

## The Making of Chapters 13 and 14 of Patinkin's *Money, Interest, and Prices*

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In a letter of 7 September 1953 to his former fellow-students in Chicago Robert and Marianne Ferber, Don Patinkin (b. 1922 in Chicago; d. 1995 in Jerusalem) wrote that “I finally started this week on my dream project. I am half-way through the first draft of chapter 2 of a book on the general equilibrium theory of money, whose title has yet to be decided upon.” In another letter written in 24 November 1953 Patinkin informed the Ferbers that “last night I finished the first draft of the text of the book” that would be published in May 1956 under the title *Money, Interest, and Prices* (henceforth *MIP*). The first draft of *MIP*, held in the Special Collections Library of Duke University, comprised nine chapters. The final version of the book (sent to the publishers in April 1955) kept the main ideas and approach of the 1953 draft, with the partial exception of chapter 9 on “Monetary Theory Under the Assumption of Unemployment”, which formed the basis for chapters 13 and 14 of *MIP* (see table 1 below). From the two central claims of those two chapters - that unemployment should be understood as a disequilibrium phenomenon with both workers and firms off their respective labor supply and labor demand curves, and that the Keynesian revolution represented a change in economic policy, not in economic theory - only the last one was fully developed in chapter 9 of the 1953 draft, which is reproduced below. Chapters 13 and 14 (as well as the 1953 draft) also differ in many aspects from his earlier formulation of employment theory as advanced in Patinkin (1949b, 1948b).

While *MIP* accomplished Patinkin's intention to “do more than merely translate my previous [mathematical] works into English” (letter to Martin Bronfenbrenner, 30 September 1953; see also Patinkin, 1965, p. xvii), the main substantial conclusions of the general equilibrium monetary model of the first part and of the full employment macroeconomic model of the initial chapters of the second part of the book could nevertheless be found in his previous formal articles published between 1948 and 1954.<sup>1</sup> This is not true of the chapters on unemployment (13 and 14), though, which put forward a new approach to the problem (especially in section 13.2, titled “A Theory of Involuntary Unemployment”). As Patinkin

would put it many years later, “when I wrote chapter 13 of my book in 1956... I felt at the time, and still feel, that that was the most novel and important contribution of the book” (unpublished verbatim records of the 1987 Perugia conference on “the notion of equilibrium in Keynesian theory”, organized by M. Sebastiani; see also Patinkin, 1995a, p. 380). At the same time, in contrast with the rest of the book, there are no mathematical appendices to chapters 13 and 14, reflecting the analytical problems of Patinkin’s suggested disequilibrium approach.

The fact that Patinkin’s 1956 theory of disequilibrium unemployment was not, in contrast with the rest of his book, published before in article form poses the historical puzzle of its origins. The present essay investigates when Patinkin’s disequilibrium approach – as expressed especially by his well-known kinked labor demand curve and the discussion surrounding it - was first formulated, in what extent it was discussed with other economists before its publication, its relation with Keynes 1936 *General Theory*, and whether Patinkin contemplated an alternative model to the one eventually adopted in chapters 13 and 14. Since those chapters became one of the foundations of disequilibrium macroeconomics in the 1970s (see, e.g., Barro and Grossman 1971), these are questions that are worth asking. We shall see that some of Patinkin’s ideas about disequilibrium unemployment go back to his 1947 thesis, that the first draft of *MIP* included a different model of unemployment, and that Nissan Liviatan was the only economist that debated the disequilibrium model with Patinkin before its publication. In particular, the kinked labor demand curve – designed to illustrate the inability of firms to sell their equilibrium output, and so to employ the equilibrium amount of labor – was up in the air as late as the end of 1955.

Together with Patinkin’s Ph.D. thesis *On the Consistency of Economic Models: A Theory of Involuntary Unemployment* (submitted to the University of Chicago in August 1947) and the correspondence in Hebrew with his former student Nissan Liviatan between December 1954 and February 1955, the last chapter of the 1953 draft constitutes the main unpublished source on the process of writing the theory of involuntary unemployment displayed in *MIP*. These three documents are discussed in detail below (and compared with Patinkin’s published articles in the 1940s and 1950s) in order to understand how chapters 13 and 14 of the book came to be. Patinkin had argued in part II of his 1947 thesis that involuntary unemployment should be interpreted as the manifestation of a formal inconsistency in the system which prevents it from reaching a full employment equilibrium position (Patinkin, 1947a; 1995a, p. 379). Although the inconsistency argument was dominant in the first stages of the development of Patinkin’s view on unemployment, it

gradually faded away until it virtually disappeared in chapters 13 and 14 of *MIP*. As acknowledged in the preface to the first edition and in chapter 13 of *MIP* (Patinkin, 1965, pp. xix-xx; 320, n. 7; 321, n. 8; 323, n. 9)<sup>2</sup>, Nissan Liviatan's "valuable criticisms" played an important role in the elaboration of several aspects of the disequilibrium analysis presented in the final version of chapter 13. Liviatan was instrumental in calling Patinkin's attention to the problematic reconciliation between the perfect competition assumption and the concept of a sales constraint illustrated by a kinked labor demand curve. This idea did not appear in the 1953 draft, where Patinkin assumed instead that the influence of aggregate demand on the firms' production decisions is captured by the effect of a reduction of the expected price level on the real wages anticipated by firms, a notion largely absent from *MIP*.

[insert table 1 around here]

### 1. *Chronology*

As pointed out by Patinkin (1965, p. xvii), *MIP* is the "outgrowth of ideas first presented in a doctoral dissertation" submitted in 1947 and then "further developed in a series of articles" published between 1948 and 1954. The dissertation was written during the academic year 1946-47 at the Cowles Commission for Research in Economics (which had moved to Chicago in 1943) under the supervision of Jacob Marschak, who was also Director of the Commission (Patinkin, 1995a, p. 375). The first part of the thesis, dealing with the mathematical consistency of a general-equilibrium system with money, was published in two *Econometrica* articles (Patinkin, 1948a, 1949a). The second and last part, on unemployment and inconsistency, was never published in its original form. An extensively revised version came out in the *Economic Journal* (Patinkin, 1949b), incorporating some new ideas that Patinkin (1948b) had advanced in his largely non-mathematical *American Economic Review* article on "price flexibility and full employment".

Encouraged by the immediate success of his piece in *AER*, as shown by several offprint requests "from people who wish to assign the article to their students in courses on the theory of employment" (letter to Harper & Brothers, 16 December 1948), Patinkin decided to approach publishers with a proposal for a book titled *The Theory of Employment*. He suggested in the same letter that the book should be formed by a basic chapter on employment (integrating the *AER* and the *EJ* articles), a second chapter on liquidity preference theory (a "popularization" of the two *Econometrica* articles), and a final chapter of miscellaneous notes on topics such as the consumption function, the multiplier and business cycle theory. Milton Friedman, whose advice on publication and other matters

Patinkin often sought at the time, heard from publishers about Patinkin's plan to put together a "collection of the papers you have been writing". Friedman advised Patinkin, in a letter of 18 January 1949, that "if you want to write a systematic book about this topic by all means do so and include whatever material from your articles is really relevant. But don't simply republish a series of journal articles. It will be widely interpreted as presumptuous, which it would be, and would I think react unfavorably on you." Patinkin reacted positively to Friedman's remarks and decided to drop "the idea of merely collecting the essays", although he did not on that occasion give up completely the plan to make a book on the theory of employment (letter to Friedman, 22 January, 1949).

In February 1949 Patinkin moved to Israel to take up a position in the newly created department of economics at the Hebrew University in Jerusalem. In 12 May 1949 he wrote to Alfred Knopf Company - who had shown interest in his idea for a book on employment theory - that, under the new circumstances, he had decided to postpone the book project. Patinkin continued, however, to argue out the main formal points of his *Econometrica* articles with the critics, including new material on the determination of the rate of interest and on the textual evidence of dichotomy in classical price theory (Patinkin, 1950-51; 1954a). His 1948 *AER* article was revised for publication in the 1951 collection of *Readings in Monetary Theory* edited by the American Economic Association (Patinkin, 1951). Except for F. J. de Jong (1954), Patinkin's (1949b) claim about the relevance of the notion of aggregate supply for the analysis of involuntary unemployment did not raise any reactions in the literature, by contrast with the debate provoked by his 1948-49 pieces in *Econometrica* and *AER*. In 1952 Patinkin published two articles - on Wicksell's cumulative process (1952a) and on Samuelson's correspondence principle (1952b) - the contents of which would play an important role later on in the writing of the macroeconomic part of *MIP*.

Patinkin's decision to resume his book project was made while working in 1952-1953 on a paper on "Keynesian Economics and the Quantity Theory", following an invitation (in October 1951) by Kenneth Kurihara to contribute to a book on Keynesian economics after Keynes (Patinkin 1954b; letters to Kurihara, 3 January and 16 September 1952). However, instead of his original plan for a text on employment theory, Patinkin decided to write a book on monetary theory, moving the discussion of the integration between monetary and value theory through the real balance effect to the first part ("microeconomics") of the book and the chapters on the theory of employment to the second part ("macroeconomics"), which is close to the organization of his 1947 dissertation. Chapters 13 and 14 on unemployment - partly based, respectively, on Patinkin 1949b and 1951 - were preceded by a full employment

aggregative model (chapters 9 to 12), first advanced in his 1954 contribution to the Kurihara volume. As recalled by Patinkin (1995a, p. 384), “it was in the process of writing this article [Patinkin 1954b] that I decided to write my 1956 book”. Patinkin (1954b) argued that the propositions of the quantity theory of money - such as the long-run neutrality of money - are based only on the assumption of an absence of money illusion, and hold under any form of the aggregate demand function, a claim that he carried to *MIP* as the general theoretical conclusion of the book (Patinkin, 1965, p. xxv, last paragraph).

When Patinkin finished the first draft of *MIP* in November 1953, he wrote to the Ferbers that “I have already listed so many changes that I want to make in this draft that I decided that it would be better to take another few months and rewrite it before showing it to anyone for critical comments” (24 November 1953; see also letter to Bronfenbrenner, 30 October 1953). In another letter of 24 February 1954 to the Ferbers he described the first draft as “not fit for the human eye” and wrote that he was revising it. Hence, the changes made in the first draft reflected Patinkin’s own dissatisfaction, not criticism from others. As mentioned above, those changes were much more substantial in the unemployment chapter. Patinkin did not keep the book manuscript as a secret, but mentioned it in correspondence with a number of people, apart from the Ferbers and Bronfenbrenner (see, e.g., letters to Lawrence Klein, 5 October 1953, and to Dennis Robertson, 9 October 1953).<sup>3</sup> However, only the Ferbers and Bronfenbrenner offered to read the manuscript and were sent the other (second and third) drafts.

While Patinkin asked the Ferbers’ opinion mainly on issues concerning the intelligibility of the text, his long correspondence with Bronfenbrenner was important in arguing out some theoretical points of the microeconomic part of the manuscript through its successive drafts. In the preface to the 1956 edition, Patinkin (1965, p. xix) acknowledged criticisms on earlier drafts of the text by Bronfenbrenner, as well as by William Jaffe and Nadav Halevi.<sup>4</sup> As far as the chapters on unemployment are concerned, however, Bronfenbrenner hardly made any comments, possibly because, as he wrote to Patinkin in 11 June 1954, he found the second (macroeconomic) part “substantially more difficult than the first”. Jaffe, in his role as a reader for Row, Peterson (with whom Patinkin had signed a publication contract in 2 September 1954), commented extensively on the third draft (with particular attention to Patinkin’s interpretation of Walrasian economics and the *tatonnement*), but was quite brief about the unemployment chapters. In a letter of 14 January 1955, Patinkin wrote to Jaffe that he was “particularly interested in what you have to say about [my] discussion of involuntary unemployment”. Jaffe replied by saying that “your treatment of

involuntary unemployment strikes me as a much needed antidote to the usual dogmatically accepted definition of the phenomenon. Moreover, you make the concept analytically more useful” (letter of 28 January 1955), without any discussion of the conceptual issues involved in Patinkin’s disequilibrium approach.

On the basis of Patinkin’s correspondence with Bronfenbrenner, Jaffe, Liviatan and Row, Peterson it is possible to reconstruct the approximate dates of the successive drafts of the unemployment chapter(s). Patinkin sent copies of parts of the revised text to Bronfenbrenner between 8 March and 24 May 1954, when he finished the second draft of the macroeconomic chapters. He sent to Donald McPherson (editor of Row, Peterson) on the same date copies of the analytical table of contents and of the introduction, and informed him that he had used the text in graduate courses on monetary theory in the spring term of 1954 (letter to McPherson, 24 May 1954). On November 10 1954 Patinkin wrote to McPherson that “I am right now working on chapter XIII”, which he sent, together with the rest of the macroeconomic part, on 17 December (the other chapters of the third draft had been sent in September and October). In late April 1955 the final typescript was mailed to Row, Peterson, including changes based on criticisms from Jaffe and Patinkin’s graduate students on the third draft (letter of 28 April 1954 to McPherson). As acknowledged by Patinkin (1965, pp. xix-xx; 1995a, p. 389), his three classes of students between 1954 and 1955 served as “guinea pigs” for the earlier drafts of the text of *MIP*, among them Nissan Liviatan, who left Jerusalem in late 1954 to do research at Oxford University.<sup>5</sup> In 21 December 1954 Patinkin mailed to Liviatan a copy of the third draft of the unemployment chapters, which started an intense correspondence about Patinkin’s disequilibrium approach, described in detail in section 4 below. Although the second and third drafts of *MIP* have not survived, it can be inferred from the Patinkin-Liviatan correspondence that Patinkin had already introduced the notion of a sales constraint and the kinked labor demand curve already in the second draft. This is confirmed by Patinkin’s notes about “changes for second draft” in a notebook he kept while working on the first draft.

The reactions of Patinkin’s graduate students (especially Liviatan and Tsvi Ophir, whose suggestions on several aspects of the book are also picked out by Patinkin, 1965, p. xx) to drafts of *MIP*, together with help from Hebrew University mathematicians in the appendix to chapter 5 of the book and in the formal argument of Patinkin 1952b, as well as discussion of earlier drafts of Patinkin (1952a, p. 835, n. 1; 1954b, p. 123, n. 1) with colleagues and students of that university, are probably not enough to warrant the existence of a “Jerusalem circus” in the early 1950s with a role similar to the one played by the famous

“Cambridge circus” in the production of J. M. Keynes’s *General Theory* in the early 1930s. Nevertheless, they do indicate that Perry Mehrling’s (2002, p. 170) suggestion that by moving to Israel in 1949 Patinkin “became in effect a kind of time capsule”, with the “remembered voices of his Chicago professors” as his only intellectual interlocutors, is not completely accurate. It is true, however, that, as discussed below, Patinkin’s extensive revision of the first draft of the unemployment chapter did not result from criticisms from his graduate students (or from his correspondents abroad), but from a return to some unsettled themes of part II of his 1947 Chicago dissertation.

## **2. Involuntary Unemployment and Wages**

Patinkin started both chapter 9 of the 1953 draft and chapter 13 of *MIP* by defining the object of study of his unemployment theory, that is, the notion of involuntary unemployment. As can be seen from table 1 above, the title of the first sections of those two chapters are the same. Patinkin’s concept of involuntary unemployment as an excess supply of labor at the prevailing real wage (1965, p. 315) goes back to his first discussion of that notion in sections 38 and 56 of his Ph.D. thesis (Patinkin 1947) and their published version in the 1949 *EJ* article (Patinkin, [1949b] 1981, part III, sections 8 to 10). However, despite the fact that the notion of involuntary unemployment as a point off the labor supply curve can be found in all his writings on the topic from 1947 through to 1956, his treatment in *MIP* differs in some aspects from his 1947 and 1949 discussions, and, in a lesser degree, from the 1953 draft.

In the spring and summer of 1945 Patinkin had attended Oskar Lange’s graduate courses on “modern tendencies in economic doctrine” and “business cycle theory” respectively at the University of Chicago. His notebook for those courses shows that Lange made extensive use in his unemployment lectures of a diagram of the labor market introduced in Lange (1944, p. 6, n. 4), reproduced below as figure 1 (the money-wage rate is the variable on the ordinate, under the tacit assumption that the price level is given; the labor demand function is determined by the marginal productivity of labor; see Bent Hansen, 1970, pp. 143-44). In both the book and the lectures Lange defined “underemployment” as the excess supply of labor  $AB (= PQ)$ , which implies, according to Walras law, that there is excess demand in other markets in the economy. Lange next compared that definition with Keynes’s (1936) notion of “involuntary unemployment” as an equilibrium position determined by the intersection of a demand curve with the left part of the supply curve  $CQS$ . According to Lange, in order to assume equilibrium in the commodity and money markets in unemployment, Keynes implicitly deployed a supply curve of labor infinitely elastic over an

interval  $CQ$  with respect to a certain level of money-wages  $OC$ . Keynes's involuntary unemployment is then expressed by  $PQ (= AB)$ , where  $P$  is an equilibrium point, and full employment is measured by  $OB$ , with money-wages rising after point  $Q$ . If the demand curve intersects the supply curve to the right of point  $Q$  there will be "voluntary unemployment" in the sense of a voluntary withholding of labor supply for a higher price, which is also an equilibrium position. A change in money-wages is illustrated by a shift of the horizontal part of the supply curve.<sup>6</sup>

[insert figure 1 around here]

In his lectures, according to Patinkin's notebook, Lange taught that "Keynes says equilibrium with unemployment. Keynes' involuntary unemployment when more of a factor could be employed at same price". Furthermore, "both approaches are equivalent. Except [Lange's approach] considers unemployment as disequilibrium with excess supply" (underlined by Patinkin). Patinkin's notes are consistent with Lange's (1944, p. 6, n. 4) conclusion that "our treatment is translatable into Keynesian terms and vice versa. The choice is merely a matter of convenience". However, in contrast with Lange, Patinkin (1947, p. 115; [1949b] 1981, pp. 155-56; 1951, pp. 282-83; 1965, pp. 341-42) understood the "disequilibrium" and "equilibrium" definitions of involuntary unemployment as irreconcilable with one another. In particular, he generally associated the latter with downward rigidity of money-wages.

Neither did Patinkin interpret excess labor supply as the manifestation of a money-wage adjustment process à la Phillips curve. He assumed in his full-employment macro model (1953, p. VII-29; 1954b, p. 132; 1965, p. 230) that the labor market is always in equilibrium through an "instantaneous" reaction of money-wages to changes in the price level. Hence, in contrast with the tatonnement process in the commodity and bond markets, there is no excess demand equation for the determination of money-wages in *MIP*. The introduction of unemployment in section 13.1 of the book (or in section 9.1 of the 1953 draft) was not accompanied by a change in the assumption about money-wage determination. As discussed further in the next section, Patinkin ([1949b] 1981, pp. 164-66; 1951, p. 282; 1953, p. IX-5; 1965, p. 318) argued instead that falling prices and wages affect aggregate demand only slowly (because of low interest and price-elasticities of expenditures), which implies that workers are involuntarily off their labor supply curve throughout this underemployment disequilibrium process.<sup>7</sup>

It is worth noting that there is no reference in *MIP* or before to Keynes's (1936, p. 15) own definition of involuntary unemployment in terms of the positive effect of a higher price

level on both the amounts supplied and demanded of labor. It was only much later that Patinkin (1982, pp. 136-37) got around to discussing Keynes's involved definition. He apparently agreed in the 1940s and 1950s with Lawrence Klein's (1947a, pp. 80-81) opinion that Keynes's definition entailed money illusion of workers. In part V of his 1949 *EJ* article, Patinkin ([1949b] 1981, p. 172) wrote the labor supply function as  $N^S = g(w, p)$  to express Keynes's assumption that "the supply of labor depends on money, and not real, wages". However, as clarified in section 8.5 of the 1953 draft and in section 12.2 of *MIP*, the introduction of money illusion into the labor supply function does not generate excess labor supply and involuntary unemployment. It produces instead an increase in real wages and a shift downwards of the bench mark of full employment whenever aggregate demand and the price level go down (that is, money is not neutral in the long-run anymore; see also Patinkin 1965, p. 315, first paragraph). This is the static correspondent of the dynamic mechanism formulated by Champernowne (1936) and Friedman (1968) in terms of the effect of adaptive price expectations on real wages and labor supply (see also Boianovsky 2005; Branson 1979, ch. 6).

Although Patinkin did not organize his discussion of the concept of involuntary unemployment around Keynes's definition, he mentioned on several occasions that (contrary to Lange's interpretation) Keynes's notion of "unemployment equilibrium" did not mean that the labor market is in equilibrium without any tendency for money-wages to change (Patinkin, 1950-1951, p. 56, n. 1; 1953, p. IX-3; 1965, pp. 643-44). In correspondence with Dennis Robertson of 5 July 1951 Patinkin suggested that in "the Keynesian situation of 'unemployment equilibrium' the following variables remain stable: the rate of interest (since we are on the infinitely interest-elastic part of the liquidity preference function), the real wage rate (since wages and prices are continuously falling at the same rate), and hence the level of employment". That interpretation was carried to section 9.1 of the 1953 draft and to supplementary note K.3 of *MIP*. It is implicit in Patinkin's ([1949b] 1981, p. 164) remark that, "if the price level were to fall proportionally with the wage level and so keep the real wage constant... workers would truly be involuntary unemployed - despite all their efforts to correct the situation by money-wage reduction", an argument he ascribed to Keynes (1936, pp. 11-13).<sup>8</sup> This was for Patinkin a special circumstance, since the notion of involuntary unemployment could still be applied if falling money-wages are accompanied by a gradual increase of the employment level (due to the "Keynes effect" and the real balance effect) in a dynamic framework. It was in that context that Patinkin ([1949b] 1981, p. 166) distinguished between "permanent, temporary or prolonged" unemployment (all of the involuntary type)

according to the price-elasticity of aggregate demand and the effect of adverse price and interest expectations on expenditure, a distinction that was not repeated in the 1953 draft or in *MIP*.

Furthermore, Patinkin did not discuss the notion of involuntary unemployment in opposition to other categories of unemployment, such as voluntary and frictional (cf. Keynes, 1936, chapter 2). With the exception of a brief passage in his 1946 manuscript (Patinkin 1946a, pp. 15-16) on unemployment, where frictional unemployment is associated with “classical” economics, Patinkin generally assumed perfect mobility of workers across industries. The phrase “voluntary unemployment” is nowhere to be found, although the notion is implied by Patinkin’s ([1949b] 1981, pp. 163-64) “fundamental qualification” that unemployment cannot be called involuntary if excess labor supply is caused by “monopolistic tactics of trade unions” that keep the real wage rate above its equilibrium value. Such a qualification was not reproduced in the 1953 draft or in section 13.1 of *MIP*. Trade unions are mentioned only in the 2<sup>nd</sup> edition of the book (1965, p. 310), in connection with inflation not unemployment. However, it is possible to infer from Patinkin (1965, section 13.1) that, if the real wage rate is kept above its equilibrium level, an increase of commodity demand will not be able to bring about full employment equilibrium. This unemployment of the “classical” kind should be distinguished from involuntary unemployment caused by a deficiency of aggregate demand for commodities, as pointed out by Barro and Grossman (1971, section III) in their interpretation of Patinkin’s disequilibrium analysis. Patinkin, however, did not usually distinguish between “classical” and “Keynesian” unemployment on the basis of the determination of real wages, as discussed in section 5 below.

Patinkin also considered briefly in the 1953 draft and in *MIP* the case of “involuntary overemployment” when workers are at a point to the right of their labor supply curve. Since frictional unemployment is assumed away in *MIP*, as well as the influence of price expectations on the labor supply and demand decisions of workers and firms (cf. note 14), the only way employment can be above its full employment equilibrium level is by invoking the assumption that workers may under certain circumstances (such as wartime patriotic appeals) work more than shown by their labor supply function (1965, p. 315). That notion was discussed in more detail in the thesis (Patinkin, 1947, pp. 84-85) and in the *EJ* article (Patinkin [1949b] 1981, pp. 167-68), where he explained involuntary overemployment as a result of the slow effect of higher prices on reducing aggregate excess demand, and

considered also an alternative mechanism involving rationing under suppressed inflation (cf. 1965, p. 275; see also Barro and Grossman 1971, section VI).

The labor market diagram used by Patinkin in his 1947 Ph.D. thesis took into account the possibility of a logical problem in his definition of involuntary unemployment as points off (and to the left) of the labor supply function. In figure 2 below, the employment level decided by aggregate demand for commodities is  $N_0$  and full employment equilibrium is indicated by  $N_1$ . The real wage rate can be anywhere between the demand price  $(w/p)_1$  and the supply price  $(w/p)_2$  of labor. If the real wage is  $(w/p)_2$  (which Patinkin associated with a low bargaining power of workers), there will be no involuntary unemployment, since workers are on their labor supply curve, which, by definition, means full employment (Patinkin, 1947, pp. 103-04). As pointed out by Patinkin, this is due to the fact that the full employment level increases with higher real wages because of the positive slope of the labor supply function (cf. Barro and Grossman 1971, p. 86).

In order to circumvent that difficulty, Patinkin (1947, pp. 104-05) considered another definition of full employment as the “amount of employment that would have existed in this system if it had been consistent”, that is, if the system had a general equilibrium solution with all agents on their respective demand and supply curves. Involuntary unemployment would accordingly be defined as the difference between actual employment and the employment level decided by the intersection of the curves demand and supply of labor. Patinkin (1947, p. 105) chose the first definition of involuntary unemployment (workers off their labor supply curve), despite its problems, because it conveys the notion of “maximization subject to an additional restraint”, and, therefore, corresponds to the intuitive idea of “coercion”. In his *EJ* article, on the other hand, Patinkin ([1949b] 1981, p. 163) measured involuntary unemployment as the distance between actual employment and the intersection point, which corresponds to the second definition advanced in the 1947 thesis. The problem does not appear in the 1953 draft and in *MIP* simply because Patinkin draws the labor supply curve as an inelastic curve (in contrast with the thesis and the 1949 article), which allows him to adopt the first definition of involuntary unemployment without any ambiguity (see figure 3 below).  
[insert figures 2 and 3 around here]

### **3. *The Theory of Employment up to 1953***

After the discussion of the notion of involuntary unemployment in the labor market, Patinkin's next attempted to provide an explanation of the phenomenon in terms of the

relation between the goods and labor markets. In the new introduction to the second, abridged (with the omission of the “supplementary notes and studies in the literature”) edition of *MIP*, Patinkin (1989, p. xvi) recalled his quest for a connection between a firm’s output and its labor input.

For a long period before the writing of the first edition I had been puzzled by the apparent contradiction between the intuitive feeling, on the one hand, that there was a connection between a firm’s product-output and its labor input, and the traditional demand curve for labor, on the other hand, that did not depend explicitly on output and whose sole independent variable was the real wage rate. The answer that I finally proposed in Chapter XIII of that edition (...and that in part goes back to an earlier 1949 article) was that the traditional curve... reflects its assumption that just as it can buy any amount of labor it desires at the prevailing wage rate, so can it sell all the resulting output at the prevailing price. Correspondingly, when, because of inadequate aggregate demand, this assumption is not fulfilled and firms can only sell a smaller output (...), they will also purchase a smaller labor-input than indicated by the demand curve generated under conditions of perfect competition.

Table 2 below sums up Patinkin’s quest for a theory of employment between 1947 and 1956. As pointed out by Patinkin, his 1956 answer to the puzzle goes back “in part” to the 1949 *EJ* article, which is an elaboration and revision of ideas of part II of the 1947 thesis. Shortly after the submission of his thesis in August 1947 Patinkin sent a paper titled “Inconsistent Systems and Involuntary Unemployment” to the *Journal of Political Economy*. In a letter of 18 March 1948 to J. Marschak, he informed that *JPE* “has found the paper too technical for their purposes” and has asked him “to write a short non-mathematical version. This I plan to do; the original article I shall tend to submit to *Econometrica*.” In December 1948 Marschak asked Patinkin not to send the paper to *Econometrica*, “to avoid the impression that it is the house organ of the Cowles Commission”. Patinkin sent a revised paper (now called “Involuntary Unemployment and the Keynesian Supply Function”) to *EJ* and gave up the idea of writing a non-mathematical version for *JPE*.

[insert table 2 around here]

The central message of Patinkin’s 1947 theory of employment is that, under certain circumstances, the “classical” economic system of equations may become overdetermined (“inconsistent”): “the theory of involuntary unemployment... presented in this chapter is equivalent to the existence of an inconsistent system” (Patinkin, 1947, p. 78). The main cause

of inconsistency discussed by Patinkin in the thesis (following up Klein's argument in his 1947 book, which Patinkin had read in manuscript form in 1946; see Patinkin [1949b] 1981, p. 155, n.) was the insensitivity of saving and investment to changes in the rate of interest, which made it likely that no positive value of the nominal interest rate is able to equilibrate saving and investment at the full employment level of output (Patinkin 1947, pp. 65-68; Klein 1947a, p. 85). Patinkin (p. 69) also considered other possible sources of inconsistency, such as a Keynesian liquidity trap (without using the term). The inconsistency of the system is illustrated by figure 2 above, where two real wage rates are determined at the level of employment  $N_0$  decided by aggregate demand outside the labor market.<sup>9</sup>

Patinkin was aware that the assumption that the real wage rate will be below the marginal product of labor if unemployment exists differs from both classical and Keynesian frameworks. One of the central features of Patinkin's (1947) discussion of involuntary unemployment is the notion that the real wage rate will not correspond to the marginal product (demand price of labor) because there are unemployed workers willing to work for less (supply price of labor, measured by the marginal disutility of labor). This analytical problem would become a permanent element in his discussions of the determination of real wages in unemployment (see, e.g. Patinkin 1982, p. 134; Boianovsky 2002, p. 247). In particular, the classical assumption that "a decrease in the real wage rate will always increase employment" was shared by Keynes (provided a reduction in money-wages is accompanied by lower real wages through its indirect effect on the rate of interest).

The basis of the difference between the preceding analysis and the Keynesian-classical one is that the latter assumes that the real wage rate is always equal to the marginal product of labor... Hence, on the assumption of decreasing marginal productivity, everything else follows. The assumption of the previous section is that in times of unemployment there is no a priori reason to expect the real wage rate to equal the marginal product. In the traditional theory, this equality is presumably brought about by the competition of employers to obtain workers; but in times of unemployment, such competition obviously does not exist (Patinkin, 1947, p. 113).

It can be inferred from Patinkin's remarks that he interpreted the real wage rate corresponding to the marginal product of labor as the maximum (not the optimal) demand price that the firm would pay. Firms will be on their marginal product curves if competition pushes the real wage rate upwards until it corresponds to the marginal product, a mechanism

that, according to Patinkin, is lacking if there are unemployed workers. Hence, applying a distinction that would be introduced later by Patinkin (1965, mathematical appendix 1) between “individual” and “market experiments”, the labor demand curve of the 1947 thesis describes a market experiment (see also Leijonhufvud, 1974, p. 166).

The notion that the real wage rate differs from the marginal product of labor during periods of unemployment was not mentioned in Patinkin’s 1949 *EJ* article. The reason was probably Patinkin’s dissatisfaction with the solution to the real wage determination problem advanced in chapter 9 of the thesis. Patinkin (1947, section 58) introduced an “institutionally given independent variable” to represent the bargaining power of workers, and then carried out comparative statics exercises to obtain the effect of changes in that variable on aggregate expenditures, employment and real wages based on assumptions about the relative size of the marginal propensities to spend out of wages and profits. In 10 November 1948 Patinkin wrote to J. Marschak concerning a version of the article on involuntary unemployment that would eventually be published next year in *EJ*. “I have made extensive revisions in this article in comparison with the form in which it appears in the thesis. In fact, as a result of further thinking on the whole question of bargaining power, etc., I am convinced that my original formulation of the thesis is faulty. I have tried to present as much as I think important of the concept of bargaining power in this one article”.<sup>10</sup>

The notion of “bargaining power” (although not the term) was applied by Patinkin ([1949b] 1981, pp. 164-67) to the determination of output in the commodity market only, following along the lines of some ideas of section 40 of the thesis. According to Patinkin (1947, pp. 82-83; [1949b] 1981, pp. 160-61), the explicit introduction of an aggregate supply function into the usual Keynesian cross diagram brings out an inconsistency that is “the key to the theory of involuntary unemployment” ([1949b] 1981, p. 161), for there will be two different levels of output expressing equilibrium levels determined by aggregate demand and by supply conditions respectively. Patinkin’s ([1949b] 1981, pp. 160-61) “aggregate desired-supply function” describes the behavior of suppliers as a whole (understood as workers and firms together) as a function of output. It played an ambiguous role in the analysis, among other reasons because it was built on the wrong assumption of a constant real wage, which, as Patinkin came to realize later (see the remark added to p. 160, n. 5, of the 1981 reprint of that article), contradicts the law of diminishing returns. Its meaning was clarified by F. J. de Jong in correspondence with Patinkin, who eventually was persuaded by the former’s interpretation that the “desired-supply function” consists of points of full employment resulting from the substitution of labor supply into the production function (letter from

Patinkin to de Jong, 23 June 1952; see also de Jong, 1954, section 2; Edwards, 1959, section 6; Boianovsky, 2002, pp. 229-32).

Patinkin ([1949b] 1981, pp. 165-66) introduced the notion of “strategic position of suppliers” as a measure of the sensitivity of spenders to changes in the price level and interest rate. The “strategic position” is stronger the higher the price and interest elasticity of aggregate demand, since it takes a shorter time to shift the expenditure function to intersect the supply function at the (full employment) output desired by suppliers. Throughout the adjustment period, the actually prevailing income is determined by the intersection of aggregate expenditure with the 45° line, that is, suppliers are off their desired-supply function (see figure 4 below). This is the sense in which, as recalled by Patinkin (1989) in the passage quoted above, his disequilibrium analysis of chapter 13 of *MIP* “goes back in part” to the 1949 article, but it should be noted that the construction of the supply function was quite different in the 1956 book (as well as in the 1953 draft), where the problematic desired-supply function does not appear at all.

[insert figure 4 around here]

In *MIP* and in the 1953 draft Patinkin deployed instead the concept of aggregate supply introduced towards the end of the 1949 article, which he called the “familiar aggregate supply function” (see also 1947, p. 75). As explained by Patinkin ([1949b] 1981, pp. 171-72), it results from the substitution of the labor demand function  $N^D = f(w/p)$  into the production function, which gives  $Y = \vartheta(N^D)$ . That function was only implicit in the models by Klein (1947a, pp. 199-203) and Modigliani (1944, pp.47-48). Its role in part V of the 1949 *EJ* article was to bring out the notion that price, interest and output changes produce equilibrium between aggregate supply and demand in the goods market, which is not necessarily a full employment position with equilibrium between supply and demand in the labor market. In particular, Patinkin ([1949b] 1981, pp. 169, 173) assumed that “undesired inventories are rapidly eliminated from the system [so that] no stimulus for any further movement in prices comes from the finished-goods market”, and that “equilibrium in the finished goods and money markets is quickly established”. It is implicit that a rapid process of price decline – assuming a provisionally given money-wage rate - takes the real wage rate to the level corresponding to the marginal product of the current level of employment, so that firms are continuously on their labor demand and aggregate supply functions (cf. Leijonhufvud, 1974). Hence, through competition in the goods market, Patinkin assumed away the possibility of a real wage rate distinct from the marginal product, mentioned before in his 1947 thesis. Despite the equilibrium in the goods market with  $E = Y$ , excess supply in

the labor market continues because, as discussed above, it takes time to shift the aggregate expenditure function  $E = \Omega(Y, r, p)$  to its full employment position. “The only pressure for continued movements of the variables comes from the failure to satisfy” the equation  $ND = NS$ , and the level of unemployment will “continue to fluctuate as the system tries to correct the disequilibrium of the labor market” (Patinkin [1949b] 1981, p. 173; see also 1951, p. 283).

It should be noted that the existence of unemployment is not associated by Patinkin ([1949b] 1981) with rigidity of money-wages, but with the low price and interest elasticity of aggregate demand. As pointed out by Gogerty and Winston (1964, p. 121), Patinkin conceived of price-elasticity of demand as an increasing function of time (cf. Alfred Marshall [1890] 1990, p. 86). One can find many passages where Patinkin suggested that a low elasticity implies that it takes time for spenders to change their decisions (e.g. [1949b] 1981, pp. 165-66; 1951, p. 272; 1965, p. 343). However, even if aggregate demand is very inelastic, this should not be able by itself to produce excess supply in the labor market, provided money-wages are continuously reduced to the extent necessary to bring about an instantaneous shift of the expenditure function to its full employment level. Patinkin apparently realized that in his 1948 *AER* article, where he assumed that “*prices cannot fall instantaneously*”; hence, the larger the price fall necessary to bring about full employment via the Pigou effect, the longer the time necessary for the carrying out of the policy” (Patinkin, 1951, p. 272; italics added). This is the only passage where Patinkin established the crucial connection between the assumption of price (especially money-wage) rigidity and the validity of the inelasticity argument for the theory of employment. Patinkin did not repeat that in the 1949 *EJ* article or in the draft and in the final version of *MIP*, probably because he wanted to differentiate his own theory from the usual money-wage rigidity argument within a static equilibrium framework *à la* Modigliani 1944 (cf. Patinkin 1951, p. 282; 1965, p. 342).

The 1948 reference to the “Pigou effect” (a term introduced by Patinkin on that occasion and replaced by “Haberler-Pigou effect” in 1951 and by the more comprehensive “real balance effect” in the 1953 draft and in *MIP*) can also be found (without using the term) in Patinkin [1949b] 1981, pp. 161-62; 171). The role of the Pigou effect is to assure consistency of the static system of equations, that is, existence of a full employment equilibrium solution even if (because of a liquidity trap or, more likely, interest inelasticity of the saving and investment functions) the interest rate mechanism does not work. Patinkin (1947, pp. 71-74) had dismissed in the thesis the relevance of Pigou’s (1943) argument, on the grounds that the saving function may be of such a form that, as the real value of their cash

balances increases due to falling prices, individuals are less and less affected by their increase. That is, as the decline of the price level continues, the saving function may reach a limiting position to the left of the saving curve that would bring about equilibrium with investment at full employment income. Patinkin's dismissal of the Pigou effect in part II of the 1947 thesis can also be explained by the fact that the focus of his analysis then was the inconsistency of static models, not the conditions for the convergence of a dynamic system. "I must emphasize that my concern here is a theory of *long run* involuntary unemployment, and not *short run*... Clearly in any dynamic model there is no need, at any instant of time, to be on all the curves. Consequently there can easily exist a state of short run involuntary unemployment. But the more interesting question is whether this unemployment will or will not disappear in the long run" (Patinkin, 1947, p. 81; italics in the original).<sup>11</sup>

Patinkin (1948, 1951, 1949b, 1953, 1956) gradually changed his mind about short run transitory unemployment as a trivial phenomenon, until it became the very core of employment theory in *MIP*, now called "unemployment disequilibrium" ([1949b] 1981, p. 173; 1951, p. 280; 1953, p. IX-4; 1965, pp. 337-38) in the sense that wages, prices and employment are continuously changing over time. Such a move corresponded to a change from the study of the sufficient conditions (that is, inconsistency) to the necessary conditions (that is, length of the adjustment period) for the existence of involuntary unemployment (cf. Patinkin, 1947, p. 82; [1949b] 1981, p. 174, 1965, p. 339). The notion that the intensity of the real balance effect in the commodity market may be too weak to generate an aggregate demand high enough to absorb full employment output and assure consistency of a static system is still carefully presented in the *AER* article (Patinkin, 1951, section 8) and discussed also in Patinkin ([1949b] 1981, pp. 173-74), but is mentioned only briefly in chapter 9 of the 1953 draft (p. 19) and in Patinkin (1956, p. 236, where reference is made to the discussion in section 8 of the 1948/1951 article; cf. 1965, p. 338, where that reference was deleted).<sup>12</sup> Although Patinkin (1948b) acknowledged the possibility of an inconsistent static system, the central message of that article is that the period of time necessary for the operation of the Pigou effect in a dynamic system will be lengthened if the effect of larger real balances on consumption is small and (because of that) the relatively long process of price (and money-wage) fall creates expectations of further declines leading to postponement of expenditure decisions (cf. Klein, 1947b, p. 113). Together with the distribution effects caused by the increase in the real debt burden (added in the 1951 version, pp. 262-63; 273), such adverse price expectations imply that unemployment disequilibrium may continue "for long, or even indefinite, periods of time" (1951, p. 280; cf. 1965, p. 339).

Patinkin carried his 1948/1949 notion of “disequilibrium unemployment” to the draft and final versions of *MIP*. However, while in the 1953 draft he kept the original meaning of the term as disequilibrium (workers off their supply curve) in the labor market only, in the book, as discussed in the next section, he suggested that firms as well will be off their labor demand curves and their aggregate supply curve in periods of unemployment disequilibrium. In section 2 of chapter 9 of the 1953 draft Patinkin (1953, p. IX-4) made explicit the assumption (which was only implicit in part V of the 1949 *EJ* article) that “throughout the dynamic process of adjustment the economy is to be found at a point on the demand curve for labor”. However, instead of his 1949 model based on the notion that the length of the adjustment period *per se* brings about disequilibrium in the labor market, Patinkin sought in the draft an explanation of how such a long equilibration process affects the firm’s demand for labor. He found it in the influence of the continuous process of price decline on the firm’s price expectations and, therefore, on the “anticipated effective real wage” determined by the quotient between the current money-wage and the price expected at the end of the production period (pp. 5-6).

Deflationary price expectations, of course, played an important role in the determination of aggregate *demand* in Patinkin (1948b), but their influence on aggregate *supply* was not mentioned, in contrast with the 1953 draft. The explanation of such a shift can be found in Patinkin’s 1952 careful investigation of Knut Wicksell’s ([1898] 1936) “cumulative process” of price change. As noticed by Patinkin (1952a, p. 841), Wicksell argued that if the price change continues for some time, the assumption of unit elasticity of price expectations must be dropped and replaced by (what we now call) adaptive expectations, which will affect labor demand and lead to an acceleration of the cumulative process of price change. However, instead of Wicksell’s acceleration result with a constant employment level, Patinkin stressed in the 1953 draft that “firms will decrease the amount of labor they employ” (p. 6). Patinkin’s implicit assumption is that the goods market reaches a less than full employment equilibrium at current contractual money-wages, which will be revised in the next period only.<sup>13</sup> It is also implicit that workers have the same price expectation as firms, which allows Patinkin to deploy the usual labor market diagram in figure 30 of the draft, with expected real wages instead of current real wages on the ordinate. In particular, the failure of money-wages to clear the labor market in the current period is not due to workers’ “money illusion”. Patinkin (1953, p. IX-6) pointed out that the influence of aggregate demand for goods on the firm’s labor demand is not captured by the direct inclusion of “anticipated sales” as an argument in the latter. The indirect influence of

anticipated sales is instead reflected, in a perfect competition framework, by a fall of the expected price level, which increases the anticipated real wage rate and reduces labor demand accordingly (see also Boianovsky 2002, pp. 236-39).

Following a deflationary gap (caused by an autonomous downward shift of the expenditure function in figure 31 of the draft), the effects in the commodity market of a reduction of actual and expected prices is represented in figure 32 of the draft by a shift leftwards of the aggregate supply function - illustrated by a vertical function along the lines of the “familiar” supply function of part V of the 1949 *EJ* article - because of an increase in the anticipated real wage rate, and a shift upwards of the expenditure function caused by the direct and indirect repercussion (through the bond market) of higher real balances on aggregate demand. Such a tatonnement in the commodity and bond-markets will eventually take the economy to a short-run equilibrium illustrated by the intersection of both the aggregate demand and supply curves with the 45° line in figure 32 and described by Patinkin (1953, p. IX-8) as a “less than full-employment equilibrium in the commodity and bond-markets”. It is only implicit that this equilibrium is such that price expectations are fulfilled and that the price level varies to clear the commodity market (cf. Dutt 2002, pp. 325-27, for a discussion of a similar process using a diagram with aggregate demand and supply in  $[p, Y]$  space). Patinkin next examines the tatonnement in the labor market caused by the existence of excess labor supply at the real wage rate that equilibrates the commodity and bond markets. The downward pressure on money-wages brings about a reduction of the anticipated real wage rate and a corresponding shift rightwards of the aggregate supply function. The ensuing excess supply in the commodity market causes a price decline, which moves the expenditure curve upwards until the economy gets back to a full employment position with equilibrium in all markets. If aggregate demand is affected by deflationary expectations and distribution effects, such a process may become a long one (section 5 of chapter 9 of the 1953 draft), as discussed by Patinkin for the first time in the 1948 *AER* article.<sup>14</sup>

#### ***4. Liviatan and the Kinked Labor Demand Curve***

Patinkin’s 1953 expectational model of employment with clearing of the commodity market through changes in the price level cannot be found in the final version of *MIP*, where it was replaced by the notion that firms face a sales constraint with persistent excess aggregate supply. The disappearance of that model cannot be explained by Patinkin’s realization of some logical mistake in its formulation, since he made use of the notion of a higher anticipated real wage rate in his discussion in the book (1965, p. 337) of the forces

counteracting the stimulating real-balance effect of a price decline. Actually, as documented in this section, the issue of the role of firms' price expectations in employment theory came back in the correspondence with Nissan Liviatan, albeit as a comment on the passage just mentioned from *MIP*, not in connection with the 1953 draft, which was not read by Liviatan or anybody else.

Patinkin's by now familiar explanation of the dynamics of unemployment in *MIP* is better appreciated with the help of figures 3 and 5. Starting from a position of full-employment equilibrium, an autonomous downward shift in aggregate demand creates a deflationary gap  $BC$  in the commodity market. Under the assumption that prices and wages fall at the same pace, the demand constraint will cause firms to reduce output to  $Y_1$  at point  $G$ , which corresponds to input  $N_1$  at point  $K$ . Although there is no excess output at point  $G$ , there is excess productive capacity (as discussed by Patinkin in his correspondence with Liviatan), which induces firms to reduce prices. In the same vein, there is excess labor supply at point  $K$ , since the actual labor demand curve is now described by  $TAN_1$  with a kink at point  $A$ . The continuous decline in the price and money-wage levels creates a positive real-balance effect in the commodity and bonds markets, which eventually brings the aggregate demand curve back to its initial position. Firms will accordingly increase their output to  $Y_0$  and the corresponding input to its full-employment level  $N_0$ . Patinkin also carried out the exercise under the alternative assumption that the price level and the money-wage rate change at a different pace, with corresponding shifts of the vertical aggregate supply function, but with the same general results. The indetermination of real wages in unemployment disequilibrium reflects the analytical problems first discussed in his 1947 thesis, and are behind Patinkin's difficulty in writing a mathematical appendix to chapter 13 of *MIP*, as discussed below in this section.

[insert figure 5 around here]

In 21 December 1954 Patinkin sent to Liviatan the "new draft of the chapters we talked about in our last meeting" (that is, chapters 13 and 14 of the third draft of *MIP*), asking him to "take a look and let me know if you like the changes". Liviatan replied on 28 December with a long criticism of Patinkin's model of the behavior of perfect competitive firms in involuntary unemployment. Liviatan did not accept Patinkin's claim that, in a dynamic analysis, firms will depart from their labor demand curve because of a sales constraint expressed by the accumulation of inventories in a significant period of time (cf. Patinkin 1965, pp. 318-19; 323). The letter reproduced an illustration of the labor market probably used in the third draft, which corresponds approximately to figure 3 above without

points  $T$ ,  $D$  and  $L$ . According to Liviatan, “the main cause is not the distinction between statics and dynamics, but a change in the assumption of perfect competition. It is possible to develop a dynamic analysis on the assumption that firms think that through a price reduction to bottom they can sell the whole production”. Referring to Patinkin’s diagram of the labor market, Liviatan writes that, under the assumption that money-wages and prices fall at the same pace and that  $(w/p)_0$  is unchanged (as assumed by Patinkin, 1965, p. 320), “despite the deflationary gap in the commodity market firms will employ  $N_0$  workers” (instead of  $N_I$  as suggested by Patinkin) if they “believe they can sell the whole production by reducing prices”. More generally, “if we assume that firms don’t believe that they are able to sell everything by cutting down prices then we are leaving the domain of perfect competition. So let’s bring uncertainty into the picture”.

Liviatan suggested that, if the firm is not sure it will be able to sell its optimal production at market price, it will take into account the risk of accumulating inventories and try to avoid it by producing according at the effective demand level. At point  $K$  in figure 3 there is pressure to reduce prices, since the marginal product of labor is higher than the real wage rate and prices are higher than marginal costs. However, since “firms are not sure that by reducing prices they will succeed in moving to their optimal output, they will operate according to the principle indicated”. Liviatan concluded that, under these conditions, the curve  $N^d$  in figure 3 (which is a function of the real wage rate) is not the curve of demand for labor, which should be described instead as a function of effective demand:  $N^d = N(E)$ , as illustrated in figure 6 below (cf. Paul Davidson’s [1967, pp. 566-67] criticism of Patinkin’s labor demand function). The traditional curve  $N^d$  of figure 3 is the limit of the curve  $N(E)$ , in the sense that the demand for labor is not effective to the right of the traditional curve. Figure 4 was accompanied in the letter by a system of three equations with lags to capture the influence from the side of inventories:  $N_t = f(Y_t)$ ,  $Y_t = E_{t-1}$ ,  $N_t = f(E_{t-1})$ .

In a marginal note to the letter, Patinkin disagreed that employment is a function of output, since “the output influences the amount of demand for work, even though labor demand is not a function of output. In other words, the influence of output  $Y$  is not in the variables, but in the *form* of the labor demand function”, a point that he would incorporate into the final version of the book (1965, p. 319). Going back to Patinkin’s diagram of the labor market (figure 3 above), Liviatan pointed out that if firms are at point  $A$  (on the labor demand curve) there is involuntary unemployment, but in contrast with point  $K$ , an increase in effective demand will only bring about a higher employment level if accompanied by a

lower real wage rate. Patinkin remarked in a note on the margin of Liviatan's letter: "You are right; it was in the previous draft. The kink was not repeated in these curves, and it is not clear to me... In point *K* there is excess supply of goods, while in point *A* there is equilibrium... I want to show the existence of unemployment in perfect competition; have to write another draft".

[insert figure 6 around here]

In another letter of 2 January 1954 Liviatan informed Patinkin that he had just finished reading chapter 14. Instead of discussing that chapter (which is an application of the framework developed in chapter 13 to the analysis of the differences between Keynesian and classical theories of employment; see section 5 below), he came back to the problem of the compatibility of Patinkin's new employment model with perfect competition. As an alternative to Patinkin's argument that, at point *K*, there is a limit for firms to ignore the disappointment represented by inventory accumulation, Liviatan suggested "another option": under the assumption that there are imperfections in the bond market, firms will not be able to borrow indefinitely to finance inventory accumulation, which will bring about a reduction of output because of their inability to pay their wage bill. According to Liviatan, this could be a way out of Patinkin's difficulty with the notion that, without abandoning the perfect competition assumption, firms start to calculate general demand and stop taking into consideration the relation between price and marginal cost. As recognized by Liviatan, at point *K* there is no inventory accumulation anymore - since output and employment have been reduced to match the lower level of aggregate demand - but the firm's illiquidity still shows in the form of "excess productive capacity that keeps pushing prices down".

Patinkin replied in 13 January 1955 to Liviatan's two letters, with an enclosed copy of a new draft of the crucial section 2 of chapter 13, where he took in some of Liviatan's comments. In his letter, Patinkin pointed out that Liviatan's analysis of the liquidity problem faced by firms when they cannot sell all their output and accumulate inventories "is a good point which fits a crisis situation and reinforces my argument". He would incorporate that into the final version of chapter 13, although not as an alternative but as a complement to his notion of a sales constraint and without any mention of bond market imperfection (Patinkin 1965, p. 320, n. 7, where he acknowledges Liviatan's observation; see also Cross and Williamson, 1962, p. 79). Patinkin (p. 321, n. 8) also acknowledged Liviatan's remark on the role of excess productive capacity in the distinction between excess output (which does not exist at point *K*) and excess supply in the commodity market. On the other hand, Patinkin did not accept Liviatan's suggested labor demand function. "You say it depends on the firm's

output. I am interested in working on the traditional acceptable way of price theory. The function described by you cannot be a demand curve, [since] the output of the firm is not an independent variable. Klein [1950, pp. 50-57] actually develops a demand function for labor that is a function of output, but I have resisted it for the same reasons". Already in chapter 9 of the 1953 draft (p. 6) Patinkin had rejected the "familiar Keynesian analysis" that treats anticipated sales as an argument in the labor demand function (see also Boianovsky 2002, pp. 236-38). As put by Patinkin in the letter, "the problem will be solved by leaving the static boundaries, which will allow us to think about points off the demand curve, by leaving Marshall's partial analysis and going to Walras's general equilibrium, where the influence on other markets of excess supply in one market can be examined. This way we can see how concretely the way the aggregate output of the market influences the aggregate input". Furthermore, if Liviatan's labor demand curve is used, so that "the firm is always on its curve as you say, you will lose the element of coercion that has been forced upon firms in situation of unemployment".

In the same letter Patinkin reacted to Liviatan's comment about the pressure to increase output at point  $K$  because the marginal product is higher than real wages (cf. Davidson, 1967, p. 572). "This concerns me a lot". He then referred to n. 3 of p. 8 of the new enclosed draft, which states that "at this point of the dynamic adjustment process, the labor demand curve [of figure 3 above] does not describe the behavior of firms". Patinkin was aware that that remark did not solve the problem completely.

This fact was clearer in a previous draft, where I described the 'dynamic' demand curve, which has the shape  $TAN_I$  with a 'kink' at point  $A$ . That is why it is clear that the behavior at point  $A$  is not representative of the real marginal product of labor. Actually, I used this curve because it solves the problem emphasized by you. Again, I took it off in the other draft because its meaning was not clear to me. In the light of your remarks, I need now to extend note 3 and put it inside the text [cf. *MIP*, p. 321, last paragraph] and maybe also tell the reader that he can think about a demand curve that has such a kink. I have to admit that this is vague to me and that is why I wrote note 3, which is almost a dead end. In a dynamic process there is no demand curve of a firm like in [figure 3], on the other hand I do not know which curve does describe this situation, and especially I do not want to commit that this curve has the shape  $TAN_I$ , because it is weird and can make hard for people to accept my

argument. But, really, my argument does not depend on this curve, but only on the notion that the curve in [figure 3] is not anymore the demand curve of a firm. Since this is a point that you emphasize, I would like to know if what I wrote convinces you.

Despite Patinkin's reservations, he did include the kinked labor demand curve in chapter 13 of *MIP* (pp. 322-23), although as a digression from the "main discussion" about dynamic disequilibrium. In the "changes for the second draft", listed in the notebook Patinkin kept while working on the first draft, he wrote "check: does *AK* represent profits?", which indicates that the kinked curve was originally part of the second draft.<sup>15</sup> It was probably Liviatan's criticism that prompted Patinkin to reintroduce the kinked curve in order to argue that the marginal product of labor does not exceed the real wage rate at point *K*, since firms will not be able to sell the additional output because of the constraint represented by aggregate demand. In any event, contrary to Patinkin's intentions, the kinked labor demand curve eventually became identified in the literature as the focal point of chapter 13 of *MIP* (see, e.g. Barro and Grossman 1971).

As perceived by Patinkin in the letter, "the main point in what you say is that it is correct that one can see that the aggregate output of the market is smaller, and that is why the aggregate input has to be reduced, but how can it be described for a single firm, how it will make the firm abandon the assumption that it can sell everything. Like I mention, I still think I gave the answer in p. 7". In p. 7 of the draft sent with the letter Patinkin wrote that "the influence of commodity output on labor input expresses itself in our model through the dynamic intermarket pressures" represented by the effect of excess supply in one market in depressing prices in other markets as well (cf. Patinkin, 1965, pp. 319-20; see also p. 235), and, therefore, by a shift leftwards of the traditional labor demand curve under the impact of a deflationary gap in the commodity market. This became known in the literature on disequilibrium economics as the "spillover effect" (Grossman 1969). It was introduced in Patinkin 1952b and further discussed in chapter 7 of the 1953 draft in connection with the determination of prices only, without any mention of its possible role in the unemployment model as developed in that first draft.

Liviatan remained unconvinced by Patinkin's argument. In a letter of 20 January 1955 he wrote that there were "major disagreements" and one agreement, represented by the effect of lack of liquidity on demand for labor, which is on "the side of supply of goods by the firm". The main question is "does the firm *think*, even in a situation of excess output, that it can sell the whole amount at a certain price?" According to Liviatan's interpretation,

Patinkin's view was that "in point  $K$  (famous point  $K$ ) the firm will be disappointed, so it gives up the assumption that it can sell everything". If the approach that the firm thinks that it has a limitation from the demand of output side is accepted, "so in the demand curve for its products there will be a kink" that is behind the kink in the labor demand product. "That is why the marginal output is not expressed or defined in this point, but this explanation has a major flaw: it does not suit the structure of perfect markets, that firms can sell all the output despite disappointments". Liviatan then came back to the role of the firm's liquidity in explaining unemployment. "Let us assume that the firm can sell everything and that point  $A$  really represents the actual marginal product. The firm *thinks* that it can increase profits by hiring more workers at point  $K$ ; the firm does not do it because it does not have the means to produce this output. In the marginal product curve there is no kink, but in the labor demand curve *there is*, because... after point  $A$  the firm does not have the means, despite price being higher than marginal cost." Liviatan suggested in the letter the expression  $L [E' - Y(w/p, K_0)]$  to represent the firm's "lack of liquidity", where  $Y(w/p, K_0)$  is the optimum output on the firm's supply curve and  $E'$  stands for *ex post* sales.

Patinkin replied in a letter of 28 January 1955 that  $TAN_1$  is not the curve of "*physical* marginal output, but the curve of the *real value* of the marginal output". He then asked Liviatan: "Why the firm cannot stay in point  $K$  and wants to go to point  $L$ , since the liquidity problem from inventory accumulation will also happen in point  $L$  and do not exist in point  $K$  itself?" [see figure 3]. He reacted critically to Liviatan's expression for liquidity pressure, which did not explain "why the firm does not go in the direction of  $L$  towards its optimum output instead of staying in  $K$ ?" Patinkin's comments on Liviatan's suggested formula clarify the reasons why there is no mathematical appendix to section 13.2 of *MIP*.

The interesting thing is that when I tried to put this in a mathematical way, I went through the same problem, and that is why there is no mathematical appendix to that chapter! I tried to write  $dw/dt = K_1[\textit{excess demand for labor}] + K_2[\textit{excess output}]$  and very fast I realized that in point  $K$  there is no excess output; the first element is also zero, because at  $(w/p)_0$  there is no excess demand for labor. That is why we cannot be on point  $K$ ! The previous equation will not give *market* (liquidity) pressure that will prevent the firm from being on point  $M$ . In short, either you have to be in excess output (liquidity pressure) or you have to use my explanation: in point  $K$  the firm knows that it cannot sell the output produced at point  $L$  because it will face a

liquidity pressure. But then you have to ask yourself the same question you asked me: how can it know, how can it be influenced by the situation of the market?<sup>16</sup>

Liviatan answered in a letter of 5 February 1955 that Patinkin did not associate excess capacity with liquidity pressure because of “your assumption that the firm can finance its expenses in the next period by sales in the next period”, not by sales in the current period as assumed by Liviatan. “If I am correct, if the firm sold in this period  $t$  just  $Y(N_1)$ , then she cannot plan to produce in the period  $t + 1$  the output  $Y(N_2)$ , and the problem is solved”. According to Liviatan, the firm faces a “cash constraint” that prevents it from going from  $K$  to  $L$ . This way, the liquidity problem can explain why a reduction in aggregate demand can bring about a lower output under perfect competition.<sup>17</sup> More specifically, “the liquidity problem does not exist when the firm wants to produce  $K$ , but when we are in  $K$  and want to produce more than  $K$ ” (cf. Patinkin, 1965, p. 322, 2nd paragraph).

Under these conditions firms will reduce prices continuously, which will “create an expectation of falling prices” and add a new element to the picture. The notion that a perfectly competitive firm thinks it can sell all its output at the current price is based on the tacit assumption that the firm believes that “if it can reduce its price by more than the general rate of decline of the price level it will be able to sell everything”. But in practice the firm “does not have the confidence regarding the rate of decline of the price level”. In particular, “in your book [see Patinkin 1965, p. 337] you mentioned that this is like a rise in real wages, so the first limitation on the production (liquidity) may become in time a voluntary limitation, because an increase in the expected real wage rate brings about a reduction in optimum output”. According to Liviatan, the “fear by the firm that the price reduction is general” could explain why firms may be afraid of extending production even after the lack of liquidity is over.<sup>18</sup> Interestingly enough, this was close to Patinkin’s argument in the first draft, which Liviatan had not read. It also provided an explanation of the firms’ “uncertainty” about the effects of price reduction on the demand for their products, assumed by Liviatan in his letter of 28 December 1954. However, Liviatan was not ready to replace his emphasis on liquidity pressure by a model based on price expectations. “And now, if you say that in my opinion it is essential to include an element of uncertainty, e.g., expectations, so that we can get rid of the liquidity limitation issue, I would agree. But, if we do it, we let go the option to explain the development of involuntary unemployment without basing it on expectations, and

it is clear that liquidity limitation, which is an objective thing, is more solid than expectations”.

The contrast made by Liviatan between the “objective” factor represented by liquidity limitation on one side, and the subjective element of expectations on the other, indicates that, in both Liviatan’s and Patinkin’s (who did not object to the statement) opinions the expectation formation mechanism was still deemed fragile to sustain the weight of the argument. Indeed, although he had discussed (adaptive) expectation formation before, it was only in the 2<sup>nd</sup> edition of *MIP* that Patinkin (1965, pp. 311-12) introduced the notion that expectations “are not pulled out of the air, but are related to past price experience”. Even so, he applied the notion of “dynamic expectations” to the discussion of the quantity theory of money, not to the theory of employment (see also note 13 above).

In correspondence of 17 February 1955 Patinkin pointed out that “the question between us is whether we can explain the staying in point *K* without including the element that firms stay there not because of a current condition today, but of a situation they are afraid will exist if they extend output to point *L*. Data shows that in depressions (point *K*) firms are not affected by an objective liquidity pressure. However, despite the fact they are more liquid, they do not extend output. Why the priority of liquidity demand? Because of their expectations about the future. This is a complicated problem; we have not reached the bottom of it”. Liviatan agreed in letter of 23 February 1955 that switching “from the theory of the firm to the model of the market is an interesting field” and that there is “no other choice than including uncertainty factors to it”. In a letter of 6 March 1955 Patinkin encouraged Liviatan to write an article about the issues they had been discussing, and on 29 April informed Liviatan that the final version of *MIP* had been sent off to the publishers. “I made a lot of changes, especially in the discussion of involuntary unemployment according to our correspondence. I have tried to clarify the points you have written on. On the other hand, the problem which we have not solved is described in the text; I hope it will encourage others to try to answer this question”.

The passage mentioned by Patinkin appears as footnote 9 on page 323 of *MIP*. In that note he pointed out that there was a “basic analytical problem” whose “full solution is still not clear to me”. That problem was precisely the point raised by Liviatan and discussed extensively in their correspondence, that is, the incompatibility of the kinked labor demand curve with the perfect competition assumption. In particular, asked Patinkin (1965, p. 323, n. 9), “what keeps each individual firm from expanding its input until it reaches its demand curve for labor?”, since at the point *K* “there no longer exist the liquidity pressure of unsold

inventories”. Patinkin then referred to Liviatan’s suggestion that a complete answer depends on the development of a theory of the firm operating “under conditions of uncertainty with respect to the size of its market”, without, however, mentioning Liviatan’s remarks about the role of price expectations as a possible factor explaining such an uncertainty. Moreover, as shown by the correspondence, the notion of firm’s uncertainty was generally introduced by Liviatan to explain movements of employment on the (probably redefined) labor demand curve, not off it.<sup>19</sup>

### ***5. Alternative Theories of Employment***

It is clear enough that Patinkin applied his 1956 model of involuntary unemployment to the discussion of both “classical” and “Keynesian” theories of employment in chapter 14 of the book. The comparison between them was not based on the notion that the study of involuntary unemployment is unique to Keynesian economics. This is explicit in the title of section 9.2 of the 1953 draft: “The dynamics of unemployment: the classical and neoclassical cases”.<sup>20</sup> The difference between that section and section 9.4 (“The dynamics of unemployment: the Keynesian case”) is not the explanation of how unemployment comes about, but whether it can be efficiently (that is, in a relatively short time period) solved by the market self-adjusting mechanism of falling prices, helped by central bank monetary policy. The main claim of classical employment theory, as discussed by Patinkin in section 6 of chapter 9 of the 1953 draft and in section 5 of chapter 14 of *MIP*, is the notion that (involuntary) unemployment is a cyclical phenomenon, not a permanent one.

The matter of the automatic decrease of the extent of involuntary unemployment through the real balance effect was the subject of Patinkin’s 1948 *AER* article, where he claimed that over the years the classical and Keynesian “camps have really come closer and closer together. It is argued that the basic issue separating them is the rapidity with which the economic system responds to price variations” (Patinkin, 1951, p. 253). Although Patinkin (pp. 271-72) recognized that Pigou (1943, 1947) had not recommended a deflationary policy as a solution to unemployment, he pointed out that Pigou’s disavowal of that policy was based not on the notion that dynamic considerations would make it inefficient, but on the view that in real life prices are not flexible enough, that is, “he felt that the policy would not work because it would not be permitted to work”. On the other hand, according to Patinkin (pp. 273-74), the main reason why it is “impractical to depend upon the Pigou effect as a means of monetary policy” is the length of the adjustment mechanism, as determined by the

possibility that the price-elasticity of aggregate demand is very low and by the risk of a deflationary spiral set up by adverse expectations and distribution (bankruptcy) effects.

Patinkin (pp. 281-82) distinguished between three theoretical formulations of the Keynesian position, from the most opposed to the closest to the classical position based on the efficiency of the Pigou effect (cf. Patinkin [1949b] 1981, pp. 165-66). The first one states that the static system may be inconsistent, which is the position argued in Patinkin's 1947 thesis and in Klein 1947a, 1947b. The second formulation states that the dynamic system may not be convergent and the economy may remain for ever in unemployment disequilibrium, which is the position that Patinkin (1953, p. IX-13) sometimes associated with Keynes (1936). The third approach - which is the one advocated by Patinkin in the 1948 article and in chapter 14 of *MIP* as well - states that, even in a dynamic system, full employment would eventually be achieved by price flexibility, but that the length of time makes the policy impractical.

Patinkin (1951, p. 282) claimed that, despite the theoretical differences between those three Keynesian positions, their policy implications are similar, in the sense that the policies would attempt to influence consumption and investment directly through tax reductions (the "Simons-Mints school") or through government investment (e.g., Alvin Hansen). Patinkin's 1948 discussion of the Keynesian position(s) raised two kinds of reactions in correspondence. The first, as illustrated by a letter from Albert Kessler (a PhD student at the University of Wisconsin who would later move to Jerusalem) of 11 December 1948, who noticed that "most people here are very interested in your reconciliation, in terms of putting them in the same general framework, of the Simons-Mints school (vocally non-Keynesian) and the Hansen school (explicit Keynesian disciples)". Another reaction came from D. H. Robertson in a letter of 25 July 1951, who protested against Patinkin's use of the term "Keynesian" in the 1948 article. "You seem to itch to use the so-convenient word to cover anybody who doesn't wish to do nothing in a trade depression except cut wages! In *that* sense I have been a Keynesian since 1912!" In part because of reactions like these, Patinkin did not repeat in the 1953 draft and in *MIP* his 1948 description of the "Keynesian positions". He still referred to the views of the "Chicago School" as represented by H. C. Simons (1948) and L. W. Mints (1950), but this time interpreted it as an example of the "modern-day classical view" that the "degree of government intervention" necessary for a full-employment policy (through contracyclical tax remissions and transfer payments) is lower than the one advocated by the Keynesians (through government investment).

Patinkin's difficulty in distinguishing between Keynesian and classical economics is shown in his reply to Robertson in a letter of 15 August 1951.

I can only plead in self-defense that I have been trying for the past ten years to find out just what is the nature of Keynesian economics, and how does it differ from previous economics. I am not sure that I understand the difference today; I am not even sure that a difference exists. Keynes' main contribution seems to me to be in the analytical tools which he uses; not in the conclusions which he reaches.<sup>21</sup>

Patinkin's 1948 article also brought critical reactions from Gottfried Haberler (1952, p. 240), who argued that no adherent of the Pigou effect had ever suggested that antidepression policy should consist primarily of maintaining the money supply constant while allowing money-wage and prices to fall until the resulting increase in real balances restores full employment (cf. Patinkin, 1951, p. 271). Patinkin apparently accepted Haberler's criticism, for the 1948 description of classical monetary policy based on a constant money supply was not repeated in *MIP*. Instead, Patinkin (1965, pp. 335-36) stressed the policy of manipulating the interest rate in order to stabilize the price level in a "Wicksellian world". The connection with Wicksell ([1898] 1936) is even more explicit in the "supplementary note (a)" added to section 9.2 of the 1953 draft, where Patinkin wrote that "a central bank policy of maintaining a constant price level by proper manipulation of the interest rate is also a full-employment policy". It reflects Patinkin's 1952 article on Wicksell, although Wicksell emphasized central bank rediscounting and only rarely mentioned open-market operations discussed by Patinkin in the 1953 draft and in *MIP*. Low interest-elasticity of investment became in chapter 9 of the 1953 draft (p. 12) and in *MIP* (p. 336) the crucial assumption separating the Keynesian skepticism from the Classical (Wicksellian) belief in the efficiency of monetary policy to achieve full employment. However, in contrast with the 1947 thesis and the 1948 *AER* article, Klein's (1947a) notion that there may be no positive interest rate able to equilibrate saving and investment at full employment is not mentioned in the 1953 draft and in *MIP*, since Patinkin gradually moved away from static inconsistent models. In his 1953 notes for the second draft Patinkin wrote: "importance in that system not inconsistent".

The investment interest-inelasticity assumption was not associated by Patinkin with specific passages from Keynes (1936). Neither did Patinkin (1965, p. 339, first paragraph) claim that there was textual evidence that Keynes's view about the inefficiency of the automatic market mechanism and of monetary policy was based on the issue of the "length of time" necessary to reach full employment. In the same vein, the automatic recovery

mechanism through price and interest variations - that Patinkin associated with the “classical” position in sections 9.2 and 14. 1 of the 1953 draft and of *MIP* respectively - could not be found in the pre-Keynesian literature, according to Patinkin (1965, p. 357; see also letter of 17 September 1956 to Robertson). In both cases, as pointed out by Patinkin, his reconstruction of the classical and Keynesian positions provided the logical foundations to rationalize their respective policy conclusions.

As discussed in section 1 above, the main theoretical result of *MIP* was the high generality of the long-run neutrality of money proposition contained in the quantity theory of money as reformulated in the book, compared to the more limited validity of Keynesian monetary theory. Patinkin (1995b, p. 123) would eventually regret his excessive emphasis on long-run neutrality in the book.

This may be the appropriate place to plead guilty to having earlier placed too much emphasis on the long-run neutrality in both the 1956 and 1965 editions of [*MIP*]. In retrospect, I think that this emphasis resulted from the enthusiasm with which I had demonstrated in my 1954 article... that with the exception of the assumption of full employment, the other assumptions that Keynes had claimed to be necessary for the validity of the quantity theory... were actually not so - an enthusiasm that carried over and unduly to the writing of my book.

It was only many years after writing *MIP* that Patinkin (1972), motivated by Friedman’s (1970, p. 208) remarks that the old quantity theory of money had not incorporated the short-run non-neutrality of money in its formal analysis, tackled the issue. Patinkin (1972) examined how the traditional neo-classical approach to economic fluctuations and unemployment was based on the short-run non-neutrality of money in the quantity theory, as caused by imperfect anticipation of the rate of change of prices in “transitional periods”, by the effect of a lower price level on the burden of debt (Irving Fisher), by the influence of price anticipations on the velocity of circulation of money producing a self-justifying deflationary process (the “Chicago School” of Henry Simons and others), and by the lag of wages behind prices because of wage contracts (the “Cambridge School” of D. H. Robertson and others). This is distinct from the approach deployed in *MIP*, where the theory of employment – in both its Keynesian and classical formulations – was not developed on the basis of factors (e.g. money illusion and monetary contracts) that may bring about non-neutrality of money in the short or in the long-run. Sections 9.5 and 13.4 of the 1953 draft and *MIP* respectively may be seen as partial exceptions to that, but their main objective was

to show the significance of price rigidity for the theory of interest, not for employment theory (see below in this section).

Sections 9.6 of the 1953 draft and 14.5 of *MIP* stand out as the only ones where Patinkin came anywhere close to interpret the texts of classical economics in terms of his own model. Those sections deal with the relevance of the real balance effect for the treatment of “the problem of secular stagnation” by classical economists. As pointed out by Patinkin (1953, p. IX-18), Keynes’s omission of the real balance effect in the commodity market did not play an important role in distinguishing his position from the pre-Keynesians, since “in any event this effect was not emphasized in the classical and neo-classical explanation of the cyclical upswing”. Matters are different, however, if a long-run point of view is adopted, and the adverse expectational and distribution effects of falling prices can be ruled out (as indicated in footnotes to both sections, Patinkin was probably influenced by the argument of Haberler 1952 and others that the working of the real balance effect in employment theory applies to a secular, not cyclical, perspective). In that context, the presence of the real balance effect in the commodity market explains why a long-run increase in aggregate supply will not bring about a state of permanent overproduction.

However, even in those sections Patinkin (1956, p. 254; 1965, p. 364) was careful enough to warn that his interpretation was a “rationalization” of the classical position about the impossibility of general overproduction in the long-run, since no quotations could be provided showing that classical economists in fact argued in those terms (see also “supplementary note L” on “Say’s Law” in *MIP*). In the same vein, Patinkin (1965, pp. 649-50) was not convinced by the argument advanced by Becker and Baumol (1952) that classical economists had in mind the notion of “Say’s Equality” (that is, equality between income and aggregate demand as an equilibrium condition) instead of “Say’s Identity” (equality between income and aggregate demand at all income levels). In section 9.3 of the 1953 draft he still used the term “Say’s Law” in the sense of Keynes (1936) and Lange (1942), which was called “Say’s Identity” by Becker and Baumol (1952). In that section (and in section 14. 4 of *MIP* as well) Patinkin argued that his discussion of convergence to full employment equilibrium was not based on a special form of the aggregate demand function (as in “Say’s Identity”), but on its sensitivity to changes in interest and prices. The matter had been discussed before (implicitly) in the 1948 *AER* article and (explicitly; see Patinkin [1949b] 1981, pp. 168-71) in the 1949 *EJ* article. Patinkin pointed that out in a letter of 16 August 1953 to William Baumol, where “Say’s Law” is used in the sense of “Say’s Equality”.

Surely, you should not suspect me of considering “Say’s Law” as being a “trivial” concept. Indeed, I like to think that the most important thing I had to say in my AER article five years ago and in my EJ article a year later consisted of the detailed presentation of the concept of “Say’s Law” (without, of course, using this term), and the emphasis that this concept constituted the real essence of the classical position. Your own article has now confirmed that what I considered on purely logical grounds to be classical can also be given textual justification.

In chapter 9 of the 1953 draft Patinkin mentioned the “Keynesian restriction that the rate of interest cannot fall below a certain positive value” (p. 18; see also p. 12) as a limitation on the efficiency of monetary policy. However, in section 14.3 of *MIP* he changed his mind about the relevance of the interest rate floor as a “true limit” on monetary policy (1956, pp. 245-49; 1965, pp. 349-55, where the section title was changed to “the liquidity trap”, reflecting his 1959 exchange with John Hicks). Patinkin (1956, pp. 248-49; 1965, pp. 353-54) argued that this is a “false limit” to monetary policy, since the government itself - who, unlike individuals, is not restricted by liquidity considerations - can pursue open-market policy including private as well as public bonds and, by that, bring the interest rate down (see also Keynes, 1936, p. 207, end of third paragraph, for a similar argument). Under these circumstances, the “true limit” of monetary policy is determined by the desired degree of government intervention in the bond market.<sup>22</sup>

Section 9.5 of the 1953 draft on Keynes’s interest theory has no exact match in chapters 13 and 14 of *MIP* (although part of its argument can be found in section 13.4). It is a first draft of section 2 of chapter 15 of the book. The main point of section 9.5 is that Keynes’s proposition that an increase in money supply will reduce permanently the rate of interest is only valid under the assumption of unemployment and constant money-wages. Patinkin also considered the alternative interpretation that Keynes’s result of non-neutrality of money is based on the presence of money illusion in the speculative demand for money (which generally does not depend on the price level in Keynes’s treatment). Patinkin emphasized the money-wage rigidity interpretation of Keynes’s interest theory in the 1953 draft, while in *MIP* he tended to stress the assumption of money illusion in the money demand function (cf. 1965, pp. 278-80). In his 1953 notebook, Patinkin wrote that Keynes’s “monetary theory does need [money-wage] rigidity”, in contrast with Keynes’s theory of employment (see also Patinkin 1950-51, pp. 56-57). Section 13.4 of *MIP* presented an

interpretation of Keynes's theory of interest in terms of an IS-LM model with given prices (which are flexible in section 9.4 of the 1953 draft) and money-wages.

The absence of the IS-LM model from the 1953 draft may be explained by Patinkin's (1953, p. IX-16, n. 1) remark that, under the assumption that the markets for commodity and money are in equilibrium and that there is excess supply of labor, the bond market is in disequilibrium because of Walras Law. As discussed in note 7 above, Patinkin (1956, p. 229; 1965, p. 333, n. 22) would change his mind about the meaning of Walras Law in unemployment and, accordingly, make use of the IS-LM model to study monetary theory in those conditions. Another element that is missing from the 1953 draft, as compared to the final version of the book, is a discussion of the Keynesian multiplier, addressed in section 14.2 of *MIP*. Patinkin (1965, p. 344) rejected the multiplier concept because it neglected the aggregate supply function and, therefore, the determination of equilibrium. As indicated by a remark in his 1953 notebook - where he wrote in the notes for the second draft: "discuss the concept of multiplier; stuff that was originally in EJ article" - section 14.2 of the book is a revised version of a section that was eventually removed from the 1949 article. Just as in that article, it reflects Patinkin's criticism of what he saw as the neglect of the supply side by Keynesian economics.

A year after the publication of the first edition of *MIP* Patinkin gave a series of lectures at the LSE. In one of his London lectures Patinkin put forward a "Restatement of Keynesian Economics" which ended with a discussion of the "nature of the Keynesian revolution". After repeating his interpretation of Keynesian employment theory as the economics of unemployment disequilibrium, he asked "does this constitute a 'revolution'?"

I do believe that Keynes made a revolution. It is not the analytical revolution that many of his interpreters would like to persuade us has taken place: for in the place of the sharp and absolute difference between the full employment equilibrium of the classics and the unemployment equilibrium of Keynes which they have described, we have the analytically much milder difference of opinion as to the speed with which the economy can be assumed to make its dynamic adjustment. But it is a revolution in economic policy (Patinkin 1957, p. 52).

This was the same conclusion expressed in the last sentence of the introduction to *MIP* (1965, p. xxv). However, Patinkin would later change his mind significantly about the character of the "Keynesian revolution". In his contribution to a 1972 conference on monetary economics Patinkin ([1974] 1982, pp. 167-69) pointed out the difference between

the spheres of discourse in economic theory and in economic policy. “Different policy recommendations can emanate from the same conceptual theoretical framework; and different frameworks can lead to the same policy recommendations”. He illustrated that with a reference to Henry Simons’s (and other quantity theorists) support of government deficits to combat depressions in the 1930s and 1940s. “The examples of Simons, Pigou, and others have led me to suspect that the real Keynesian revolution took place not in the sphere of economic policy (where changes were already occurring in the 1930s), but in that of economic theory. I suspect that the real change wrought by Keynes’s *General Theory* was in the conceptual framework from which we viewed the problems of employment, interest, and money”.<sup>23</sup> This was an entirely new perspective that would lead Patinkin (1976, 1982) to search for the “central message” of Keynes’s economics and find it in the principle of effective demand as represented by the equilibrating role of changes in output. In the process, Patinkin (1982, pp. 80-81) came close again to Klein’s 1947 book, which had had an important influence on his first discussions of employment theory in the 1940s.

## **6. Conclusion**

The core of Patinkin’s (1956; 1965) theory of employment is the disequilibrium model of section 13.2 of *MIP*, based on the notion that both workers and firms are off their respective labor supply and labor demand curves in involuntary unemployment. The idea that involuntary unemployment should be described as excess supply of labor accompanied by falling money-wages can be found also in Patinkin’s writings leading up to chapters 13 and 14 of *MIP* (Patinkin, 1948, 1949b, 1951, 1953). It was initially developed as a reaction to the interpretation put forward by his former teacher Oskar Lange that Keynesian “unemployment equilibrium” should be represented by a labor supply curve perfectly elastic up to the point of full employment. On the other hand, the concept of firms operating off the labor demand function on points below the marginal product curve (and, correspondingly, off and to the left of the aggregate supply function)<sup>24</sup> because of a sales constraint cannot be found before the 1956 book, although the idea appears in incipient form in the 1947 thesis.

The reading of unpublished documents such as Patinkin’s 1947 thesis, the 1953 draft of *MIP* and the 1954-55 correspondence with Nissan Liviatan (together with his 1948 and 1949 articles in *AER* and *EJ* respectively) indicates that Patinkin’s 1956 disequilibrium model grew out of his search for a connection between the firm’s production decision at the microeconomic level on one side, and the aggregate demand for output at the macroeconomic level on the other side. From Patinkin’s point of view, that theme had been largely ignored by

the macroeconomic literature of the 1940s and 1950s because Keynesian models (and Keynes himself) tended to overlook the role of the aggregate supply function in the determination of output and employment. This explained, according to Patinkin (1947), why the notion of inconsistent models had not been incorporated into the theory of employment up to the writing of his thesis. Patinkin (1947) also contained a first attempt to discuss the working of the economy off the labor supply and demand curves. However, the dissatisfaction with his proposed solution to the real wage determination problem under those circumstances led Patinkin (1949b; 1953 chapter 9) to assume instead that firms are on their labor demand curves and that the commodity market clears through price flexibility in unemployment. While in the 1949 *EJ* article Patinkin claimed that the low price and interest elasticity of aggregate demand could explain the slow convergence to full employment equilibrium (under the assumption that money-wages and prices are not perfectly flexible, as pointed out in the 1948 *AER* article but omitted in *MIP*), in the 1953 draft Patinkin introduced the influence of price level expectation on the real wage rate anticipated by firms and, by that, on their production decision.

Although Patinkin referred often to Keynes (1936), his formulation of the theory of employment differed in many aspects from the one put forward in the *General Theory*. In particular, the notion that firms are off their (notional) labor demand curves in unemployment disequilibrium cannot be found in Keynes, as Patinkin pointed out in his 1947 thesis and would often repeat later on (see e.g. Patinkin 1976, p. 94). Even the definition of involuntary unemployment as excess supply of labor (with workers off their labor supply curves) is not explicitly stated in Keynes's book, although not inconsistent with it. In the same vein, the notion that the real-balance effect will eventually bring the economy back to its full-employment level is not part of Keynes's framework. Patinkin - especially after his 1948 *AER* article, with its qualification of the central role of the inconsistency argument advanced in the 1947 thesis - played down the analytical differences between "Keynesian" and "classical" theories of employment, but would change his mind after a careful examination of Keynes's principle of effective demand in the 1970s. Patinkin's (1976, 1982) interpretation of Keynes's theory of employment represented in some ways a return to the approach outlined in the 1953 draft.

Patinkin's subsequent rejection of his 1953 employment model and its replacement by a disequilibrium approach in the following drafts of *MIP* cannot be explained by critical reactions from readers of the first draft. It apparently resulted from Patinkin's (1965, pp. 323-24; 340-41) desire to "give precise expression to many intuitive, common-sense ideas which

have all too frequently been unjustifiably rejected as violating the precepts of rigorous economic analysis". Such ideas included the co-existence of involuntary unemployment and price flexibility, and the notion that an increase in aggregate demand can bring about a higher employment level without a prior reduction in real wages. Already in chapter 9 of the 1953 draft Patinkin had suggested that movements of employment and output may occur even if the "existing" (as opposed to the "anticipated") real wage rate remains constant.<sup>25</sup> But the idea was not clearly conveyed, which led Patinkin to write in the notes for the second draft that the result that employment may be low even if real wages are not high is "essential". It was in the second draft that Patinkin introduced the concept of a kinked labor demand curve, which he removed from the third draft because it was "vague", and then put back again in the final version as a reaction to Liviatan's comments. As shown by the correspondence, the kinked curve was still under dispute a couple of months before patinkin sent off the final draft to the publishers. At first, Patinkin thought that the notion of spillover effects could be enough to explain why perfectly competitive firms believe that their market is limited. He then took in Liviatan's detailed criticism that the reconciliation between the notion of a sales constraint and the perfect competition assumption was problematic. Nevertheless, that was considered as a logical puzzle that did not warrant, by itself, abandonment of the disequilibrium model. As Patinkin explained in a letter of 12 February 1974 to Axel Leijonhufvud,

In contrast with the other parts of my book, I did not succeed in achieving in [chapter 13] ... an integration of my economic intuition with my formal economic analysis. But surely an astute observer of life among the econ should have recognized this for what it was: the insistence of a semi-deviant member of the tribe to express something he considered to be of great importance - something basic to his own thinking - even if he thereby violated the strict taboo against saying anything that was not rigorously and systematically incorporated in a model. Indeed, perhaps this deviant behavior can best be understood as a reflection of the fact that the aforementioned member wrote what he wrote some twenty years ago in what was then an outlying area of the tribe - and hence removed from the pressures of conformity that prevailed in the more central areas!

The letter suggests that Patinkin may never have written the disequilibrium model of chapter 13 had he stayed in Chicago instead of moving to Jerusalem. Moreover, that chapter did not solve the issue of the determination of the real wage rate in disequilibrium, tackled

unsuccessfully by Patinkin in the 1947 thesis. As pointed out by Nissan Liviatan in a letter of 16 July 2004, “many of the problems raised in chapter 13 are still unresolved, partly because the profession turned to other, easier, alternatives and because the problem of massive involuntary unemployment does not concern” most of modern economics. It is clear enough that Patinkin’s 1956 theory of employment was not developed on the basis of passages from Keynes (1936), but as a general framework that could be used to assess and compare the respective implications of classical and Keynesian theories for the formulation of economic policy. The 1953 model could still have played that role, but, as suggested by the correspondence with Liviatan, an explanation of involuntary unemployment based on a “subjective” thing such as producers’ price-expectations would not be fully acceptable at the time.

### *Notes*

I am grateful to Dvora Patinkin for granting me permission to publish chapter 9 of the 1953 draft, and to the staff of the Special Collections Library of Duke University for their kind help with the Don Patinkin Papers and for permission to quote from the manuscripts. I would also like to thank Gali Taub for helping in reading the correspondence between Don Patinkin and Nissan Liviatan. Michel Rocha provided efficient research assistance. I am indebted to Roger Backhouse, Dan Hammond, Geoff Harcourt, Nissan Liviatan, Hans-Michael Trautwein and participants at the 2004 conference of the History of Economics Society (Victoria College, Toronto) for helpful comments on earlier drafts. The research for this paper was done during a visit to the department of economics at Duke University in the spring term of 2003. I would like to thank my host Craufurd Goodwin, as well as Neil de Marchi and Roy Weintraub. Financial support from CNPq (Brazilian Research Council) is gratefully acknowledged.

1. Apart from chapter 13, other exceptions were the introduction of the stability analysis of the price level (see Patinkin 1965, p. 666; Boianovsky 1998) and the model of demand for money (Patinkin 1956, chapter 7; 1965, chapter 5).
2. Unless otherwise stated, all passages quoted or mentioned from the second (1965) edition of *MIP* also appear in the first (1956) edition.
3. It is somewhat surprising that Patinkin did not mention the drafts of the book to Friedman. In a letter of 2 September 1954 to D. McPherson (of Row, Peterson Co.), Patinkin wrote that “I am very much interested in having the manuscript read by someone in the States... I can

tell you ahead of time - on the basis of sad experience - that it won't be easy to find someone to undertake this task. In fact, I wanted to ask you not to contact the people at Chicago - with the exception of Milton Friedman - or the people at Princeton; all of these have already been approached and have declined... The same is true for Franco Modigliani”.

4. In correspondence of 25 June 2003 Nadav Halevi informed that he had just come to Israel, to write his dissertation for Columbia University, when Patinkin asked him to read the third draft. According to Halevi, his comments related to points of exposition.

5. Nissan Liviatan was born in Konwo (Lithuania) in 1925 and migrated to Israel in 1936. He graduated in economics at the Hebrew University in 1952 and got a M.A. degree in economics at the same university in 1954. He studied economics and econometrics at Oxford University between 1954 and 1957, when he became assistant lecturer at Hebrew University. In 1962 he finished his Ph.D. at the same university, where he became full professor in 1971 (to present date). Liviatan's main areas of research have been the economics and econometrics of saving and consumption, the theory of economic growth, and the macroeconomics of stabilization policy.

6. Gustav Cassel ([1918] 1932, p. 357) suggested that a state of unemployment equilibrium could only be explained by the withholding of labor supply at the current wage rates (see Boianovsky and Trautwein, 2003, pp. 412-13). As recalled by Patinkin (1995a, p. 362), Cassel was used as a textbook in general equilibrium classes in Chicago in the 1930s and 1940s.

7. Lange distinguished between the equilibrium and disequilibrium definitions of unemployment because of their different implications for the equilibrium in other markets. As pointed out by Lange, the disequilibrium definition implies that, because of Walras Law, there is excess demand in some other market, which is not the case with Keynes's equilibrium definition. Patinkin, however, did not address this issue in his discussion of the notion of involuntary unemployment. It was only in a footnote to p. 15 of chapter 9 of the 1953 draft that Patinkin observed that his definition of unemployment implied that, under the assumption that the commodity and money markets are in equilibrium, the bond market is in disequilibrium if there is unemployment (see also section 5 below). Patinkin (1956, p. 229) did not repeat that observation, and in 1958 (pp. 314-15) assumed away the difficulty by attributing to workers a passive adjustment of their planned supply of labor to the amount employers demand at the current wage rate, so that there is always “equilibrium” in the labor market. As realized by Patinkin, this brought him closer to Lange's interpretation of “equilibrium unemployment” (see also Patinkin 1965, p. 333, n. 22; 1987, pp. 866-67).

8. This corresponds to Marschak's (1951, pp. 63-64; based on lectures given at the University of Chicago in 1948-49) definition of involuntary unemployment as the inability of workers to influence the level of employment through money-wage cuts. Marschak compared that definition (which he associated with chapter 19 of Keynes 1936) with the alternative one in terms of an excess supply of labor and money-wage rigidity (which he associated with chapter 2 of Keynes 1936). In the first definition, according to Marschak, there is equilibrium between supply and demand in the labor market (see also Boianovsky 2002, p. 235) In a letter of 10 November 1948 Patinkin thanked Marschak for sending his notes on employment, but he did not follow up Marschak's distinction between two kinds of involuntary unemployment.

9. See also Boianovsky 2002, pp. 228-30.

10. As noticed by Rubin (2002, p. 220), Patinkin's dissatisfaction with the real wage bargaining model of his thesis may be explained in part by its incompatibility with perfect competition. Rubin's treatment of the origins of Patinkin's "disequilibrium interpretation" is restricted to Patinkin's (1948b) analysis of unemployment as workers off their labor supply curve, with no discussion of the model of chapter 13 of *MIP*.

11. Patinkin (1947, p. 87) suggested that Keynes (1936) implicitly maintained that the zero lower bound on the rate of interest could create an inconsistency and, therefore, unemployment. The failure of Keynes (and his followers) to discuss that explicitly in terms of overdetermination was associated by Patinkin with Keynes's neglect of the aggregate supply curve, a charge that Patinkin would repeat in his 1949 *EJ* article. Patinkin's charge was challenged by de Jong (1954), who pointed out that Keynes (1936, chapter 3) had not omitted the concept of an aggregate supply function, and that the 45° line in the usual Keynesian diagram could be interpreted as a supply function with a declining real wage rate. Patinkin (1976, p. 84, n. 3) would eventually accept de Jong's interpretation, but in the 1950s matters were still unclear. In a letter of 12 May 1954 to de Jong, Patinkin wrote: "I have been puzzled, along with you, as to the meaning of Keynes' [1936] pages 24-25... I must confess that I simply do not understand these pages in Keynes".

12. As explained by Patinkin (1951, p. 268), "if we admit the possibility that, for sufficiently large consumption, the decrease in the marginal utility of cash balances is accompanied by a much faster decrease in the marginal utility of consumption, then the individual will continuously use most of the additional real funds (made available by the price decline) to add to his balances". He associated that possibility with "the uncertainty created by the price decline", which "might cause people to accumulate indefinitely large real cash balances, and

to increase their expenditure very little if at all” (p. 273). However, Patinkin (1965, p. 338) would dismiss in *MIP* the notion that the real demand in the money market may become infinite.

**13.** The influence of elastic price expectations was considered by Erik Lindahl (1939, p. 186) in his discussion of a Wicksellian downward cumulative process. Lindahl suggested that the rate of price fall would accelerate, which could cause unemployment if money-wages were not perfectly flexible and if the increase in the real anticipated rate of interest led to an incentive to “shorter investments” with a lower capital/output ratio. It should also be noted that, apart from an influence from the Wicksellian literature, Patinkin (1946b, p. 2) had put forward, in an unpublished manuscript on inventories, an expression for adaptive expectations based on the assumption that “anticipated prices can be expressed as a linear function of past prices”. Hence, although Darity, Leeson and Young (2004, chapter 5) are correct in stating that Patinkin did not discuss endogenous expectations in the first (1956) edition of *MIP* (cf. Patinkin, 1965, pp. 310-12), it is not true that he overlooked the theme altogether in his writings before that.

**14.** Patinkin (1953) did not discuss the symmetrical effects of an *increase* in the expected price level caused by an exogenous upward shift of aggregate expenditure starting from a full employment equilibrium position. It is clear enough that such a reduction in the “anticipated real wage rate” would bring about an increase in output beyond its full employment level. This means that “full employment” should be interpreted in the 1953 model as akin to the notion of a “normal” rate of unemployment with fluctuations around it.

**15.** See Dornbusch and Fischer (1978, p. 351, second paragraph) for a similar interpretation of *AK* as profits. The second draft was sent to M. Bronfenbrenner and used by Patinkin as a textbook in a graduate course in monetary theory in the spring term 1954 (letter to D. McPherson, 24 May 1954).

**16.** Patinkin’s attempted formalization of wage determination in unemployment disequilibrium is a representation of the spillover effect, where money-wages are influenced by excess supply in both labor and commodity markets. That was the approach deployed by Patinkin (see, e.g., 1965, p. 485) to write the dynamic equations for changes in the rate of interest and the price level in the full employment model of *MIP*. On the possibly conflicting roles of intuition and mathematics in economics according to Patinkin see Gayer and Weintraub 2000.

**17.** Liviatan’s concept of cash or liquidity constraint may be also found in Leijonhufvud’s ([1973] 1981, p. 119) discussion of an “effective demand failure” resulting from the fact that

“even if the ratio of money wages to money prices comes out as the G[eneral] E[quilibrium] real wage... producers with excess capacity cannot bid for labor until they have sold their goods - which the unemployed do not have the cash to purchase”.

**18.** This is different from the more familiar notion (see, e.g., Phelps 1969) that the firm tends to reduce output if it believes that the price decline is *not* general. Liviatan’s argument is that the firm will reduce output if it believes that the price decline is general, since this is interpreted as meaning that the demand for its product will not react positively to a price fall and that the anticipated real wage rate goes up.

**19.** Liviatan did not follow up Patinkin’s suggestion. In correspondence of 16 July 2004, Liviatan remarked that “it seems to me now that it is a futile effort to try to deal with involuntary unemployment in the framework of the competitive model”, and that “the demand for labor may depend on the level of output in the economy as a whole in a model of imperfect (monopolistic) competition, as shown by more recent developments”. After the publication of *MIP*, attempted solutions to the logical difficulty revealed by footnote 9 of chapter 13 were put forward by Cross and Williamson (1962), and by Gogerty and Winston (1964). In the model by Cross and Williamson a deflationary gap causes accumulation of unintended inventories followed by a price level fall and an increase in the real wage rate. Differently from Patinkin, firms adjust employment along their labor demand curves as they try to eliminate excess inventories. Patinkin (1965, p. 670) dismissed Cross and Williamson’s model because it implies that involuntary unemployment exists only in the presence of continuous excess inventories, “an implication which, it seems to me, runs counter to the facts” (cf. his correspondence with Liviatan). Cross and Williamson (like de Vroey, 2002) interpreted Patinkin as assuming price and wage stickiness, despite Patinkin’s explicit flexibility assumption. In any event, as clarified by Gogerty and Winston (1964), Patinkin’s assumption of low price elasticity of demand cannot generate accumulation of unintended inventories if perfect price flexibility is also assumed. Gogerty and Winston suggested instead the introduction of Arrow’s (1959) notion that firms have a transitory monopoly power in disequilibrium as a way out. Patinkin reacted to their note in a letter of 27 March 1964 to D. Gogerty, where he did not disagree with their analysis but wrote that “without being able to say why, I do not feel that you have really solved the problem that is our mutual concern”. Referring to the literature on disequilibrium macroeconomics, Patinkin stated at the 1987 Perugia conference that “you can develop a whole complicated mathematical theory of quantity constraints, but in most of the literature I don’t see the person going back to ask why does the quantity constraint exist. Which has bothered me and continues to bother me”.

Outside *MIP*, Patinkin (1987, p. 865) sometimes just assumed that firms are “aware” that they face a quantity constraint, which, as he knew, only begged the question. Patinkin (1989, p. xix) would eventually accept that the assumption of imperfect competition - as suggested by Liviatan in correspondence of 28 December 1954 and then rejected by Patinkin because he wanted to show the existence of involuntary unemployment under perfect competition - could solve the logical difficulties of chapter 13 of *MIP*.

**20.** As implied in a letter of 17 September 1956 to D. H. Robertson, the distinction between “classical” and neoclassical” economists was introduced in the book because of criticism by W. Baumol. “Having had my wrist slapped by Baumol for careless use of the term ‘classical’, I tried to make use of it in the book consistently to refer to classical economists proper”.

**21.** Partly quoted by Backhouse (2002, p. 199). Robertson would not accept either Patinkin’s (1956, p. 237; 1965, p. 340) suggested description of “Keynesian” economic policy as based on government expenditure in real investment instead of current account. “I don’t think it would occur to anyone in this country to classify on precisely those lines” (letter of 15 August 1956). Patinkin replied in 17 September 1956 that “if I remember correctly the seminars of Simons and Mints, they would advocate vigorous rediscount policy and tax remission to offset this downswing. They would insist that if their suggestions were promptly followed, there would be no need to get ‘extravagant’ about it; but they would be willing to go to such extravagance if the need should arise”. Reflecting on the influence of H. Simons during his student days at Chicago, Patinkin ([1969] 1981, p. 246; see also 1995a, pp. 362-63) pointed out that “in the slang of those days, most of us were ‘simonized’ to some degree or other”. As observed by Mehrling (2002, p. 171), it was the Chicago tradition of his old teachers Simons and Mints that Patinkin had in mind when he referred loosely to “the classics”.

**22.** This would not, of course, prevent a liquidity trap caused by a zero lower bound on the nominal interest rate (see Boianovsky 2004). Patinkin (1965, pp. 349-52; 1953, chapter 7.3) was critical of the notion that the demand curve for money becomes horizontal at some minimum (positive) rate of interest, on the grounds that the amount of money demanded “cannot become infinite unless the supply of bonds does so”. Accordingly, the positive floor to the rate of interest was deemed a phenomenon of the bond market (reflecting the lower liquidity of bonds vis-à-vis money), not of the money market.

**23.** Patinkin’s change of mind was probably influenced by Friedman’s ([1967] 1969) and J. R. Davis’s (1968) discussion of the role of fiscal policy in Simons’s policy prescriptions.

24. As pointed out by Patinkin (1965, p. 358, n. 37), firms could also be “inadvertently” to the right of their supply curve producing more than their optimum output. Cf. note 14 above.

25. The notion that a reduction in unemployment is not necessarily associated with falling real wages can be found already in Patinkin’s 1948 discussion of the implications of the real balance effect for employment theory. He writes that “the classical school holds that the existence of long-run unemployment is *prima facie* evidence of rigid wages. The only way to eliminate unemployment is, then, by reducing *real* wages... Pigou now recognizes that changing the relative price of labor is not enough, and that the absolute price level itself must vary. In fact, a strict interpretation of Pigou’s position would indicate that unemployment can be eliminated even if real wages remain the same or even rise... for in any case the effect of increased real value of cash balances is still present” (Patinkin, 1951, p. 265). Patinkin, however, did not make clear on that occasion that, under perfect competition, a fall in unemployment will necessarily be associated with lower real wages as long as firms are on their labor demand functions, an assumption common to both Keynes and the classical school (cf. Patinkin 1965, p. 324, n. 10).

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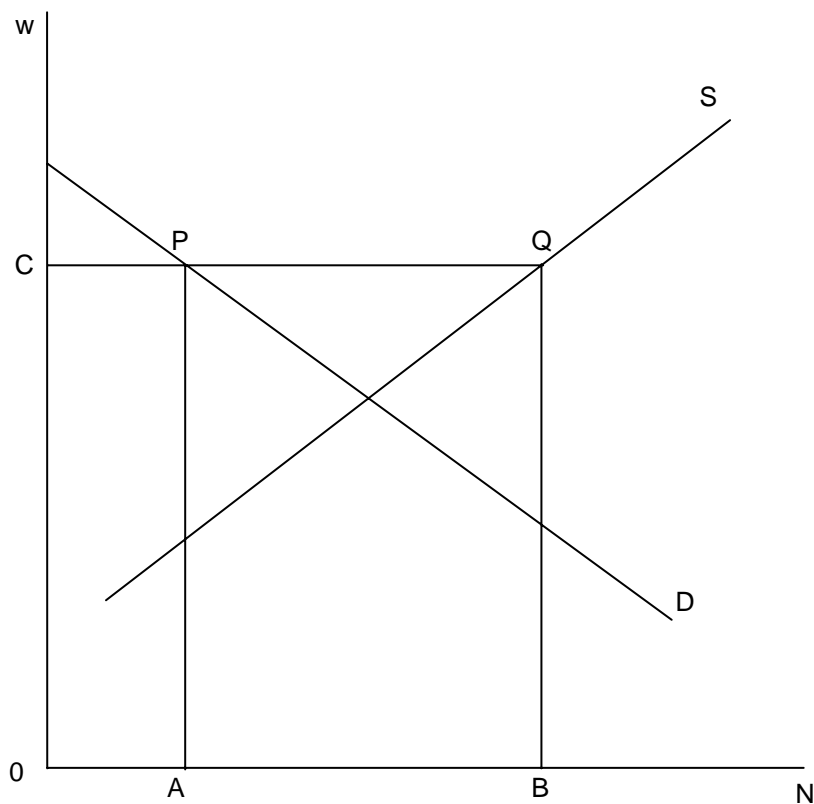


Figure 1 – Alternative Definitions of Involuntary Unemployment  
Source: Lange, 1944, p. 6.

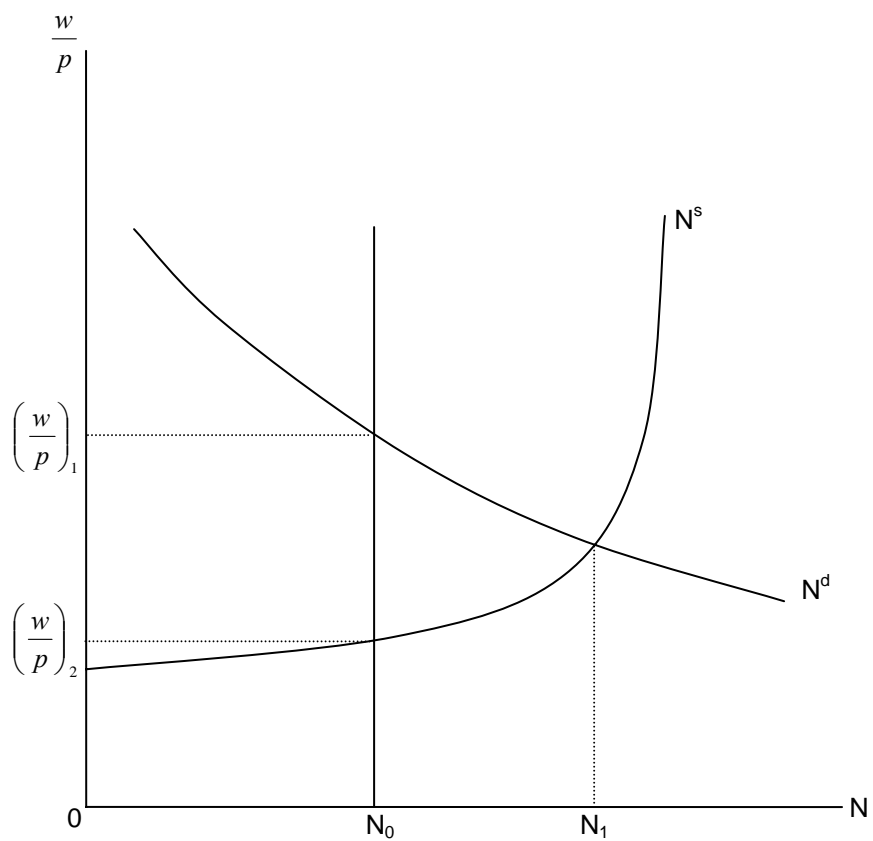


Figure 2 – Real Wage Determination in Unemployment  
Source: Patinkin, 1947, p. 102.

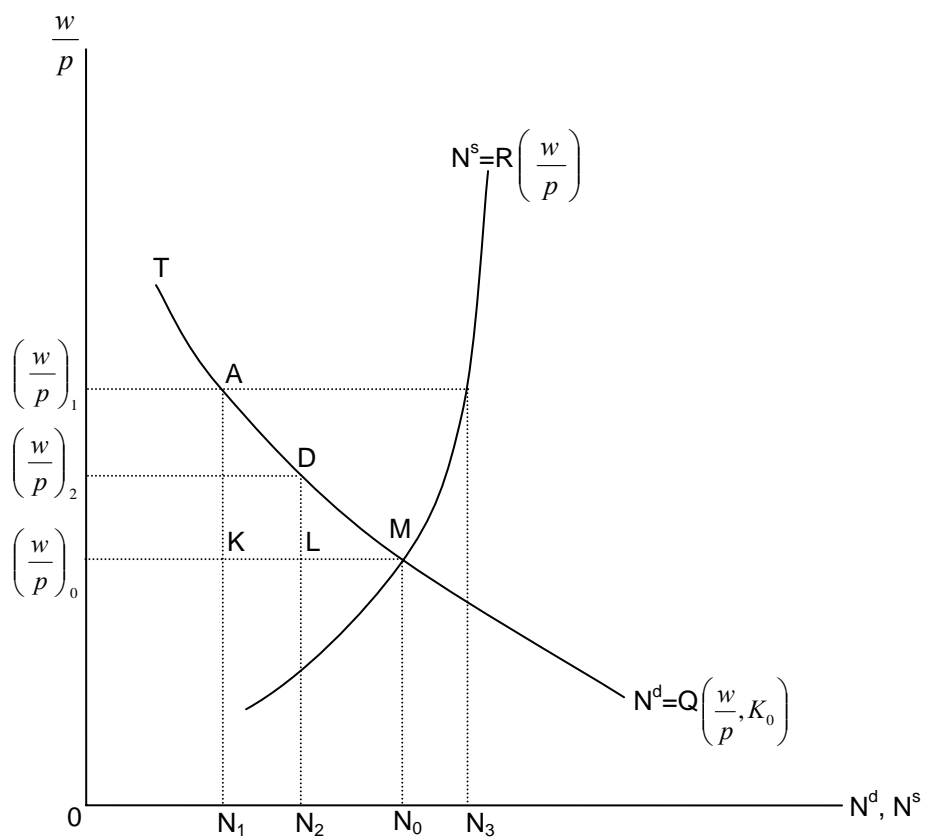


Figure 3 – Kinked Labor Demand  
Source: Patinkin, 1965, p. 316

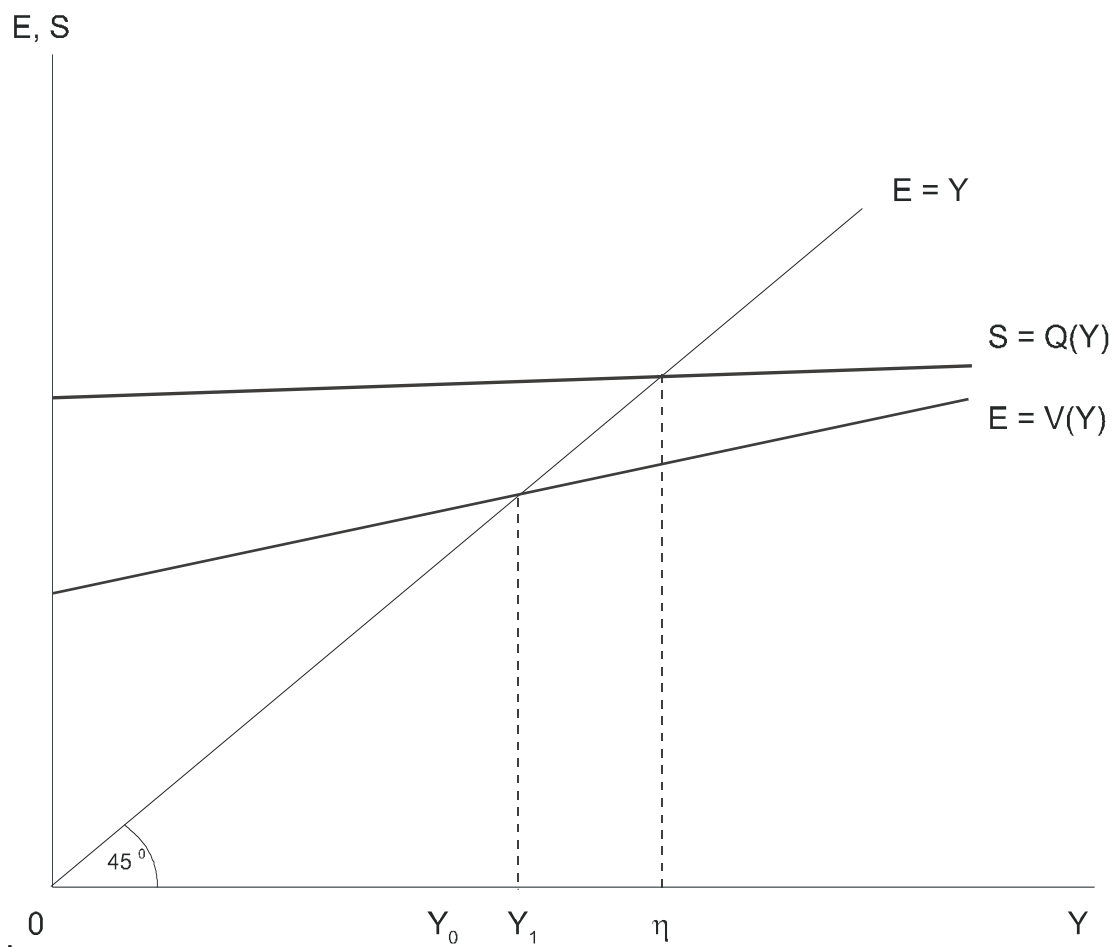


Figure 4 - "Desired Supply Function". Source: Patinkin [1949] 1981, p. 166

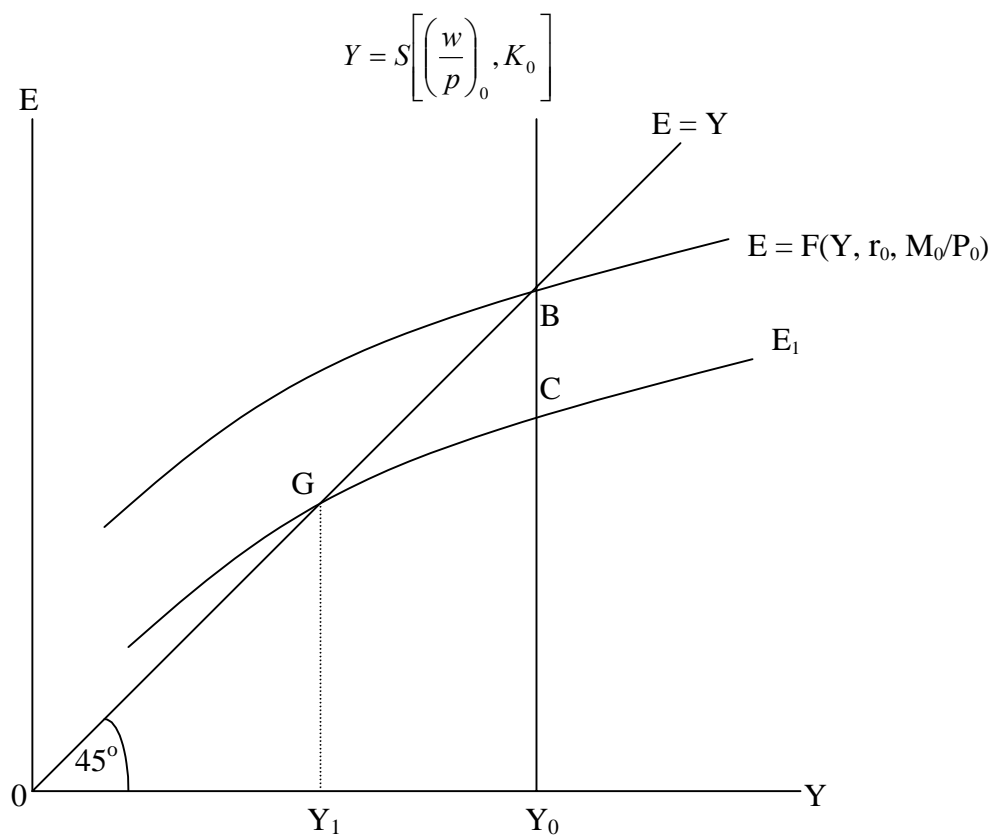


Figure 5 - Disequilibrium in the Market for Commodities. Source: Patinkin [1956] 1965, p. 317

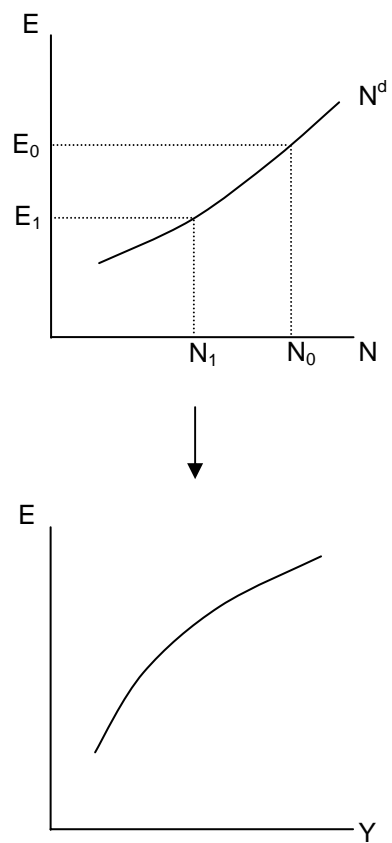


Figure 6 – Employment and Aggregate Demand  
Source: Patinkin Archives, letter from Nissan Liviatan, 12/28/1954