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Non-technical short version
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Abstract
Explanations for the 1929 stock market crash have mostly been behavioral, while a more neoclassical approach has argued for tax wedges and adverse productivity shocks rather than stock market anomalies in explaining the slump. The present paper examines welfare capitalism and trade union policies between World War I and the New Deal in a framework of monopolistic product market competition with search frictions and bargaining in the labor market. The persistence of wartime pro-union legislation contributed to the depression of 1920, while tough anti-union policy enabled a major rise in corporate profits and stock market valuations throughout the 1920s. Landmark court decisions in favor of trade unions in the late 1920s, as well as political pressure on firms to adopt the welfare capitalism model of high wages, made the economy increasingly susceptible to collapsing profit expectations. We model this as an equilibrium switch from individual wage bargaining to (actual or mimicked) collective wage bargaining. The general equilibrium effects of this equilibrium switch are consistent with a decrease in output, employment, and stock prices of 30-50%. The New Deal cast the pro-union court rulings of the late 1920s and early 1930s into law, and thus contributed to the persistence of high unemployment in the 1930s as analyzed by Cole and Ohanian (2005).

Keywords: Trade unions, collective bargaining, Great Depression
I. Introduction
Explinations of the 1929 stock market crash have largely been behavioral. Research by Rappoport and White (1993) argued for a stock market bubble on the New York Stock Exchange, where prices outpaced dividends. Together with a financial frictions and debt-deflation view, this has contributed to a conventional view of the depression in which stock market exuberance fuelled by lax monetary policy, excessive monetary tightening in 1929, and pernicious real effects of banking panics play a prominent role, see Bernanke (1983), Bernanke (1995), Bernanke (2000), as well as Bordo, Erceg and Evans (2000) and Christiano, Motto and Rostagno (2003).

A more neoclassical explanation for 1929 and the ensuing slump has argued for tax wedges, as in Chari, Kehoe and McGrattan (2002), Chari, Kehoe and McGrattan (2006), or adverse productivity shocks, as in Cole, Ohanian and Leung (2005), while rejecting the stock market overvaluation hypothesis, see McGrattan and Prescott (2004).

For the New Deal and the 1930s, Cole and Ohanian (1999), Cole and Ohanian (2004) have argued forcefully that collective bargaining in the labor market and the institutional protection it received under the Wagner Act of 1935 was key in contributing to the persistence of unemployment in the U.S. This interpretation has been applied successfully to other countries, see Cole and Ohanian (2002) for the UK, Beaudry and Portier (2002) for France, and Fisher and Hornstein (2002) for Germany. This view of the Great Depression will take center stage in the present paper, and much of what we do can be viewed as an intertemporal generalization of this type of work.

We look at the emergence from the 1920 recession, as well as the slide into the Great Depression after 1929, in the context of a general equilibrium model of mo-
nopolistic product market competition with search frictions and bargaining in the labor market a la Haefke and Ebell (2004) and Ebell (2006). In this type of models, changes in the bargaining power of labor, as well as in labor market institutions, can have substantial and lasting effects on output, employment, and stock market valuations of firms. Specifically, if substantial monopoly profits exist in product markets, the choice between individual and collective bargaining matters a lot for aggregate outcomes. In the presence of monopoly profits, workers have strong incentives to form unions in order to bargain away parts of the monopoly profit more effectively than individual workers could do. If collective bargaining is adopted, output, firm values, and employment suffer a sharp drop, its size depending on the degree of monopoly power that firms enjoy in product markets. The same outcome materializes if in an attempt to keep unions from forming, firms mimic the outcome of collective bargaining in their hiring decisions and wage offers.

In this paper, we show that the nature of bargaining in the labor markets, and specifically the institutional choice of the bargaining regime, is potentially crucial for an interpretation of the aggregate dynamics of the U.S. economy between World War I and the New Deal. We will argue that both the 1920 recession and the Great Depression can be gainfully interpreted in terms of such regime switches in U.S. labor market institutions. While during the early 1920s, organized labor was weakened relative to its more privileged wartime position, landmark court decisions in the late 1920s foreshadowed a reversal towards a final recognition of trade unions. Furthermore, the incoming Hoover administration, prone to pursue high-wage policies, threatened tighter antitrust policy in case big business did not opt for a more labor-friendly stance. At the same time, rising profitability greatly increased the incentive of labor to re-unionize. As a consequence, a new equilibrium began establishing itself in which
firms increasingly attempted to preempt union activity by offering high wages and more substantial benefits. In this way, much of what the New Deal cast into law in the mid-1930s was factored into expectations, or effectively put in place already, at the onset of the Great Depression. This also implies that the adverse effects on employment described by Cole and Ohanian (2004) for the 1930s already materialized in the late 1920s.

The remaining parts of the paper are structured as follows. The following section briefly sketches the theoretical underpinning of our reasoning. Section III reviews labor and antitrust policy during the 1920s and highlights the continuity hypothesis between this period and the New Deal advanced in recent historical research. Section IV outlines the results of a general equilibrium analysis of the 1920s. Section V concludes.

II. Monopolistic competition and labor market frictions

In order to address the interplay between monopoly power and organized labor theoretically, two model elements are crucial. First, the goods market must allow for monopolistic competition. We assume the standard monopolistic competition setup of Dixit-Stiglitz. In this setup, there is a large number of firms, each producing a differentiated good. The firm producing good $i$ faces the following demand function:

$$ Y_i = \left( \frac{P_i}{P} \right)^{-\sigma} Y $$

where $Y_i$ is firm-level demand, $Y$ is aggregate income, $P_i$ is the price charged by the firm, and $P$ is the aggregate price level, and $\sigma$ is the demand elasticity facing the firm. Monopoly power is measured by the same demand elasticity. The lower is demand elasticity, the steeper is the demand curve facing the firm. Perfect competition is the
special case in which demand elasticity approaches infinity, leading to a flat demand curve and hence price-taking behavior. By first principles, firms with monopoly power maximize profits by restricting output. The greater is the firm’s monopoly power, the lower will output be compared to the efficient perfect competition level. Under the assumption of a positive marginal product of labor, output and employment are positively related, so that any decrease in output will translate into a decrease in employment.

The second crucial element of the model is the explicit assumption of a labor market which allows for two types of wage formation: collective and individual bargaining. Collective bargaining occurs when all workers of a firm band together to bargain with their employer. Under individual bargaining, each worker negotiates separately with his or her employer and wages can be renegotiated at any time. The crucial distinction between the two bargaining regimes is that under this latter individual setup, each worker is treated as the marginal worker. The reason is that when negotiating with his employer, a worker’s only threat point is to leave the firm’s employment himself – not to take any other workers with him – making himself the marginal worker during wage negotiations.

Bargained wages have two components: the reservation wage $w_r$ and a fixed share $\beta$ of the surplus $s_k$, where $k = \{C, I\}$ denotes the bargaining regime.\(^1\)

$$w_k = w_r + s_k$$

The total surplus over which the employer and the worker(s) are bargaining is the difference between profits when negotiations are successful and when they fail. Under collective bargaining, the workers are able to prevent the firm from operating if nego-

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\(^1\) Standard representations of labor markets with wage bargaining, such as the canonical Mortensen-Pissarides framework, have this property.
tations fail, so that the surplus is equal to total profits. Hence, the surplus component of the collectively bargained wage is increasing in monopoly power. Under individual bargaining, surplus is the worker’s marginal contribution to profits. When marginal revenue product is declining, as it is in the presence of monopoly power, this gives firms an incentive to hire workers beyond the point at which marginal revenue product and employment costs are equal. The reason for this overhiring effect of individual bargaining\textsuperscript{2} is the fact that by hiring an additional worker, firms are able to depress wages for all workers, resulting in an externality and hence an inefficiently high employment rate. This externality – and hence the overhiring – are stronger when monopoly power is greater, due to the greater steepness of the marginal revenue product schedule.

Under both bargaining regimes, the reservation wage is determined jointly by unemployment benefits or the value to home production and by the prospects of finding another job. If unemployment decreases or if output and hiring expand, making it easier to find a new job, the reservation wage will increase.\textsuperscript{3}

We consider two labor law regimes. First, one regime restricts the ability of workers to form collective bargaining coalitions, effectively mandating the use of individual bargaining. Under the second, more liberal regime, workers may freely choose whether to form a collective bargaining coalition or not. When choosing a bargaining regime, workers compare not total wages but bargaining surpluses, as their reservation wage will be unaffected by the choice of bargaining regime at their own

\textsuperscript{2} The overhiring effect under individual bargaining was first described in partial equilibrium by Stole and Zwiebel (1996a, 1996b) and extended to a general equilibrium framework with monopolistic competition by Ebell and Haefke (2005).

\textsuperscript{3} Again, this is also a feature of the canonical Mortensen-Pissarides labor market framework.
From the discussion above, collective bargaining surpluses are profit shares, which are increasing in monopoly power. This makes forming a collective bargaining coalition more attractive when monopoly power is greater.

From the above considerations, several important conclusions emerge. First, when monopoly power is sufficiently high, workers have strong incentives to try to form collective bargaining coalitions. Second, when monopoly power increases, output and hence employment will be restricted more tightly by firms. However, under individual bargaining, this drop in employment and output will be counteracted by increased incentives to overhire (and hence to overproduce) to depress wages. Hence, we can conclude that the negative impact of an increase in monopoly power on employment and output is greater under collective bargaining than under individual bargaining. Third, firms’ profits must be lower under collective bargaining for two reasons: first, collectively bargaining firms must give up a profit share to workers, while individually bargaining firms do not. Second, individually bargaining firms have an additional degree of freedom to maximize profits, due to their ability to manipulate wages via overhiring.

These three conclusions help to form an intriguing picture. Collective bargaining shifts a share of profits from firms to workers. If monopoly power is strong and profits are high, workers have strong incentives to organize and bargain collectively, while firms have equally strong incentives to restrict workers’ ability to organize, so that monopoly power can be seen as sowing the seeds of labor conflict.

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4 The reason is that the firm is assumed to be small enough with respect to the aggregate so that its choice of bargaining regime has negligible impact on employment prospects at other firms, unemployment benefits and the value to home production.

5 In a quantitative model, Ebell and Haefke (2005) show that the impact of monopoly power on employment and output under individual bargaining is very close to zero, due to the counteracting first principles and overhiring effects.
Second, for a given level of monopoly power, output and employment will be greater under individual bargaining, as will profits. Hence, when restrictions on union formation are lifted, the subsequent switch from individual to collective bargaining leads to a drop in output, employment and firm values, and presents as a recession. The stronger is monopoly power, the greater the gap between the two regimes, and hence the sharper the induced slump.

Conversely, a virtual prohibition of collective bargaining [, such as that imposed by the Supreme Court decision invalidating the Clayton Act’s pro-union provisions,] would lead to increases in output, employment and firm values, and would present as the sort of strong economic upturn experienced during the US during the roaring 20’s.

**III. Labor market and antitrust policies in the 1920s**

In this section we document the development of regulation and competition policy in labor and product markets. Under the provisions of the Sherman Act of 1890, trade union activity and collective wage bargaining were still severely restricted prior to World War I. The Clayton Antitrust Act of 1914 legalized collective action by and limited injunctions against trade union activity in labor disputes, such as the organization of strikes, picket lines, and boycotts, provided peaceful means were used. §17 of the Clayton Act stated famously that: “the labor of a human being is not a commodity or article of commerce” and exempted organized labor from the Sherman Act’s presumption of conspiracy in restraint of trade.

The legal environment continued to become more labor-friendly under the Wilson administration during World War I. The need to keep the railroad system working smoothly and avert strikes led to the adoption of the eight hour day in rail-
roads in 1916 (Adamson Act) and, beginning 1917, to state control over the railroads, which ended only in 1920. Arbitrating commissions had been formed since the creation of the U.S. Department of Labor in 1913, and increasingly intervened in wage disputes. The Transportation Act of 1920 established a Railroad Labor Board to oversee arbitration in wage disputes in that industry.

A severe backlash against trade union power came with a Supreme Court ruling in 1921 that limited unions’ protection from injunctions for conspiracy in restraint of trade under the Clayton Act, arguably with the effect of revoking its pertinent clauses. Quickly, the use of injunctions resumed, see Brissenden (1933). As a consequence, trade unions were severely weakened for most of the decade, and union membership declined by one third (see Wolman (1936), Bain and Price (1980)). Union activity during the 1920s was largely confined to traditional crafts-style trades that gave skilled workers industry-specific bargaining power. In many of the new industries that relied less on skilled workers, union representation was usually weak and sometimes negligible.

In an increasingly union-free environment, firms attempted during the 1920s to establish a system of industrial relations based on voluntary benefits and above-market wages. These schemes, commonly labeled as “welfare capitalism” and seen as a paternalistic substitute for welfare policy, did not start in the 1920s, not did they end with the depression (see e.g. Cohen (1990), Jacoby (1997)). However, they were most prevalent during the 1920s. They also were the focus of much political attention and implicit government support under the Coolidge administration, with Herbert Hoover, then commerce secretary, playing an active role. Inspired by wartime planning and informed by pre-Keynesian under-consumptionist doctrines of workers’ purchasing

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6 American Steel Foundries vs. Tri-City Council, 257 US 184; Dec. 5, 1921.
power, Hoover’s policies as commerce secretary sought to maintain high wages (Barber (1985)), while tolerating, if not actively supporting, collusive practices in business, see Hawley (1974), Himmelberg (1976). Policy strongly advocated at the time that welfare capitalism was self-financing or even profitable. Indeed, research by Raff and Summers (1987) on the five dollar day at Ford has demonstrated that raising wages above market levels could generate substantial profits. While their celebrated interpretation of the evidence was in terms of selectivity among workers and efficiency wage theory, a second element is that above-average wages were highly effective in keeping unions out of the factory. Recent research has cast doubt on the long-term viability of such schemes for less prominent firms, as these programs quickly lost significance during the depression and the New Deal see e.g. Gordon (1994), Jacoby (1997). This suggests that firms indeed often maintained company welfare plans to keep trade unions out. This effort made less and less sense given the weakening of unions during the depression, and clearly lost its appeal after collective bargaining was instituted in the Wagner Act of 1935.

However, the demise of welfare capitalism as a device to keep industrial relations free of trade unions began a decade earlier. In what initially seemed like an isolated development, regulation of the labor market for railroad workers was tightened in the Railway Labor Act of 1926, which made collective bargaining at a company level mandatory and provided for state arbitration. Railroad companies soon attempted to circumvent the provisions of the Railroad Labor Act by setting up their own company unions and staffing them with representatives of their liking.

Such was the case with the Texas and New Orleans Railroad. A trade union active in this firm, the Brotherhood of Railway and Steamship Clerks, had taken a wage dispute to the U.S. Board of Mediation. As a reaction, the management shut out
the union and replaced it with one of its own design. This case was taken to court in 1927, and won by the trade union against the appeals of the railway company, most importantly in the Second Circuit Court of Appeals in 1929\(^7\). When the case was brought to the Supreme Court in 1930, it famously upheld the rulings of the District Court and the Circuit Court of Appeals, citing as a well-established rule the principle that a ruling would not be overturned if the two previous courts had agreed, unless clear error was shown [281 U.S. 548, 558; May 26, 1930].

This case marked a major sea change in American industrial relations, as it overturned a whole string of previous Supreme Court rulings that had upheld employers’ rights against trade unions\(^8\). Indeed, the new precedent was set, not just with the 1930 Supreme Court decision itself but already with the 1929 decision by the 2nd Circuit Court of Appeals. Overturning this ruling would have implied a major break with legal traditions, a step that the Supreme Court was unwilling to take.

The effects of this turnaround in the attitude of the courts towards trade unions cannot possibly be overestimated. Numerous previous attempts by state and federal legislators to regulate labor markets had been thwarted by court rulings that upheld the First and Fourth Amendment and repeatedly ruled the perentinent legislation unconstitutional, or minimized its legal enforceability (see Brissenden, 1933). With the Texas and New Orleans vs. Brotherhood case, trade union power and collective bargaining in the railroad industry were now firmly established. In addition, a precedent was set for further court rulings on industrial labor relations, and the road for more

\(^7\) Texas and Louisiana, nowadays part of the 5th Circuit, belonged to the 2nd Circuit before a major relabeling took place.

\(^8\) Indeed, the railroad company had argued that the respective passages of the Railroad Act either conferred only an abstract, non-enforceable right or were altogether unconstitutional, citing arguments similar to those that had been used in the 1921 Supreme Court ruling against the limitation of injunctions in the Clayton Act.
union-friendly legislation was free. Indeed, recent research has gone so far as to argue for major continuity between Republican policy making on the eve of the Great Depression and the New Deal, see O'Brien (1998).

Summing up the results of the preceding paragraphs, there is evidence from prominent court rulings in the late 1920s of a major sea change in the attitude toward union formation and collective bargaining, which foreshadowed the New Deal (and rendered it legally feasible altogether). Given these court rulings, rational investors at the end of the 1920s had good reason to believe in a persistent downward shift in profits, output, and employment.

Indeed, the regulatory environment of the 1920s was highly conducive to abnormally high corporate profits. Antitrust and merger policies of the Coolidge administration consisted in pre-approving mergers, although the Sherman and Clayton acts did not provide for such a measure. Profit shares, measured by the share of capital in sectoral and national income, appear to have increased substantially throughout the decade, to the effect that profits outpaced the growth of wages (on the latter, see Lebergott (1964)). Although parts of this phenomenon can be explained by rapid growth of capital-intensive sectors, the evidenced appears robust. This is partly due to the fact that two of the three rapid-growing sectors in question, public utilities and railways, were heavily regulated during the 1920s, and that regulators allowed maximum profits in these industries to increase over time. Keller (1973) collects the evidence, reviews the earlier literature and notes, inter alia, a 33% rate hike on railroads imposed by the Interstate Commerce Commission in 1922, which was not reversed when input cost for railroads fell sharply later in the decade. Similar evidence is

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9 Most importantly, the Norris/La Guardia Act of 1932, which imposed restrictions on the use of injunctions in labor disputes in federal courts. See Brissenden (1933) for a skeptical view on whether this bill would survive intact before the Supreme Court.
documented for utilities. In metal-making and metal processing industry (including electrical), which Keller (1973) identifies as the third fast-growing sector of the U.S. economy of the 1920s, concentration ratios were high at the beginning of the decade and rose further: in steel making, the eight largest producers increased their market share from 58 percent in 1920 to 78 percent in 1930. Likewise, the three largest auto producers had a market share of 68 percent in 1920, and of 72 percent in 1930. There seems little reason to doubt that monopoly power in the U.S. economy increased markedly throughout the 1920s. Bittlingmayer (1992) has even argued that announcements by the Hoover administration in October 1929 of tighter administrative procedures in antitrust policy may have contributed to the crash.

IV. Labor power and equilibrium regime shifts

In this section we place the historical evidence presented in Section III in the context of the model of monopolistic competition and labor market frictions sketched in Section II, thus putting the pieces of the puzzle together. The brief but severe recession of 1920, itself likely the consequence of protracted labor-friendly wartime regulation, gave way to a remarkably fast and robust recovery in which trade union membership rapidly fell by one third, and in which capital shares in national income started a trend increase. This situation is one of American exceptionalism; Broadberry and Ritschl (1995) have documented rising wage shares for the 1920s in the British and German economies, where collective bargaining was made the rule immediately after World War I.

In general equilibrium with monopolistic competition in goods markets and with search frictions in the labor market, the configuration prevailing in the U.S. economy during the recovery from the 1920 recession is best described as individual
wage bargaining combined with rising monopolization in goods market. The model predicts that under these conditions, output, profit shares, the capital stock, and stock prices exhibit a trend increase, employment is high and roughly constant, and wages and consumption stagnate. This is pretty much consistent with the accepted stylized facts on the American economy during the interwar years.\(^{10}\)

As profit shares rise, the model predicts an ever stronger incentives for workers to unionize. From a naïve point of view, the model would thus predict increasing degrees of unionization as the upswing consolidated in the late 1920s. This we do not see; the picture painted by Wolman (1936) shows stagnant, if not falling union membership in the late 1920s. However, there is indirect evidence of increasing pressure to unionize, part of which was discussed in the previous section.

First, the legal environment underwent permanent changes, not because of acts of Congress – these would have to wait until the failed NRA Act of 1933, and then until the Wagner Act of 1935 – but rather because of a reversal in court rulings on trade union activity. The previous section discussed the celebrated *Texas & New Orleans Railroad vs. Brotherhood* case, in which mandatory collective bargaining with an independent union was for the first time accepted as constitutional. Second, private provision of benefits to workers apparently became more widespread in the 1920s, along with above-market pay. The previous section has discussed recent findings relating these schemes to the desire to maintain a union-free shop. In our model economy, this behavior is rationalized by the attempt of firms to mimic the outcome of collective bargaining, even if there is no union. In the extreme, the outcomes would be indistinguishable. This mimicking behavior would also be consistent with the evidence of such schemes losing significance as mandatory collective bargaining was

\(^{10}\) For a typical account from the vast older literature, see Schlesinger (1964).
introduced. Recent research has deemphasized the effects of the NRA and the Wagner Act on the relative position of labor by pointing to the substitution of private with public welfare programs. This is exactly in line with our model’s predictions.

Third, unions in the 1920s were probably stronger than one might think, albeit only punctually so. According to the NBER data on strikes employed in a classical study by Rees (1952) on the correlation between strikes and the business cycle, the number of days lost to strikes in the interwar period peaked in 1928 and again in 1935, both times at the same level. Again, the evidence is incompatible with the traditional picture of the late 1920s being entirely free of trade union issues.

Instead, the picture we obtain is one of an anticipated end to the artificial boom of the 1920s, once word spread that the weakening of America’s trade unions, and hence its exceptionalism in labor relations, would only be temporary. In general equilibrium with monopolistic competition, this anticipation may be captured as a regime switch from an equilibrium with individual wage bargaining to another one with collective wage bargaining. Figure 1 visualizes the situation.
Figure 1: Regime switches between individual and collective wage bargaining in a model of monopolistic competition with search frictions in labor markets

In all diagrams of Figure 1, the degree of product market competition, measured by the substitution elasticity between goods, is given on the horizontal axis. On the vertical axes, unemployment, output, and real profits are represented. Under individual bargaining, profits rise strongly when the degree of competition falls. However, due to the overhiring effect, output and employment remain largely unaffected by variations in the degree of competition. This is different when workers bargain with firms collectively. Then, output falls increasingly short of the individual-bargaining benchmark if competition decreases. At the same time, unemployment increases with monopoly power in goods markets.

This gives rise to two observations. First, if the degree of competition in the economy is low, the switch from one wage bargaining regime to the other is prone to have large real effects. Second, these real effects disappear (almost) entirely as monopoly power is reduced and a fully competitive economy is attained. The first obser-
vations gives rise to an interpretation of the 1920s that we find to be surprisingly powerful. The second observation provides a counterfactual on how the depression could possibly have been averted.

In Figure 1, consider the initial condition given for the 1920 recession. It would be represented as widespread collective bargaining with moderate degrees of monopoly power, a situation that differed from the pre-war regime through the higher acceptance of trade unions that became widespread in the war economy. For the 1920s, two forces are seen to be at work in Figure 1. On the one hand, as a consequence of the 1921 Supreme Court rulings against trade unions and the end of government support for organized labor, the economy shifted from collective bargaining back to individual bargaining, which in Figure 1 is a shift from one equilibrium schedule to the other. At the same time, monopoly power in the U.S. economy gradually increased, which for any of the equilibrium positions on Figure 1 would be represented as a leftward shift. Combining the two results in the movements from one schedule to the other represented by the diagonal arrows. As a consequence, output, profits, and monopoly power in the late 1920s were high, while unemployment was low. The imminent increase in union power at the end of the 1920s would then lead to (self-fulfilling) adjustments in expectations. As a consequence, output and profits are markedly lower, while unemployment is drastically higher. The values in Figure 1, obtained for standard calibrations, are consistent with an equilibrium decline in output of about 25 percent from the maximum, an increase in unemployment from 5 percent to 30 percent, and a decline in profits by 40 percent. While this may still underestimate the fall in stock prices between 1929 and 1933, it certainly captures the change in real output and unemployment [DETAILS ON CALIBRATION AND FURTHER RESULTS: to be written].
The results from this section also provide a policy counterfactual for a more favorable trajectory. Bittlingmayer (1992) mentions the possible announcement effects on the 1929 stock market of an intended tightening in antitrust policy, which in the end did not materialize. While we agree that more effective antitrust enforcement could indeed have contributed to falling stock market prices, we would see the effects on the business cycle as highly beneficial. To see this, consider a counterfactual in Figure 1 under which the degree of competition in the U.S. economy had increased. Beginning on the individual bargaining locus of the early 1920s, the output and employment gains would have been modest, while the consequences for profits would have been considerable: the economy would have evolved along the individual bargaining scheme towards the right, eating away at monopoly profits and reducing the incentive for labor to organize. Starting at the higher monopoly levels of the late 1920s, the output and employment gains for collective bargaining would have been substantial, while the effects on profits, though evidently negative, would have been mitigated. Our equilibrium model has the clear implication that strict antitrust policy would have been the preferred way for the U.S. economy to get out of the recession, both for 1921 and post-1929.

Our results are reminiscent of a policy dilemma for the New Dealers described and analyzed in Cole and Ohanian (2004) for the 1930s. Policy makers in the 1930s employed the threat of stricter antitrust enforcement as a lever to push through with a high-wage collective bargaining setting. Cole and Ohanian show how this policy choice contributed to the persistence of unemployment and slowed down the speed of recovery. Very much the same bad policy choices were already made in the late 1920s, where again, leniency in antitrust enforcement combined with high-wage doctrines, attempting to cure the evil of monopoly power in goods markets with the evil
of monopoly power in labor markets. The consequences, however, were probably even more drastic than in the 1930s, as they had the effect of shutting down a decentralized market in favor of a regulated one, thus establishing the bad equilibrium that formed the starting conditions for the New Deal.

V. Conclusions

This paper has studied the interplay of monopoly power in goods markets and bargaining regimes in labor markets in the 1920s and their possible effects on the American business cycle between 1920 and 1930. In the Ebell/Haefke (2005) framework of monopolistic competition between producers and search frictions in the labor market, we identified individual and collective wage bargaining as two relevant macroeconomic regimes. We interpreted the violent swings in business activity at the beginning and the end of the decade as regime switches between different bargaining modes. We saw the intermediate period as characterized by stable, if repressive, labor market institutions and rising corporate profits.

In this paper, we also briefly reviewed evidence on U.S. labor and antitrust history of the 1920s, and argued from prominent court cases that there is indirect evidence for rapidly mounting pressure to reunionize at the end of the decade. With these court rulings, a decade-long blockade against pro-union legislation was lifted, signaling an end to the American exceptionalism in labor relations that had characterized the early 20th century. Indeed, it is difficult to see how any of the laws from the 1930s that regulated labor relations could have passed as constitutional without these landmark court decisions of 1927-30.

Our view of the two severe depressions surrounding the 1920s is also consistent with the stylized facts on the American economy during that period. We argue
that recovery from the 1920 recession was facilitated by Supreme Court rulings that
curbed collective wage bargaining quite effectively, while monopoly power in prod-
uct markets grew steadily throughout the decade. As a consequence of rising monop-
oly power, profits would tend to increase further after a ceiling in output and em-
ployment had been reached, which seems to describe the evidence from the 1920s
very well. We also see reversal of Supreme Court jurisdiction towards unions in the
late 1920s and the expected end of the repression of trade unions as a major contribut-
ing factor in the collapse of profit and output expectations at the end of the decade.
Our model predicts a decline in output and profits of roughly one third, while unem-
ployment would increase from a 5 percent natural rate to about 30 percent. These pre-
dictions are well in line with the well-known stylized facts on the slump in output,
employment, and stock prices during the Great Depression. This also implies that we
see the stock market rise and decline of the late 1920s, not as a bubble but rather the
response to perceived changes in fundamentals that indeed materialized.

Our analysis also highlights the policy choices of decision makers at the time.
Policy makers perceived a trade-off between laxity in antitrust policy and leniency
toward trade unions. Cole and Ohanian (2004) have prominently made the case for the
1930s, arguing forcefully that the purportedly pro-business, pro-union attitudes during
the New Deal led to protracted unemployment and delayed recovery. Evidence sug-
gests that the same policy trade-offs were perceived already during the 1920s, and the
same bad policy choices were made. As a consequence, the same principal mecha-
nisms that underlie the incomplete recovery of the 1930s apply already to the early
phase of the Great Depression.

This also gives rise to a counterfactual about a different set of possible policy
choices. We find that stricter antitrust enforcement could at all times have helped al-
leviate the inefficiencies generated by monopoly power and wage bargaining, both under individual bargaining and in the presence of unions. In both cases, employment and output would have increased, and the wedge between collective and individual bargaining been reduced to the point where hardly any monopoly profits were left over that unions could have preyed on. Throughout the interwar period, policy took a different course, sending the U.S. economy on a roller coaster of the most violent business fluctuations experienced in the 20th century.

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