguished the working population into two groups which were: the units constantly revealable through official statistics (primary labour force) and the ones which were inserted in the calculation only when occupied, otherwise they were excluded (secondary labour force). The secondary workers would have known about the job opportunities only if they had been informed of their availability by primary workers or better informed secondary workers. On the contrary, every primary worker would have promptly reacted when faced with employment perspectives.²⁷

2.7 Tarantelli's Academic Career

Let us now turn to Tarantelli's academic career. In 1971, also thanks to Mazzocchi's good offices, Tarantelli assumed the assignement of *Labour policy and social legislation* at the Faculty of political science at the Catholic University of Milan.²⁸ He stayed there until 1975, having in the meantime become assistant of the professorship of Economic and Financial Politics, held by Caffé in the Faculty of Economy and Commerce of "La Sapienza". From November 1976, he was professor of economic and financial politics at the faculty of Political science "C. Alfieri" at the University of Florence. Tarantelli's course, illustrated in the guides available

conflictualists, that is those economists who found "their theoretical support in Sraffa's famous book" (Graziani 1981, pp. 287–288). It has to be said, however, that Tarantelli considered that such a set up would end up resulting excessively simplifying. This is the reason why he ironically commented "[According to Graziani] Italy est omnis divisa in partes tres: marginalists, compatibilists and conflictualists (not without heroic approximations and exchanging people). Everyone enters the circle they deserve" (Tarantelli 1978 [5], p. 90).

²⁵ Tella (1964) and Tella (1965).

²⁶ Simler-Tella (1968).

²⁷ A first estimation of Tella's labour supply equation in Italy was proposed in La Malfa-Vinci (1970).

²⁸ Tarantelli became professor commissioned to the professorship of Labour policy and social legislation of the academic year 1971/1972–1976/1977 (from 1st November 1971 to 31st October 1974 and from 1st November 1975 to 31st October 1977). He was stabilized in the academic year 1974/1975 (from 1st November 1974 to 31st October 1975). Compare UCSC, human resources direction, Series of files of professors, pos. 2869, Prof. Tarantelli Ezio.

to the students, was made up of three parts. After a first historical recognition regarding the economic analysis of labour market until the Post Keynesian developments, the students were called to confront themselves against the approach objectives-instruments of economic policy. The last part was dedicated to an examination of Italian economy's problems carried out through the main economic policy documents: the prevision and program relation and the final considerations of the Bank of Italy's governor. It is interesting to notice that, as an integration and specification of what was indicated in the guide, the Florentine exam program traced out, at least until the end of the 1970s, what Tarantelli proposed at the Catholic University.²⁹ The contents were articulated into two sections: the first one regarding the labour market models, the other ones concerning respectively the different structural interpretations and the problems of Italian labour market.³⁰ The students who wanted to, were allowed to present a paper regarding the problems related to emigration.

From 1980 on, the course held by Tarantelli at the University of Florence began to assume a different structure. A first block of lessons was dedicated to subjects such as the construction of the Keynesian macroeconomic model in a closed and in an open economy and the exposition of the instruments-objectives approach to economic policy suggested by Tinbergen. On these subjects the students were invited to see (Caffè 1978). Then there was the part regarding labour market and the trade union role, which made use of (Tarantelli 1978 [5]). Bordignon, who had sat the exam in 1980 with Tarantelli, remembers that during the lesson a large space was dedicated to the critical examination of Phillips curve and to the construction of the Post Keynesian labour market model. Various lessons were also dedicated to the different inflation theories. Furthermore, Tarantelli abundantly illustrated the generation leap hypothesis which he had elaborated. The conclusive part of the course consisted of an analysis of the main economic policy documents, such as the final considerations of the Bank of Italy's governor and the prevision and program relation. In July 1983, Tarantelli moved to the University of Rome "La Sapienza", where he held the full professorship of political economy.

²⁹ It has to be taken into account that the exam program distributed to the students, was still the one relative to the Milanese course of labour policy. I thank Franco Bortolotti, who sat the economic and financial policy exam with Tarantelli, for allowing me to view all the didactical material assigned by him to the students.

³⁰ Referring to the models, the textbooks indicated were: some lecture notes edited by Paola Villa, compare Villa (1984), Gandolfo (1975), some sections of Ackley (1971), Roccas (1971) and Tarantelli (1974 [2]). With regard to the structural analysis, these were the suggested contributions: Mottura-Pugliese (1975), Paci (1974), and Tarantelli (1972 [4]). Take note that before moving to Rome, during the academic years 1981–1982 and 1982–1983, Tarantelli substituted part of the above mentioned materials with some sections of the widely diffused macroeconomics handbook by Dornbusch and Fischer and with Tarantelli (1978 [5]).

2.8 The January 1975 Agreement and Modigliani's Criticism

On January 25th 1975, Confindustria and trade unions signed an agreement which determined a fundamental revision of the sliding scale, by fixing at a unique superior point the mechanism of indexation.³¹ From here, originated a heated debate between economists concerning the labour cost and the economic policies to face a high rate of inflation, better known as the Modigliani controversy.

Modigliani, the economist with whom Tarantelli had deepened the analysis of Phillips curve, was amongst the economists who expressed themselves in a more lively critical way about the agreement.³² According to his forecasts, this would determine an unjustified increase of labour costs unhooking them from the dynamics of productivity.³³ And this, making impossible the exit of the Italian economy from the “infernal triangle”, as he defined it, would block the upswing. Any economic policy measure, in fact, would have only the effect of inducing a cyclic movement from one vertex to another of the triangle. This movement would be disastrous and without a way out, because in correspondence to every vertex only two out of the three objectives (full employment, balance of payments equilibrium and price stability) could be satisfied contemporaneously.³⁴

More specifically, he identified the following mechanism. The wage increase, and so that of costs, would be transferred from the firms on prices, but only partly – as a consequence of constraints imposed by international competition – determining an increase of real wage. In the Keynesian vision, this would have been translated in a spending increase and so in a stimulus to the upswing. In reality, since the internal prices increased, the major propensity to spending would provoke an increase in importations that, added to the probable reduction of exportations, would have negatively effected the balance of trade. The result was that restrictive policies would be necessary with a consequent fall of income and employment. An alternative solution would be the devaluation of the exchange. This measure would allow firms a higher charge on prices. But in such a case, the indexation mechanism of the sliding scale would make the wages rise, with a consequent price increase, a

³¹ As it has been noted, the sliding scale “was introduced in Italy soon after the Second World War. A substantial reform was carried out in 1951 and set rules that remained basically unchanged until 1975. In the 1951 system, each percentage of the trade union cost-of-living index [...] caused contractual wages to rise, with a lag, by predetermined fixed amounts which differed by occupation, sex, age and geographical area [...]. At the beginning of 1975, trade unions and employers’ organizations agreed to radically change the system, with the declared objective to reduce wage differentials. After a transition period, the differentiated fixed amounts were to be replaced by a single amount equal across all employees [unique superior point]) of value substantially higher than before” (Brandolini-Casadio-Cipollone-Magnani-Rosolia-Torrini 2007, p. 33). Compare also Filosa-Visco (1980).

³² Modigliani’s contributions which we refer to have been very recently reprinted in Asso (2007), where it is possible to find an accurate reconstruction of Modigliani’s relationship with Italy.

³³ Modigliani (1975a, 1975b, 1976a) and Modigliani (1976b).

³⁴ Modigliani-Padoa Schioppa (1977, p. 45).

new devaluation and so on, in a vicious cycle of inflation-devaluation. In Modigliani's opinion, it was evident that proceeding this way meant going against the general interest. Not only because modest advantages would be obtained (the increase of monetary wages counterbalanced by inflation would have left real wages substantially unaltered), but because the depressive effects would move the system away from full employment. In regard to this, the behaviour of trade unions that aimed at the protection of the employed without worrying about the total effects of their policies on the general level of employment, was not justifiable.³⁵ Once the main cause of the crisis propagation was identified – the sliding scale – a solution was soon found.

Today, the main and immediate problem to solve is that of the excessive unitary labour cost that produces the fall in profits, destroys every incentive to invest and so blocks the increase of productivity [. . .]. I want to be even more brutally sincere and explicit: it is necessary to decrease the real wages level.³⁶

According to Modigliani, it would have been preferable to follow the “*via maestra*”, that is increasing the productivity. However, this would have requested improvements of technical progress and the notable commitment on the level of investments, the planning and the industrial reconversion, which would have anyway given tangible results only in the long term. In the short term, therefore, the only thing to do was to reduce the cost of labour.³⁷

It was not said, even though it was not excluded, that we should have intervened on the “pay packet”. Contrary to monetary policies – which would have accentuated the inflationist process if expansive, while would have incised negatively on income and employment if restrictive –, Modigliani was instead favourable to “tax artifices”. The objective was to move “fiscal and para-fiscal burdens from the

³⁵ Modigliani-Padoa Schioppa (1977, p. 48).

³⁶ Modigliani (1976a, pp. 82–83). It is interesting to note – with all the caveats of the case –, that Modigliani's analysis is not that different from the position assumed by Keynes in an article from 1930. According to Keynes, in an international context characterized by the mobility of financial flows, a wage increase provoked a shift of capital abroad, where labour cost was lower. Without going into details of his reasoning, his conclusion was that the “Movement of high wages” worsened the tendency of capital exportation towards countries that offered higher profits. This would have determined an increase in internal unemployment and, at the end, a fall of wages until going back to the level of foreign countries. We could not make wages increase indiscriminately, stated Keynes, but we had to base ourselves on a “higher efficiency”. Anyway, it is not on the dynamics pointed out by Keynes that it is possible to recognize a certain affinity with Modigliani, but more on the importance of the role attributed to profits and on the alternatives to high wages policies. The most controversial question between Modigliani and his critics was that he identified as the main cause of the stagnation of the Italian economy the wage increases that squashed profits. Substantially, Keynes proposed a policy of “high profits” and then to use taxation to promote the improvement of a wide range of social services (pensions, houses, education, subsidies for families, health insurances, unemployment) (Keynes 1930).

³⁷ Modigliani-Padoa Schioppa (1977, p. 49).

firms profit to the generality of incomes”.³⁸ This could have been obtained, for example, by increasing direct taxes and reducing indirect ones and social security contributions at the same time. In this way “apparently the real wage remains unchanged, in reality the higher imposition reduces its available quota”.³⁹ It was clear that opting for a labour cost reduction meant asking workers for sacrifices which would be transformed in future benefits. This is the reason why Modigliani spurred trade unions to cooperate with the policy makers, in order to pursue the increase of productivity, which should have also included the war against waste and bad administration in the public sector. According to him, only with a growing economy the problem of a different income distribution could have been faced. In any case, it was not by asking for higher wages that an improvement in the living conditions of the working class would have occurred. It was necessary to identify different goals, such as a more equal fiscal system or the “fulfillment of a large social infrastructure program, such as houses, schools and hospitals”.⁴⁰

2.9 The Replies to Modigliani’s Analysis

Amongst the first that replied to Modigliani were Caffè and Colajanni.⁴¹ The former did not like that the capacity of analysis of Italian economists was discussed, even if only indirectly, by a scholar who had left his country some time before. Caffè argued that Modigliani’s proposal did not take into account a series of elements, for example the “parasitical, and even predatory character of the financial-credit intermediation”, or “of the decisive weight of capital exportations on the payment balance”.⁴² More generally, what was not acceptable – and other economists agreed on this – was to ask workers for sacrifices in exchange for advantages which would have arrived in a non identified future. “We cannot set the sacrifices of today against the reforms of tomorrow” he said.⁴³

³⁸ Modigliani-Padoa Schioppa (1977, p. 49).

³⁹ Modigliani-Padoa Schioppa (1977, pp. 49–50), Modigliani (1976b, pp. 132–133).

⁴⁰ Modigliani (1976a, p. 85).

⁴¹ Also Napoleoni and Convevole, however, replied to Modigliani’s thesis. The first one wrote “Andreatta [who shared Modigliani’s point of view] and Modigliani are right wing men, even if they have the reputation of not being so. To convince us, it is necessary to demonstrate explicitly the ideology (because it is ideology we are talking about) from where they started” (Napoleoni 1976, p.112). Convevole believed that Modigliani “is the main enemy of the working class” and he adds “It is surprising that a scholar like Sylos [...] affirms – in order to save today’s spreading conformism – that Modigliani is a “friend” and so cannot be criticized. However, I believe that Modigliani should not be anyone’s friend. As regards this, there is a moral abyss between us and him” (Lunghini (ed. by) 1981, pp. 430–431).

⁴² Caffè (1976, p. 87).

⁴³ Caffè (1976, p. 88).

Colajanni underlined the fact that we should not reduce wages but increase productivity. The difference with Modigliani consisted in the belief that it was not possible to wait for the long term. In fact, he wrote "competition is not only a brutal question of costs but also the organizational capacity and the quality of production".⁴⁴ The responsibility of businessmen who, when they could have benefitted from high profits, preferred to concentrate on the low cost of work instead of putting more resources in productive investments, had to be taken into account.

Napoleoni and Graziani's replies to Modigliani were more articulated. Napoleoni's analysis was based on two main arguments. With the first argument, the attention was moved outside the profit-wage conflict which could not be eliminated, but in that specific conjuncture became secondary. Getting over the crisis, needed a temporary "alliance" between wages and profits against the unproductive work, which was the real problem pointed out by Napoleoni. In his opinion, the classic Smith's distinction between productive work "which is paid for with capital" and unproductive work, "which is paid for with income, the "servants" of Adam Smith", needed to be recuperated.⁴⁵ One of Modigliani's mistakes was not considering the difference between wages and profits. Wide unproductive areas existed (which regarded first of all the public sector, but also commercial intermediation, the self employed and the agricultural sector) which "withdrew incomes from sectors in which productivity really increases or increased", that is the industrial sector.⁴⁶ So, it was not wrong to say that wages had reached a level incompatible with productivity but we were talking about the existing productivity not the potential one. By reducing the transfer of "net product" from industries to services, it would have been possible to increase productivity in a way that made it compatible with the level reached by wages.

Also Napoleoni, this is the second argument, focused on the problem of time jointly with that of compensations. Starting with the "hot autumn", the unions had won important battles, depriving the capitalistic economy of a decisive tool for its working, i.e. the flexibility of the labour force. If Modigliani's proposal had been successful, the old *status quo* would have been re-established and the occasion to take advantage of the crisis, to reform the system from the unproductive area would have been lost.

If we continue to cover these structural deformations in any way, one of which could be the wage containment or on the other hand inflation, these problems not having been eliminated, the actual crisis will continue forever. If the long term never begins, it will become an inexistent period.⁴⁷

Graziani criticized the presumed incompatibility between wage rise and the equilibrium of the balance of payments acknowledged by Modigliani. In an *export*

⁴⁴ Colajanni (1976, p. 93).

⁴⁵ Napoleoni-Modigliani (1976, pp. 173–174).

⁴⁶ Napoleoni-Modigliani (1976, p. 171).

⁴⁷ Napoleoni-Modigliani (1976, p. 163).

oriented economy as was the Italian one, the firms strategy had always been that of earning in competitiveness by lowering the labour costs mainly through production decentralization. When this strategy did not produce satisfactory results, policy makers carried out monetary restrictive policies in order to achieve the balance of payments equilibrium. Only at this point it was possible to restart the economy. Such a *modus operandi* floundered with the oil shock of 1973, when the other economies had also slowed the growth with negative consequences for exports and more generally for the whole Italian economic system. In Graziani's opinion, the alternative was to increase labour productivity concentrating on economies of scale. The reaching of this objective – apart from needing a more enterprising strategy turned to commercial expansion beyond traditional markets (Germany, France, Great Britain) – could not prescind from the stipulation of agreements between firms and international governments because “the world markets were not in fact competitive markets”.⁴⁸ In any case, by increasing exports not only could we avoid the debit of the balance of payments, but by reducing costs it allowed wages to reach levels compatible with highly industrialized countries. Moreover, the upswing should have hinged on the development of social spending (houses, schools, transport, etc.). But also in this case the consensus of the “employers” was necessary, without which “any action to relaunch the economy is destined to sink in a sea of capital flight, inflation, tax evasion or even from the strategy of tension”.⁴⁹ Graziani concluded his observations in a pessimistic way, so that he wrote

If conflicting forces had wanted to and had known how to fight to the extent of leading the country to the resolute crux of today, it is childish to expect that these same forces now want to link arms, cancel their conflict and proceed with agreement along a common line.⁵⁰

2.10 Tarantelli's Position

Now it is necessary to describe how Tarantelli placed himself within this controversy. At the beginning, his analysis could appear ambiguous, if not even schizophrenic. He showed that he shared Modigliani's set up on the theoretical level. He affirms “a sliding scale which compensates one by one the price variations is not technically maintainable. It should be subject to revision”.⁵¹ It was a conclusion that rested on the theoretical analysis which will be examined in the fourth chapter. In the case of wage indexation at the unique superior point, inflationary spiral becomes dynamically unstable. The inflationary potential generated by every point of monetary wage in excess of the increases in productivity, increases for a geometrical

⁴⁸ Graziani (1976a, p. 121).

⁴⁹ Graziani (1976b, p. 15).

⁵⁰ Graziani (1976b, p. 15).

⁵¹ Tarantelli (1976 [4], p. 57).

reason in correspondence to increases in the grade of coverage of the sliding scale (where the increase was tending to infinite for an average unitary coverage).

Regarding this, Tarantelli said he was aware that through the indexation at the unique superior point the “retributive jungle” often stigmatized by him was circumscribed. Yet, he claims “we could have obtained the same effect [...] through a progressive grouping of the sliding scale by income ranges and with the institutionalization of a minimum wage completely guaranteed by the indexation mechanism”.⁵²

Even Monti agreed upon the necessity to abandon a similar indexation mechanism, because the indexation at the unique superior point had to be considered strongly distortive.⁵³ Monti, as well as pointing out the necessity of purifying the indexation mechanism from the imported inflation, then indicated in the extension of the contracts terms the best tool to cool down the price dynamics.⁵⁴ But he suggested not to abandon the sliding scale, an objective which Tarantelli fundamentally aimed at.

In a country like ours – Monti observed – a similar regime could be even more inflationist than the actual one. In fact, contracts would be renewed at least yearly. And every time they were to be renewed there would have been three difficulties [...]. There is a big uncertainty in forecasting the inflation rate. This is the reason why the trade unions would protect themselves commensurating the increases requested to the higher available forecast. The conflict is higher and therefore the renewal costs of the more frequent renewals would be higher. Higher is the propensity of public powers to assume a role of renewals mediation, a mediation that many times has contributed to solve the disputes in an inflationist way.⁵⁵

A different thesis was supported by some economists such as De Vincenti and Zevi, who gravitated around *La Rivista trimestrale*.⁵⁶ They underlined the importance of two elements to which even Tarantelli, as we will see in the fifth chapter with regard to the predetermination hypothesis, acknowledged a primary role. These were the coordination of the duration of contracts along with the synchronization of renewals and a balance – that in De Vincenti and Zevi’s opinion should have been attributed to the Government – in case delays in the adjustments occurred. In particular, they proposed to renew contracts annually and to adjust, with the same frequency, the wages to prices.

At the same time, Tarantelli said he was against Modigliani’s proposal of exiting the “infernal triangle” through a simple real wage reduction. From which arises the “schizophrenic” characteristic of Tarantelli’s position about Modigliani’s controversy. That reconstruction of the profit margin to which Modigliani appeared infeasible should have, instead, been determined “through an increase of real

⁵² Tarantelli (1978 [5], p. 165).

⁵³ Monti (1981) and Monti (1982).

⁵⁴ On the methods of depuration of the price index of prices from the imported inflation compare Guiso (1985).

⁵⁵ Monti (1984).

⁵⁶ For an articulated explanation of the De Vincenti-Zevi’s proposal (De Vincenti-Zevi 1983).

wages compared to higher wages and therefore necessarily to the disadvantage of both big and small privileged wage and normative areas”.⁵⁷ In order not to make this affirmation seem as an absurd theoretical concept, it is worth tracing back Tarantelli’s reasoning. In his opinion, the experience of the 1970s had made the Keynesian paradigm emerge whereby the Government was called to relaunch the economy through public expenditure, “failed for a very simple reason”. He affirms “in Keynes’ General theory, in the schemes and in the Keynesian paradigm there was an hypothesis of stable wages and prices which break dramatically”.⁵⁸ In his opinion, the main reason why the monetary stability hypothesis broke off was the mismatch between the political demand of the base and the dominant block’s supply. This mismatch gave rise to an instrumental commitment of the “weapon of labour cost” by the side of trade unions.

He proposed to interpret the crisis which emerged at the end of the 1960s in the main industrialized countries drawing on the generation leap hypothesis. A generation equipped with qualifications necessary for aspiring to the best posts was flowing into a condition of intellectual unemployment or badly paid employment in jobs not in keeping with their qualifications. This was the origin of the crisis. It was about a subject which seemed to recall, in some way, the contraposition evidenced by Napoleoni between productive and unproductive work. The best jobs, or the notion of internal labour markets which Tarantelli referred to, emerged mainly within the “unproductive work” (banks, insurance companies, universities). It was necessary therefore to attack these privileged areas: this was a first step to bring the offered rules nearer to those demanded.⁵⁹ But this would not have been sufficient to re-establish monetary stability. Regarding this, Tarantelli implicated the notion of political exchange. The initial hypothesis on which he rested is that a direct proportionality link between the level of prices and that of nominal wages exists. Prices rise, as well as vertiginous rises in the price of petroleum, because the trade union uses labour cost as a real weapon. So, if it is possible to identify goods that the dominant block is able to offer, it is just as licit to hypothesize an exchange of the above and wage moderation. In the end, wage moderation depended on the behaviour of the trade union.

The workers [...] – he explains – are interested in macro goods such as unemployment and pensions benefits, health insurance and professional formation, in general, to social or redistributive policies. There can be attempts to exchange these macro goods and wage stability, which depend more directly on the workers.⁶⁰

⁵⁷ Tarantelli (1976 [4], p. 45).

⁵⁸ Tarantelli (1984 [2], p. 739).

⁵⁹ In regard to this Tarantelli asserts “unproductive work can from today be impeded in the view of the retributive jungle beginning with discouraging it by attacking its remunerative and normative levels” (Tarantelli 1976 [4], p. 39).

⁶⁰ Tarantelli (1986 [3], p. 792).

However, an income policy based on the criteria of consensus and political exchange could not be inspired to the principle of the two times, or of the two speeds, as had happened in the previous years. A policy which bartered the “today’s wage moderation with tomorrow’s reforms” affirm Tarantelli, Caffè and Napoleoni, could not be retained feasible or licit. On this basis, Tarantelli’s dissent regarding Modigliani’s conclusions matured. He reached a correct conclusion on a technical level, that is from the point of view of the mere recovery from inflation, as Tarantelli revealed. But at the same time, it prescinded from the before said considerations of sociological order.

In my opinion – he stated – what militates against this way of facing the problem is what emerges from the root fact of the new working class conscience, manifested in the late seventies.⁶¹

In Modigliani’s hypothesis, Tarantelli spotted the risk that the real wage reduction, even if obtained through a fiscal instrument, could at the most obtain a monetary stability in conditions of latent conflict and not in conditions of consensus. The relational system’s rules would have remained so unaltered and the obtained result would have been that of weakening the trade union compressing, and substantially rejecting, the reform and renewal requests.

Anyway, there were scholars who judged even the measures wished by Tarantelli inadequate for general interest. This is the case, for example, of Francesco Indovina, who pronounced himself in favour of measures conducive to the “*improvement* in the conditions of life of the masses”.⁶² It would have been possible to achieve a similar objective, he explained, only through a “strong collectivization of social organization and the loss of meaning (economic and mythic) of many private and individual consumptions with their transformation (or elimination) in collective”.⁶³ Every alternative policy could have at the most saved the capitalistic enterprise. Such an aim, according to Indovina, was as miserable as it was reductive, because it was prerogative to the interests of few and because of circumscribed capacity towards the more general problem of institutional adequacy.⁶⁴

2.11 Elaborating Economic Policy Proposals

In 1978 Tarantelli became professor of labour economics at the European University Institute, where he directed the project “Comparative European labour markets and industrial relations”, which referred to France, Italy, United Kingdom, Germany and Sweden.

⁶¹ Tarantelli (1976 [4], p. 38).

⁶² Indovina (1978, p. 53).

⁶³ Indovina (1978, p. 54).

⁶⁴ Indovina (1978, p. 54).

Italy was completely invested by the second petrol shock. Restrictive monetary policies to face the OPEC surplus were to be carried out. Tarantelli and Carli tried to indicate an alternative proposing a different recycling mechanism. The basic idea was to transform the surplus, represented by financial activities raised by the Arab countries on the international financial market, into a direct bilateral loan indexed to the growth rate of the country in deficit. In the same year *Il ruolo economico del sindacato e il caso italiano* was published by Laterza.⁶⁵ In his intentions, this study should have been a first contribution for the overtaking of that considerable gap, which affected even the researches of the most outstanding economists.

From Smith to Marshall to Pigou – he observed – the economists have considered the trade union role partly independent from sociological and political considerations. They considered it as an institutional fact, external to the theoretic paradigm beneath their model. They considered it as a natural event of which we only observe the economic consequences.⁶⁶

Tarantelli intended to lay the foundations of that “epistemological revision” of which *The economics of neocorporatism* (1982) would have had to constitute the highest peak.⁶⁷

The last result of his intellectual project consisted in the codification of an economic analysis scheme and of a structure for the industrial relations system in which, according to the political exchange principle, the trade union would assume

⁶⁵ This phase of Tarantelli’s intellectual iter, has been accurately examined by Vicarelli (1987) and Ciocca (2007).

⁶⁶ (Tarantelli 1978, p. 8). Not even with the Keynesian analysis, would an independent role have been recognized for the trade union. “In Keynes *General theory* of 1936, the trade union was considered as a sufficient condition because of the downward rigidity of the monetary wage, which is at the base of the involuntary unemployment equilibrium. But it is not a necessary condition. Maybe it is the state of deep skepticism towards the possibility of an independent role of the trade union, typical of the traditional economic set up, [...] which suggests to Keynes not to base his result of a stable involuntary unemployment equilibrium uniquely on the trade union presence” (Tarantelli 1978, p. 15). Furthermore, aside from the relevant methodological differences, Tarantelli refers to the studies of “Hicks, Zeuthen, Dunlop, Von Neumann and Morgenstern” as contributions “more informed about the economic role of the trade union”. Anyway, according to him, these would still end up “edging the motivations of the economic role of the union in the demand and offer curves of the Marginalist scheme” (Tarantelli 1978 [5], p. 18).

⁶⁷ Although a preliminary draft of it is sometime mentioned, *The economics of neocorporatism* has never been published in English, even though Tarantelli in the last months of his life had made an agreement with an international publishing house. Its contents were re-proposed and integrated by Tarantelli with some refinements in the last years of his life, in (Tarantelli 1986). A copy of *The economics of neocorporatism* is kept in the Rare book, manuscript and special collections library of the Duke University. Comparing the version of 1986 with the preliminary one, it emerges that the sections of the work re-proposed in a more faithful way can be considered the central ones, where Tarantelli carries out an empirical compared analysis of the efficacy of the inflation recovery policies in 16 industrialized countries. The remaining materials have been reallocated in various appendixes and chapters.

the economic role of contractor with public powers and counterparts of the functioning rules of the system.⁶⁸

In 1980–1981, the internal inflation rate reached an unsustainable level. Tarantelli put forward the proposal of inflation recovery in April 1981. The idea was that in order to allow a realignment of the internal inflation rate to the one registered by the main competitors, the various social parts, i.e. the Government, trade unions and Confindustria set a target level for the inflation rate and therefore had to accept the consequent behaviour. The moderation of wage claims would have been accompanied by the contextual carrying out of structural reforms by the Government.⁶⁹ It was an economic policy inspired both by Heiner's reliable interaction theory, with which Tarantelli came into contact at UCLA and by the economic policy implications of rational expectations.⁷⁰

At UCLA – Leijonhufvud remembers – a lively debate about Ron Heiner's theory, the “reliable” interaction [...]. Ezio was one of the first who saw the great innovation that Heiner's ideas had and was one of the first to apply them. Heiner's influence is in fact visible in the last version of Ezio's neocorporatist theory.⁷¹

Tarantelli began with the relations of “reliability ratio” and “tolerance limit” with the intent of deriving, on a theoretical level, the conditions in which for the trade union resulted reliable to make wage claims exceeding the expected inflation rate, that is behaving as a free rider or accepting an income policy.⁷² He concluded

⁶⁸ Even though Tarantelli was not an isolated voice, it is useful to note that in that period, the trade union was still treated from a theoretical point of view as an external element to the analytical scheme, or however treatable through the mainstream approach. Compare (Hunter-Robertson 1969). Clegg's and Corina's contributions can be however considered contiguous to Tarantelli's *modus operandi*. Clegg shares with Tarantelli the method of compared analysis as regards the systems of industrial relations. He carries out, in fact, a compared examination of the structure and of the articulation of the collective bargaining system in six different countries (Clegg 1976). Similarly, Corina affirmed that “Institutional analysis is not a substitute for economic analysis of the labour market. But neither is it a competitor. To the extent that economic analysis fails to incorporate elements of institutional analysis, so it will tend to fall short of architectonic success in matching greater finesse with greater realism” (Corina 1972, p. 64).

⁶⁹ This was Tarantelli's original formulation. He would have improved and integrated it again before the agreement of 22nd January 1983.

⁷⁰ Heiner (1983).

⁷¹ Chiaromonte et al. (1985, p. 7).

⁷² A compared analysis of Heiner and Tarantelli's studies has been carried out in (Giocoli 1998). He identifies mainly two elements of incompatibility between their *modus operandi*. Heiner makes use of a methodology typical of experimental sciences, in the framework of which the economist acts as an external observer. Giocoli points out, however, that such an approach cannot be considered applicable to Tarantelli's study subject, i.e. the industrial relations system. In such a framework, Giocoli asks himself “First of all, who is the external observer? Secondly, is there a sequence of choice situations long enough which allows us to estimate the probability by the observer?” (Giocoli 1998, p. 70). In Giocoli's opinion another element of incompatibility has to be connected to a mistake made by Tarantelli. Whilst in Heiner's model the result of a certain choice depends on the state of nature which is independent from the choice itself (this means that the notion of subordinated probability finds correct application), this does not happen in Tarantelli's analysis, where it is the action that determines the situation or the choice. Compare Tarantelli (1986 [1], p. 112).

that the reliability ratio should be at least equal to the tolerance limit so that trade unions could benefit from the income policy. But since nothing, in principle, guaranteed equality or even positive inequality between the reliability ratio and the tolerance limit, so in Tarantelli's opinion it was necessary to identify institutional solutions for this to happen. In regard to this, he put forward the proposal of centralizing the industrial relations system.

A centralized system – he affirms – can provide the single trade unions or isolated groups of workers better information regarding single demands of the other groups, so allowing more coordination.⁷³

The new indexation mechanism of wages to prices, i.e. the indexation of monetary wages to a future inflation rate predetermined in advance and in mutual consent by the social parties, was conceived by Tarantelli also thanks to the implications of the rational expectations approach. According to such a set up, the perpetuation of the inflation dynamics is caused by the signing of overlapping wage contracts. However, if the economic agents who are called to set prices and wages consider reliable the anti-inflationist program planned by the policy makers, the recovery from inflation can be gradual and with lower costs in terms of unemployment and potential lost output.⁷⁴ This would have happened if the economic policy grade of reliability had been increased through the centralization of the industrial relations system.

In the same year, the unitary trade union began to cherish the hypothesis of constituting a research centre in the field of labour economics and industrial relations. As Carniti remembers, it was Modigliani, who was left out of a similar project by the CISL secretary, who suggested Tarantelli's name as a possible scientific referent.⁷⁵ At the beginning CGIL, CISL and UIL seemed to agree on proceeding this way, but very soon CGIL changed its mind. The Institute of Labour Economics Studies (ISEL) arose from the Tarantelli-Carniti "association" which was supported by the confederal secretaries Crea and Merli Brandini. A group of researchers which was composed of union experts and young economists, many of whom are professors today, gathered around it.⁷⁶ Tarantelli admitted that the objective he wanted to reach through the trade union's collaboration was very ambitious.

For a trade union like the Italian one – he asserted – whose role does not only consist of protests and movements, but that also wants to be a "unitary" institution which contracts with the Government [...] the "demanded and offered rules"; the technical competence is a

⁷³ Tarantelli (1986 [1], p. 116). More details can be found on pages 111–122.

⁷⁴ Compare Muth (1961), Lucas (1973) Barro and Gordon (1983) and Dornbusch (1983).

⁷⁵ Compare Carniti's presentation at the international congress dedicated to Ezio Tarantelli held on 26–27th March 2010 at the University "La Sapienza".

⁷⁶ Amongst the trade union experts Franco Archibugi, Luigi Di Vezza and Marina Ricciardelli should be mentioned. Amongst the young scholars who collaborated more steadily with ISEL can be found: Elisabetta Addis, Massimo Bordignon, Giuseppe Cananzi, Bruno Chiarini, Elvio Dal Bosco, Claudio De Vincenti, Riccardo Fiorito, Gabriele Olini and Leonello Tronti.

necessary condition, even if not sufficient (insertion of the communist party in the Government) for the possibility of exerting influence on the politics level [...]. Unfortunately, while Confindustria is today getting ready to sustain the old subject of the firm centrality [...] organizing the second biggest study service in Italy, the trade union and the Italian left wing party still find it hard to give themselves those technical instruments [...] which their new economic role make necessary and which would help them to transform the social demand of the most combative labour force in Europe into a new constructing hegemony. In the case that such a social demand was left to itself, however, it would become a disruptive force.⁷⁷

From the ISEL research group an abundant scientific production arose, it regarded econometrics, economic policy and labour economics. These surveys permitted the construction of an econometric model of labour market, which was elaborated by Riccardo Fiorito at Tarantelli's solicitation.⁷⁸ The name of the model was suggested by Archibugi, who was then responsible for the CISL study office, the name suggested was MOMEL. It was the first econometric model elaborated in Italy by a research centre connected to the trade union and even one of the first econometric models, relating to Italian economy, ever set up. MOMEL assumed as outputs: the value added obtained in the industrial sector, the one obtained in the private services, agriculture and public sectors. It consisted of five blocks of equations, which described respectively: the operating of the goods market, of the labour market, the formation of prices, the behaviour of fiscal and monetary sectors. The model did not propose a partial equilibrium analysis as the approach widely shared in the 1970s and beginning of the 1980s did.⁷⁹ This means that it was not limited to the relation wages-employment valid in only one sector. And it did not either assume a labour offer function able to close the model and endogenize the unemployment rate. Generally, the reject of the partial equilibrium approach was due to the fact that a similar *modus operandi*

impedes examining wages feedback on prices and so even the role of the functional distribution of income on the demand composition, which influences wages and employment.⁸⁰

The structure of the labour demand and supply, of the relationships between wages and prices and of the price equation reflected the form of the four cards of the Post Keynesian labour market model conceived by Tarantelli.

Also a disaggregated version of the model at a regional level was suggested, with particular regard to the Piemonte case, in collaboration with USR-CISL of that region. Giovanni Avonto remembered that periods like this

⁷⁷ Tarantelli (1978 [5], p. 111).

⁷⁸ As regards the model's structure, the specification of the behaviour equations and interesting indications regarding the origin of MOMEL, see Fiorito (1984).

⁷⁹ Compare Black-Kelejian (1970) Lucas-Rapping (1969), Rosen-Quandt (1978), Beenstock-Warburton (1982).

⁸⁰ Fiorito (1984, p. 20).

We wrote some pages about the experimental project agreed between the Piemonte Cisl and ISEL and I found as a researcher Pietro Balla [...]. Cananzi was put besides Balla as an ISEL researcher. Balla [...] had to prepare a graduation thesis in economy with the professor Gianluigi Vaccarino (who in that period collaborated with the formation courses of the regional Cisl). [...] Vaccarino agreed on an experimental thesis about MOMEL developed with Tarantelli, but the research work, which began in the last months of 1983 at ISEL, was stopped because of the tragic event of 27th March 1985. The thesis was reconverted into a thesis about Tarantelli, his research and his proposals. It was defended in Turin in the academic year 1984–1985.⁸¹

Beside the program of scientific research and carrying out of the econometric model, ISEL gave rise to an intensive work of scientific divulgation. Between 1980 and 1985, ISEL promoted the publication of 'Forum ISEL', 'Forum ISEL previsioni' and 'Prospettive del mercato del lavoro'.

The proposal of predetermination was the base of the agreement on labour cost ratified by the Government, trade unions and Confindustria on 22nd January 1983. With some qualifications, it can also be considered the base of the decree signed on 14th February 1984, which is called Valentine's decree. Through this measure, the Government ended up attributing law force to a separate agreement, from which was missing the adherence of the Communist component of CIGL and against which was promoted an abrogate referendum, sustained by the Communist party.

In 1985 his last two contributions were published, they were: *An income policy against the failures of monetarism* (which was elaborated together with Fitoussi and which appeared in two parts on the Italian economic review 'Politica ed economia') and *The shield of the unemployed* (which was followed by *How to build up the shield*). In the first one, Tarantelli criticizes the implications of an excessively restrictive control of monetary aggregates.⁸² In the second one, he proposed to actuate the shield of unemployed against unemployment at the beginning of the 1980s. It was a Community investment fund (in ECU) from which every European country could have drawn out resources to carry out employment policies without generating pressure on the balance of payment.

Tarantelli's career ended on 27th March 1985, near classroom III of "La Sapienza" in Rome, where he had just held a lesson. That was the day when he was assassinated by two killers from the Red Brigade, which had ordered his death.

[Tarantelli] – it can be read in "strategic resolution" n. 20 – [is] one of the most authoritative techno-political exponents in the service of big capital, who 'works' to solve one of the fundamental aspects of the economic crisis of the bourgeoisie, i.e. the institutional regulation of the conflictual relation between classes, which deals with the conditions and mechanism of purchase and sale of labour. That is to say the judicial-legislative ratification

⁸¹ Avonto (2010, p. 2). Compare also Balla (1985).

⁸² In order to deepen the subject of the optimal control techniques, Tarantelli, had suggested to some of this students, one of whom was Bruno Chiarini, to perfect it under the guidance of David Vines. Tarantelli had also indicated Meade (1982) and Vines-Meade-Maciejowski (1983) as fruitful reference works.

of the terms of the relative power of workers versus capital, from the point of view of bourgeois interests.⁸³

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⁸³ From an excerpt of strategic resolution n.20 of the Red Brigade reported in *Corriere della sera* of 31st March 1985.

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