The Twin Fall:
Labour Share and Trade Union's power

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Abstract

What is behind the alleged Labour Share (LS) decline? The hypothesis we explore is that the fall in the trade unions membership rate decreases workers' power, which in turn shrink the wage/productivity ratio and as a consequence, the LS. We present both empirical and theoretical tentative evidence for backing this hypothesis. Empirically, there is a strong very long-run correlation between the membership rate and the LS for the U.S. Theoretically, we present a heterogeneous agents model à la Aiyagari-Bewley-Hugget-Imrohoroglu with imperfect competition which is able to replicate the observed decline in the LS ratio as a consequence of the falling power of workers' agencies, introducing causality to that correlation.

Keywords: Labour Share, Trade Unions, Heterogeneous Agents modeling, Imperfect Competition.

IN THIS TERM PAPER we explore the possibility that the weakening of workers' organizations was a powerful driver of the LS decline. Even though the empirical evidence is not evident at all, using the standard assumptions we present a very long run correlation between the membership rate and the LS that may legitimate our prior. We study the structural relation between unions and LS using a heterogeneous agents model with idiosyncratic risk, incomplete markets and imperfect competition. Basically, the model extends the standard Aiyagari-Bewley-Hugget-Imrohoroglu (ABHI) economy introducing an endogenous mark-up over wages. This mark-up represents the union's monopolistic power, which in turn relates negatively with non-employment. Under this setup, the LS become independent from its technological share and starts

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to fluctuate to the rhythm of the workers' market power. As a consequence, a non-clearing labour market emerges. In other words, we take ABHI models further to deal with variables (non-voluntary unemployment, market power, fluctuating labour share) that decisively relates with central concerns of ABHI models such as the income fluctuating problem and inequality.

The term paper is structured as follows. First, there is a literature review that summarizes what we actually know and do not know about the time series and determinants of the LS. Second, we present a tentative long-run evidence of the strong relation between trade unions and LS. In section 3 we set up our model, making explicit the extension we came up with and defining the stationary equilibrium. Section 4 presents quantitative results got from a specific calibration of the model. In particular, we solve the standard ABHI with no frictions and our ABHI with imperfect competitions (ABHI-IC), make comparative statics out of it and finally, simulate the ABHI-IC, being able to replicate a declining trend of the LS. To close the document, we summarize the results and point out several shortcoming that must be addressed by future research.

1 What do we know about the LS?

Explaining how the social product is distributed among the production factors is an old topic in Economics. Classical economists put it in the center of their work, not only because of social justice concerns but mainly because of their role regarding growth (Ricardo (1819) is a good example). Using fresh empirical evidence collected by authors such as Colin Clark and Bowley for the U.K. or King and Kuznets for the U.S., architects of modern macroeconomics viewed the relative stability of the LS as an unexpected but robust fact (Kalecki (1938), Keynes (1939), Schumpeter (1948), etc.). Even though some called for precaution about that alleged relative stability (relative with respect to what?) and demanded explanations for the trend-less fluctuations in spite of different rhythms of capital accumulation (Solow, 1958), since Kaldor (1961) it finally lasted as an uncontroversial stylized fact. The by-product of that was the progressive lack of relevance of factorial distribution in Economics.

A silence of decades has been followed by a revival: the analysis of factorial distribution is a hot topic again. The main reason is empirical: the data shows that the pretended stability is over. Specifically, the LS is falling in a number of economies. This fact was pointed out early by international organizations such as the IMF (2007) or the ILO (2008) and more recently seems robustly documented by larger empirical studies (Rodríguez and Jayadev (2010) showed it both for the whole economy and for the manufacturing sector; Guerriero (2012) showed it for a panel of 89 countries for 1970-2009). On top of that, the decline in the LS appears as a productive discovery since it might be a driver of income inequality (Piketty (2014), Bengtsson and Waldenström (2018)).

Thus, a new consensus (the decline in the LS) has substituted the old one (the relative stability "fact"). However, this new consensus is not as strong as it seems. As set out by Solow (1958), the empirical evidence must be taken with caution, given a basic measurement problem. Although in principle the LS seems a simple ratio (labor compensation over total income), a number of questions appears. First and foremost the problem of the so-called ambiguous income (Gomme & Rupert (2004)): how to impute self-employed earnings, taxes and government enterprises surplus. But this is not the only one: beyond wages, what else should be included in the numerator? Is a Wall Street CEO wage an actual labour income or a hidden form of capital income (Solow, 1958)? What about pensions (non-wage labor income)? Are the stock options of the of corporate officers labour income? Etc. There are also problems with the denominator: How to deal with the lack of labor income in the housing sector? How to manage the lack of capital income in the government sector? How should we treat production taxes and subsidies? (measurement issues are early discussed in Krueger (1999), Gomme & Ruppert (2004), and later in Guerriero (2012)). As a consequence, any measure of the LS is full of assumptions.

A relevant example of that is Koh et al. (2018). They came up with a powerful finding: the decline in the LS is just an accounting phenomenon brought about by changes in accounting rules (BEA' 1999 and 2013 revisions, SNA-2008 version). These revisions changed the assets boundary, moving IPP expenditures from consumption to investment. It means:

- An increase in the value added by business equal to (own-produced + purchased) IPP. The own-produced IPP is an additional production; the purchased IPP is an asset acquisition (not intermediate consumption) that add x value each year (its depreciation).
- An increase in the NPISH and Gov investment equal to depreciation of IPP assets. The amount of depreciation was inexistent previously (since IPP stuff weren't assets).

As a result, the GDP increases by (own-produced+purchased)IPP_business + Depreciation_NPISH + Depreciation_Gov. This additional income is fully imputed to the Gross Operating Surplus. The algebraic result of that is an increase in the capital share (and a symmetric LS decline). Undoing this capitalization of the IPP expenditure a trendless LS emerges (for U.S.) and the old consensus is restored. Thus, the whole LS decline story boils down to a debate about accounting assumptions, particularly about the distribution of the IPP income, but not only: the valuation of the non-market IPP production, the own measure of the intangible capital, the inclusion of housing rents, the non-inclusion of realized capital gains as a capital income, etc., are questions that are not out of doubt. Koh et al. (2018) showed that correcting for the IPP assumptions one may obtain a trend-less LS, but it has not been checked out how sensible is the LS to changes in other relevant assumptions (removing housing rents may increase the LS, including realized KG may decrease it, etc.). All in all, the only robust conclusion is that there is no a clear picture of the dynamics of the LS and more empirical work is needed.

The measurement problem calls for caution; maybe economists are putting effort on explaining a non-existent trend rather than focusing on explaining the miracle of a trend-less LS regardless huge technological and institutional changes (Koh et al., 2018). Even recognizing this challenge, in this term paper we just stick to BEA rules, assuming as a fact the decline in the LS and focusing on figuring out its drivers. When it comes to theories, the literature is highly dense. It can be organized in traditional big stories: technology, structures and subjects.

The pure Neoclassical theory remits to a technological determination starting with Hicks (1932): elasticities of substitution (and then, biased technological change increasing the K/L ratio), capital intensity (K/Y ratio) and the returns to scale would shape the factorial distribution. Examples of that: Bentolilla Saint-Paul (1999) posed the K/Y ratio as the main determinant of factor shares; Piketty (2014) suggested the same causality in his First Law; the OECD (2012) set out TFP and capital deepening as the main determinants of the decline; Karabarbounis & Neiman (2014) claimed that half of the decline in the manufacturing sector were caused by changes in the K/L ratio due to changes in relative factor prices. Elsby et al. (2013) found only limited evidence for this hypothesis.

The structuralist approach has two main reference points: Kalecki (1938) and Kuznets (1955). The former stressed the market power (the higher the degree of monopoly, the lower the LS); the latter the sectorial composition of the economy in terms of high- and low-productive sectors (highly productive sectors will allow for higher wages, which may translate into higher LS). Precisely, there is a stream of studies combining both views: a reallocation towards highly productive firms led to higher concentration and lower LS. The pioneer work in this field is Kalecki (1954), who linked the rise in the U.S. manufacturing LS with the reduction in the monopoly power after 1933. This has been essentially confirmed by recent works, using both macro data (Barkai (2016)) and micro panel data (Autor et al. (2017), Kehrig and Vincent (2018)) (for the U.S. manufacturing sector). On the other side, globalization would intensify labor competition, putting additional pressure on western wages (ILO, 2008). As an appendix of this structuralist view, institutional changes (such as labor market deregulation, Welfare State retrenchment and so on) would contribute to weaken both wages and bargaining power.

Finally, the third is a subjective explanation: the weakening of workers' movement would shrink their bargaining power and, thus, wages. The lose of worker's power would not be only a factory located phenomenon, but a systemic trend which would explain also part of the capital-friendly institutional reforms. Unionization is a usual driver in LS studies (ILO (2008), OECD (2012), Stockhammer (2013), etc.). The empirical evidence tends to recognize positive impact of unionization in the LS (Kalecki (1954), Fichtenbaum (2013), Young and Zulueta (2015)). A good review of empirical studies about this relationship is found in Fichtenbaum (2013); most of them found a strong positive relation. The two exceptions are Bentolila Saint-Paul (1999) and Carter (2007); however, they included managers income in spite of managers are not able

to even join a union. This mixture cast doubts on the validity of their results. Another exception is Elsby et al. (2013), who conclude that there is no a clear statistical relation between cross-industry changes in unionization rates and sectoral declines in payroll shares. In conclusion, even if there is no a strong empirical consensus, evidence is heavily biased towards a positive relation between trade unions and LS. We build on this line.

2 Tentative long run facts: Unions, Structural Change and the LS

As an additional empirical motivation of the model, we present a very long-run correlations between the membership rate (unionized workers over total workers) and two different measures of the LS (all for the U.S.)[1]. First, we construct an adjusted LS following Gomme & Rupert (2004) and Koh et al. (2018):

Unambiguous Capital Income (UCI) = rental income + corporate profits + net interest and miscellaneous payments + current surplus of gov. enterprises + consumption of fixed capital
Unambiguous Capital Share (UCS) = UCI / (UCI + Compensation Employees)
Ambiguous Capital Income (ACI) = UCS* (Propietors income + Taxes on production and imports less subsidies + Business current transfer payment (net))
Adjusted Capital Share (ACS) = (UCI + ACI)/ GNP
Adjusted Labor Share = 1 - ACS

Data for making these calculations starts at 1947. We extend the time serie until 1913 by a simple interpolation based on the pre-tax capital share calculated by Piketty et al. (2018)). Graph 1 plots this adjusted and interpolated LS with the membership rate. Second, we construct a corporate LS (compensation of employees over the gross value added, only for non-financial corporations), which partially avoids the problems with ambiguous income. In both cases the correlation is positive, but the level is significantly different (table 1). These correlations point out some long run evidence:

- Unionization play a role in the LS story.
- The relevance of this role depends on the LS measure. It is stronger when we consider the economy broad LS than we restrict it to the non-financial corporate sector.

[1]Data for the LS comes from the NIPA; the membership rate for 1897-1962 comes from Troy (1965), from 1962 on comes from http://unionstats.gsu.edu/MonthlyLaborReviewArticle.htm, which combines data from the CPS and the BLS; data for the industrial share of the employment comes from the Current Employment Statistics of the BLS

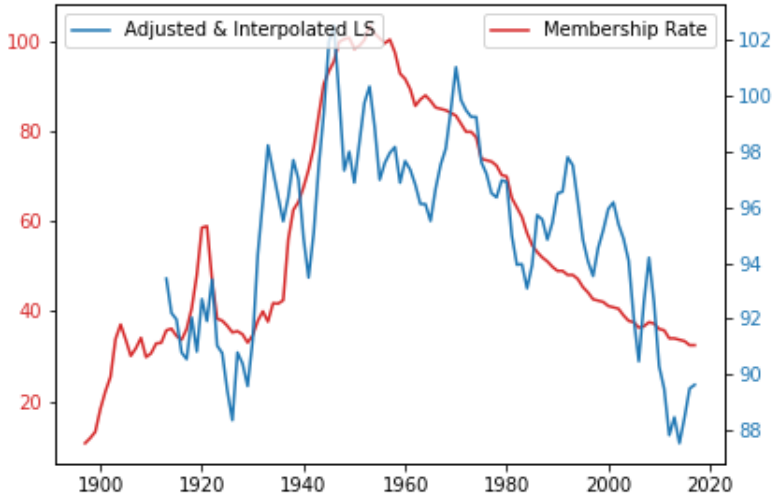
Table 1: Correlations matrix

	Adjusted LS	Corporate LS	Membership Rate	Industrial Share
Adjusted LS	1	-	-	-
Corporate LS	0.84	1	-	-
Membership Rate	0.76	0.45	1	-
Industrial Share	0.73	0.49	0.95	1

- Unionization is strongly correlated with the share of industrial employment in total employment. Thus, the structuralist hypothesis seems strengthened: the industrial share would explain the membership rate and the LS (if it does so through the membership rate or independently requires further analysis; if this would be the case, the membership rate would be non-significant).

All in all, the long-run evidence clearly points out a co-movement of the LS, the unions' power and the economy sectoral structure. In this term paper we build a structural model making the case for the unions to LS causality.

Figure 1: Long run correlation between unionization and labour share for the U.S.



3 The Model: ABHI with Imperfect Competition

The model presented here is a simple extension of an Aiyagari-Bewley-Hugget-Imrohoroglu model (i.e. heterogeneous agents model with idiosyncratic risk and borrowing constraints). The modification we introduce is the existence of trade unions that are able to raise the wage above its market clearing price (which is a technological price). This wedge is introduced as a mark-up over the marginal labor productivity which reflects the union's power. The mark-up gives rise to a gap between employable workers (i.e., working age population) and effectively employed. In other words, the labour market does not clear and a non-voluntary

unemployment emerges. On top of that, drawing on the idea that the bargaining power is associated with the number of working people, the mark-up adjusts endogenously as a function of employment-to-population ratio. We analyze the effects of this imperfect competition on wages, rates of return, employment, production, capital accumulation and distribution.

Environment

- Demographics. The economy is populated by a continuum of measure 1 of infinitely living individuals (think of it as dynasties).

- Goods and assets. There is a single good, which can be used either to consume or to invest. The only available asset in the economy is physical capital and borrowing is not allowed.

- Agents behavior. Households make the best possible decisions regarding consumption, savings and work in an uncertain context given their resource constraint. Their welfare is represented by a utility function that depends on lifetime consumption and leisure. They face intratemporal consumption-leisure and intertemporal consumption-savings trade offs, conditional on their (exogenous) social position and the aggregate states of the economy.

- Income process. The uncertainty comes from exogenous labour income fluctuations. At the beginning of each period, each household is exogenously told whether she is employable or not (i.e. she gets an employability shock e). Employable individuals configure the active population (a random employability endowment is an easy way of taking into account disabilities to work (either legal or physical ones)). Specifically, employability follows a stochastic process $\{e_t\}$ with $\{e_t\} \in E = [0, 1]$. The process is the same for all agents, but each of them faces potentially different realizations. The employability endowment process follows a Markov process (i.e., $Prob(E_t = e_t|E_1 = e_1, ..., E_{t-1} = e_{t-1}) = Prob(E_t = e_t|E_{t-1} = e_{t-1})$). Let $\pi(e'|e)$ be the probability that tomorrow's employment situation be e' given that today's position is e and π be the transition matrix. On top of that, by the law of large numbers, it turns out that $\pi(e'|e)$ stands also for the fraction of the population that has this transition.

  Conditional on being employable, members of the households are effectively employed ($s_t = [0, 1]$) with probability p. Formally, this probability takes the form of a lottery at the beginning of each period, being $\{s_t\}$ an i.i.d. process. In aggregate, p will reflect the employment rate (employees/employables). Thus, individuals are randomly assigned to 3 different positions: unemployables, employables & non-selected, employables & selected. Notice that with no frictions, p is equal to 1 (i.e., labor market clears). In other words, p will be an indicator of the imperfection of the market.

- Factor Markets. Workers can join an agency (i.e., a trade union) that negotiates wages in a centralized manner. Thus, labour is monopolistically supplied and workers might impose a mark-up $\mu \geq 0$ over the market clearing wage. μ is a negative function of the unemployment (i.e., there is an endogenous

adjustment mechanism). It represents the trade union's power. Capital market behaves competitively. Households supply labour and capital which is used by an aggregate representative firm. The representative firm solves a standard static maximization profits problem.

- Technology. The production technology is determined by an aggregate production function $F : R^2 \longrightarrow R$ that combines capital and labour to produce output. We assume this function has CRS with decreasing marginal inputs productivity and Inada conditions hold.

- Price formation. The model uses prices normalized by the consumption good price (i.e., relative prices). Households are price-takers. Nonetheless, they use prices $\{r_t, w_t\}$ to make their consumption, savings, leisure decisions. That prices are determined at the aggregate level, depending on the production function F, the aggregate capital K and the union's mark-up μ. Notice that K is equal to the sum of individual asset holdings and as a consequence, the distribution of assets Ψ will determine the aggregate capital. In other words, the distribution (and the union's mark-up) determines prices.

Formally, we need to define a measurable space on which the distribution measures Ψ are defined. As usual, define the set $k = [0, \bar{k}]$ of possible capital holdings, the set $E = [0, 1]$ of possible employability endowment and the set $S = [0, 1]$ of possible selection outcomes. Let $P(E)$ and $P(S)$ be the power set of E and S and $B(k)$ the Borel σ-algebra of k. Let $Z = k \times E \times S$ be the number of social positions and $B(Z) = P(E) \times P(S) \times B(k)$. Define χ the set of all probability measures on the measurable space $X = (Z, B(Z))$. Distributions Ψ are elements of χ.

The distribution Ψ evolves according to an aggregate law of motion $H : \chi \longrightarrow \chi$. H establishes how intense social mobility is (i.e., how households move within the distribution over assets-employability-employment positions from one period to the next). Specifically,

$$\Psi'(\mathcal{Z}) = H(\Psi(\mathcal{Z})) = \int \mathcal{Q}(z, \mathcal{Z})\Psi(dz) \tag{1}$$

tells us how many agents will transit from z to the subset of positions $\mathcal{Z}$. The transition function $\mathcal{Q} : (Z, B(Z)) \longrightarrow [0, 1]$ is defined as:

$$\mathcal{Q}((k, e, s)(\mathcal{K}, \mathcal{E}, \mathcal{S})) = \sum_{\substack{1\{k'(z,\Psi,\mu)\in\mathcal{K}\} \\ e'\in\mathcal{E} \\ s'\in\mathcal{S}|e'=1}} \phi(e', s'|e, s) \tag{2}$$

where ϕ is a modified Markov chain that combines the original Markov chain for the employability endowment and the lottery for the employment selection (its exact form is specified below). $\mathcal{Q}(\Delta)$ sets the probability of transiting from one position to another specific set of social positions (which might define a social group).

Recursive household program

The economy described has two aggregate state variables $\{\Psi, \mu\}$, three idiosyncratic states $\{k, e, s\}$ and a

set of three controls $\{c, h, k'\}$ where c and h stand for consumption and hours of work respectively. With all these ingredients, the recursive formulation of a household program reads as follows:

$$V(k, e, s; \Psi, \mu) = \max_{c\geq 0, h\geq 0, k'\geq 0} u(c, h) + \beta \sum_{\substack{e'\in E \\ s'\in S|e'=1}} \phi(e', s'|e, s)V(k', e', s'; \Psi', \mu') \tag{3}$$

s.t.

$$c + k' = w(\Psi, \mu)hes + (1 + r(\Psi, \mu))k \tag{4}$$

$$\Psi' = H(\Psi) \tag{5}$$

$$\mu' = q(\mu) \tag{6}$$

The specification of the modified Markov chain ϕ is

$$\phi = \begin{bmatrix} \pi_{00} & \pi_{10}(1-p) & \pi_{10}p \\ \pi_{01} & \pi_{11}(1-p) & \pi_{11}p \\ \pi_{01} & \pi_{11}(1-p) & \pi_{11}p \end{bmatrix}$$

where the row 2, column 2 sets up the probability of tomorrow be employable & non-selected given that this has been the position today. Since the selection process is i.i.d., the transitions for today's employable & non-selected and employable & selected individuals are the same.

Stationary Recursive Equilibrium

A Stationary Recursive Equilibrium is a i) set of functions $\Theta = \{V : Z \longrightarrow R, x : Z \longrightarrow R\, , y : (\Psi, \mu) \longrightarrow R\}$ where V is a value function, $x = \{c, h, k'\}$ household' policy functions and $y = \{k, h\}$ firm' policy functions, ii) prices $\{w, r\}$, iii) a distribution $\Psi \in \chi$ and iv) a mark-up μ, s.t.

1. Given prices and μ, $\{V, c, h, k'\}$ are measurable w.r.t. $B(Z)$, V solves the Bellman equation and x are the associated policy functions.

2. Given prices and μ, the modified firm's FOC are satisfied:

$$r = F_K(K, L) - \delta \tag{7}$$

$$w = F_L(K, L)(1 + \mu) \tag{8}$$

3. Capital and good markets clear:

$$K = \int k'(z)d\Psi \tag{9}$$

$$\int c(z)d\Psi + \int k'(z)d\Psi = F(K, L) + (1 - \delta)K \tag{10}$$

4. As long as $\mu > 0$, there is (exogenous) disequilibrium in the labour market (i.e., equilibrium unemployment U).

$$L + U = \int h(z)d\Psi \tag{11}$$

5. There is social mobility, but the aggregate distribution Ψ remains steady:

$$\Psi(\mathcal{Z}) = H(\Psi(\mathcal{Z})) = \int \mathcal{Q}(z, \mathcal{Z})\Psi(dz) \tag{12}$$

4 Calibration and quantitative analysis

For the numerical solution of the model, we impose specific standard functional forms. In particular, preferences are given by a CRRA function

$$U(c, h) = log(c) - \Gamma \frac{h^{(1+\gamma)}}{(1+\gamma)} \tag{13}$$

technology by a Cobb-Douglas function

$$F(K, L) = zK^{\alpha}L^{(1-\alpha)}. \tag{14}$$

and the mark-up law of motion is given by

$$\mu_{t+1} = \mu_t + \rho(1 - E_t)^2 \tag{15}$$

. with $\rho \leq 0$; E is the employment-to-population ratio. The higher the unemployed households, the lower the trade union's market power;ρ is an exogenous parameter that captures the persistence of the bargaining power.

The goal is to match a set of 5 U.S. statistics (the employment-to-population ratio, the unemployment rate, the Gini coefficient for income and wealth and the LS) with a set of 7 parameters. The parameter specification is specified in table 2. Notice that we have 7 parameters to match 5 statistics, which is an overdetermined system. To discipline the model, we set β, α and z to standard values and leave relatively free of restrictions the other four.

Table 2: Parameter specification

β	Γ	γ	z	α	ρ	δ
0.99	0.002	8	1	0.36	-0.4	0

Table 3 draws the stationary equilibrium statistics produced by the model using two different specifications: a non-friction standard ABHI version and our ABHI with imperfect competition. It compares these statistics with U.S. actual data[2] [3].

[2]Data for the employment to population ratios is for November 2018 from the BLS; unemployment rate is December 2018, BLS; the Income Gini is for 2016 from the World Bank database; the Wealth Gini is for 2016 taken from Credit Suisse Global Wealth Databook 2016; we computed the Factorial LS using data from the NIPA for 2017.

[3]In our fictional economy there is no self-employed income; to have a proper empirical benchmark, we use a LS measure that removes the propietors income being equal to compensation of employees over GNP minus self-employed income. We call it Factorial LS (FLS)

Table 3: Actual and virtual statistics

	Employment-population	Unemployment	Income Gini	Wealth Gini	FLS
U.S.	60.6	3.9	41.5	86.2	68.22
ABHI	61.25	0	43.33	43.98	63.98
ABHI-IC	59.50	3.72	52.52	52.38	69.02

The ABHI-IC is able to match much better the objective statistics than the standard ABHI model. Nonetheless, it remains unable to explain the very high wealth concentration. Even ABHI and ABHI-IC replicate relatively well the income inequality, that figure is misleading: both models generates a very high labour income inequality and relatively low capital income Gini. This relatively bad performance in terms of inequality explains that even the ABHI-IC is able to generate a LS well higher the technological LS, it does not translates into more equality. That offers a useful insight beyond these models: the factorial - personal distribution link is by no way a one-to-one map.

Computationally, we have used the following algorithm to transit from an ABHI to an ABHI-IC: 1) compute the stationary general equilibrium of the ABHI economy; 2) introduce a bargaining power shock that increases wages over their marginal productivity; 3) solve the partial equilibrium taken as given r from step 1) and w from step 2), getting an endogenous p; 4) solve the stationary general equilibrium starting with the p got in step 3[4]. The comparative statitics between the GE-ABHI the PE-ABHI after a bargaining shock and the GE-ABHI-IC offers some insights. First, the introduction of imperfect competition raises wages more than it reduces employment which indicates a relatively low price elasticity of labour demand (that is why the LS increases in both the partial and the general equilibrium). Note that when we allow for dynamic effects, the substitution effect prevail over the income effect: with higher wages, households offer more work, the employment-to-population ratio increases a bit and involuntary unemployment emerges. Second, the bargaining shock generates higher savings giving rise to a larger aggregate stock of capital (both in the PE-ABHI and in the GE-ABHI-IC, but higher in the PE-ABHI due to an exogenous fixed return rate). In other words, higher wages boost capital accumulation (and production growth). Table 4 summarizes these results.

Table 4: Comparative statics

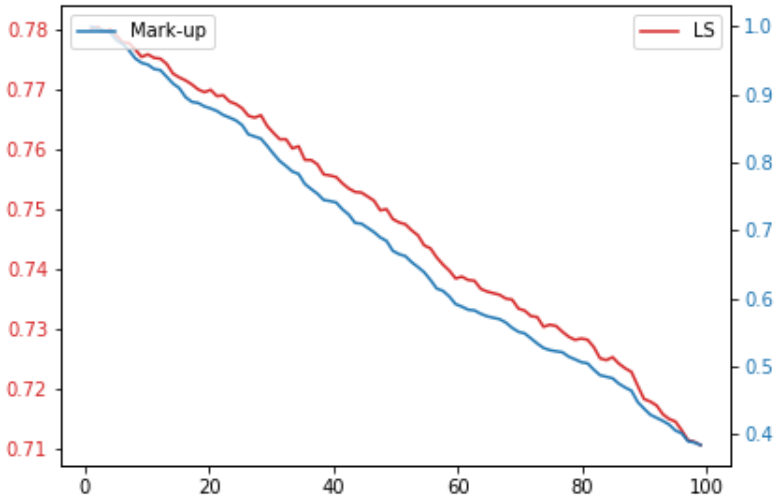
	Employment-population	Unemployment	FLS	GDP	K
GE-ABHI	61.25	0	64	2.20	21.39
PE-ABHI (shocked)	59.32	0	67.33	2.82	24.86
GE-ABHI-IC	59.50	3.72	69.02	2.67	24.71

Finally, we simulated the model for I agents and T periods, being $(I, T) = (500, 100)$. The simulation

[4]The Python code is available online: https://github.com/PauBelda/QuantitativeMacro/tree/master/TermPaper

provides a dynamic analysis of the model and specifically, of the LS dynamics. Simulations results of it are pictured in graph 2. Notice that an endogenously declining mark-up leads to a LS decline that mimics it. In other words, the ABHI-CI model replicates the very long run evidence we showed: the lose of workers' power explains the decline in the LS.

Figure 2: Simulated Labour Share and Trade Union's power



5 Conclusion

The old consensus that based modern Macroeconomics has been substituted by a new one: the LS has a falling trend. Even though this new consensus is dramatically dependent on accounting rules (e.g., capitalization of the IPP) and economic assumptions (e.g., self-employed income imputation), we present an exercise that try to explain it. The hypothesis we test is that the LS decline is (partially) explained by the lose of power of unions. Thus, the twin fall of union's membership rate and the LS observed in the U.S. would become a causal relation. With this correlation in mind, we built a heterogeneous agents model with idiosyncratic risk, incomplete markets and imperfect competition (that we labeled as ABHI-IC) that, under some specifications, is able to replicate the observed correlation between the twin fall.

Nonetheless, several shortcomings must be address. First, an empirical one: some critical assumptions should be reviewed (from the imputation of IPP rents to the treatment of realized capital gains). This would dramatically switch the research agenda: maybe what must be explained is the trend-less LS regardless huge technological and institutional changes rather than its decline. Second, the ABHI-IC we presented here faces important limitations: i) results are strongly dependent on the specification of functional forms and parameter values (no robustness); ii) the modeling of the trade unions is oversimplified and the disequilibrium in the labour market does not translates in disequilibrium in other markets (feedback effects fails to emerge); iii) even with imperfect competition, the model does not generate enough wealth inequality. All of that

points out future research lines that will potentially shed clearer light on the big issues the society is dealing with.

6 References

(...)