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“ The interaction between supply-side and demand-side factors in the medium-run. A suggested framework for the analysis of growth and employment activation in Europe and the United States in the recent decades.”

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Introduction

The essay aims essentially at a critical reassessment of the limits of a “supply-side dominated approach”, as this has prevailed in the macroeconomic theory and practice in the last two decades or so.

The renewed effort at individuating and modeling the relevant factors behind the longer-run growth potential of an economy, or the aggregative representations of labor market outcomes, as in the *NAIRU* approach and similar, are reference points, in the background, for the considerations which follow. There is no intention, however, to join, an already crowded forum on growth theory or “Nairuvian” controversies in this occasion, though, updated reviews of the robustness and empirical validations appear as products always to be welcomed on the research agenda, in particular when cyclical volatility and recession risks in the greater world economies are receiving an increasing concern.

The line of thought, briefly developed in the following sections, has at its core a vision stressing the joint relevance, of behavior and parameters, on the supply and demand side, in order to provide non unilateral accounts for the differential performance, in growth rates and employment activation, of the economic systems over time and across countries. After a brief review of references, this approach is presented, in the third section, through the means of a very simple and, we believe, quite general representation of the macroeconomic interaction of capacity and demand for a closed economy, to which we refer as a “*Neo-Domarian*” scheme. Further complications to the scheme, and extensions of its implications in an open economy context, are discussed in a following section. We do not provide here comprehensive sets of data for an international comparison; some intuitive empirical evidence, particularly revealing in our opinion for the relevance of “demand-side” interactions in the medium-run, are included in a section, before provisional conclusions and orientation for further research.

Supply, Demand and the medium-run: a ground for a new “compromise” ?

The relevance of demand side factors has been confined, within a “mainstream” orientation of macroeconomics, in their role for origin of “shocks” capable of causing dislocation of the economy, in a short-run, from equilibrium outcomes (i.e. for a steady rate of growth, or for an equilibrium frictional unemployment, and so on), strictly derived from “supply- side” fundamentals. The quotations which follow well summarize, we believe, the essential spirit of this point of view, with reference, respectively, to the growth and the employment outcomes:

“ ..growth of potential output,...as reflected by the fundamental factors acting from the supply side, should be kept separated by fluctuations and cyclical components generated by factors acting on the demand side.”¹

“Short-run movements in unemployment are strongly influenced by monetary policy...and aggregate demand. In the long-run, however, unemployment returns to a natural level or NAIRU...which is determined by labor market frictions”.²

There is the impression of a tacit consensus, among practicing macroeconomists within mainstream orientation, to accept, in fact, the relevance of demand-side factors in influencing activity in the short-run, given the non immediate or imperfect flexibility of the market adjustment mechanisms. A more “radical” neoclassical position, ³ for which markets would operate in continuous equilibrium with demand shocks void of real effects if not from unanticipated stochastic components, seems nowadays less in fashion with respect to some years ago.⁴ Current paradigms do not discourage, therefore, analysis of the impact of demand-side factors , and of related policies, if not for an implicit suggestion to accept a delimitation for their analytical boundary, as exercises which should not contradict a supply oriented vision of the longer run. This mode of thought does not appear at all new: the “reductionism” of “Keynesian” results , as plausible events within a delimited time horizon for which rigid or “sticky” prices could be assumed, refers to older “rounds” of macroeconomic controversies.

Within this broad setting, an impression may at times be caught, as if a new version of a “neoclassical compromise” were to be gaining consensus; the additional quotations are, we believe, evocative on this point:

¹ Solow(2000), pp.149-50.

² Ball(1999), p.189.

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*“..modern economies are characterized by medium-run evolutions that are quite distinct from either business cycle fluctuation or steady state growth”.*⁵

*“At short time scales, I think, something sort of “Keynesian” is a good approximation, and surely better than anything straight neoclassical. At very long scales, the interesting questions are best studied in a neoclassical framework.....At the five to ten years time scale, we have to piece things together as best as we can, and look for an hybrid model that will do the job”.*⁶

The applied economist, with a resistant “Keynesian “ inclination towards inclusion of the demand-side in the interpretation of states and evolutions of the economies, should be perhaps satisfied with this enlargement of the temporal horizon allowed to his exercise by these less dogmatic positions although within mainstream tradition ? we believe that points of view avoiding excesses of self-confidence as shown, for example, by those scholars who would explain all differential employment performance among national labor markets in terms of some degree of “market flexibility”, should be welcomed. The impression remains, however, that the acknowledgements from the point of view of factual relevance do not imply substantial correction of a fundamental target, as set by older and newer “classical counterrevolutions”, of circumscribing the analytical relevance of “aggregate demand” or related notions in the Keynesian tradition, within, or below, some horizon in which the fundamental trends of potential growth and employment activation were to be set.

We feel authorized, at this point, to recall briefly some original statements by Keynes. In an initial section of the “*General theory*”, aimed at anticipating main concepts, we may read that:

*“...given the propensity to consume and the rate of new investment, there will be only one level of employment consistent with equilibrium: since any other level will lead to inequality between the aggregate supply price of the output as a whole and its aggregate demand price. This level cannot be greater than full employment.”*⁷ Shortly before, Keynes had warned that “*the essential character of the argument is precisely the same whether or not money wages, etc., are liable to change*”.

⁵ Blanchard (1997), p.89.

⁶ Solow (200b), p.158.

⁷ Keynes (1936), p.28.

Before, or beyond, any “*ad hoc*” hypothesis on rigidity or flexibility of wages or prices, we are thus given a definition for a “warranted” level of employment, defined uniquely with respect to the coherence between the supply decisions as set by firms and demand outcomes as expressed on final markets. There is no room, in this, for “*a priori*”, partial, analyses of the labor market: “*our object is to discover what determines at any time the national income or dividend of a given economic system, and (which is the same thing), its employment*”.⁸

The usual objection would say that Keynes’ definition is relevant only in a static frame or a “moment of Time”, for which almost any sensible economist might perhaps define himself as Keynesian. The quest for the relevance of a “demand-side constraint” beyond that moment of time requires, thus, further extension and application of the analytical intuitions, unless we are sufficiently convinced about the plausibility of conditions for which an identity between potential output and activated demand may be taken for granted, to get rid of any fear for a “realization problem” to arise in the longer run.

Everyone is eventually concerned, after all, as some “medium-run” as a reference period for concrete evaluations of macroeconomic performances, beyond ideal norms for “steady-state” growth or mere description of the conjuncture of an economy. Trying to set analytics in coherence with this time reference, we wish to proceed, without further digressions and perhaps accepting in part the Solovian advice on “eclecticism”⁹, to frame the description of the interaction between “capacity” (supply-side) and “activation” (demand-side), within what is referred to as a “*Neo-Domarian*” scheme.¹⁰

Supply, demand and feasible growth in a Neo-Domarian framework

We recall, at this point, the “Domar’s problem, as this was originally stated in the far distant 1946: investments increase potential output in the supply-side, and in the meanwhile represent the primary engine of primary activation of a demand which may absorb that output. A growth rate assuring equilibrium may be easily derived, but nothing assures, in the setting, stability of or

⁸ Keynes(1973), p.482. The underlining is not in Keynes’ text.

⁹ Although this author believes that the original intuitions of Keynes, and the Principle of effective Demand in particular, are fundamentally irreducible to compromises balancing relative weights of demand and supply side factors over convenient, or idealized, time horizons.

¹⁰ Iu must refer to a previous paper of mine (Piacentini(2001)), for more adequate references to older and newer literature and on this point.

automatic adjustment towards that path. Out of equilibrium, a *“failure of the economy to grow at the required rate creates unused capacity and unemployment”*; not only in a moment of time, but over an extended time horizon, employment would then result as *“a function of the ratio of national income to productive capacity”*,¹¹ where by “income” Domar recalls Keynes’ notion of “Effective demand”.

The conventional wisdom wants the seminal contribution of Solow (1956) and successive generations of neoclassical models to have overcome the problem of (Harrod)-Domar instability, by disposing of the setting of a fixed coefficient technology. A few, but non innocent, restrictions on technology, and a full flexibility of marginal adjustments of factor ratios to relative factor prices, would then assure uniqueness and stability of the steady growth path.

Do these well known developments really dispose of the “Domar’s problem” as defined? In our opinion, the problem of a continuing balance between “capacity” and “income” is different, and logically prior, to that of the convergence of the long-run rate of growth to that of the increase of the supply plus the productivity of labor. The essential condition, allowing neoclassical models to skip altogether a demand constraint, is rather founded, as sometimes underlined in earlier critical surveys,¹² upon the absence of any ground for an autonomous determination of the investments in these models. For the representative agent optimizing intertemporal utility, non-consumption coincides necessarily with the accumulation of own capital. Saving coincides with investments, and consumptions and savings always exactly complement each other.

When macroeconomics were reduced to the projection of the microeconomics of the “representative agent”, there is in fact no room for an autonomous representation of demand. Production, consumption, and accumulation collapse within the control span of a single entity, and where the functions of a consuming household and that of the “firm” are formally separated, the latter’s role is reduced to that of a “technical operator” of the production function. The perfect identification between saving and investment is, then, a logical consequence of the reduction of the firm to a pure “medium”.

The minimal framework for which a problem of macroeconomic coordination may be realistically proposed, requires then that the decisions concerning current production and increases to the productive capacity are effectively decentralized to the firm. Moreover, to the use of the two

¹¹ Domar(1946). The quotations are from the reprint in Sen (ed.) (1970), p.67 and p.72.

¹² For example Sen(1962), reprinted in Sen(1970).

factors, capital and labor, must correspond two distinct functional categories of income, which should not be immediately aggregated within the “availabilities” of a generic consuming household.

With the distinction between capacity (supply) and income (demand) acquiring a sense in a situation in which a trivial identity between saving and investment is not imposed, and with the statement of principle that functional distribution of income may matter, through its impact on values of expenditure and costs of output,¹³ we proceed to defining the conditions under which a balance between aggregate supply and demand may be maintained over time.

To keep analytics as simple as possible, and noticing similarities between the original setting in Domar and in a class of more recent growth models , where constant returns to some broad notion of “capital” are assumed, a “AK” setting will be considered as a sufficiently representative framework for the analysis, at least for a situation in which the supply of labor is not a binding constraint or sufficiently elastic within the “medium-term” of our reference.¹⁴

We write thus:

$$1) \quad Y^S = A K$$

for the supply side or capacity output, where “A” should be meant conventionally as a productivity parameter linked to the “technological capability” of the economy.

In our “hybrid” approach, “demand-side” has an autonomous dignity. A “Kaldorian” specification of the consumption (saving) function, with differential propensities out of wage and non-wage income, will allow explicit introduction of functional distribution. The distinction between investments (“I”) and all other autonomous expenditure (“Z”)¹⁵, is the only other peculiarity in an otherwise straightforward derivation of a “multiplier” exercise. From “income identity”:

$$Y^D = C + I + Z,$$

and through simple passages (see Appendix note A), we may summarize the “demand-side” of the economy as:

¹³ Precisely, the prices of aggregate supply and demand in Keynes’ terminology.

¹⁴ Those unsatisfied with assumptions should wait until the next section, to see that the introduction of a flexible functional form, namely the Cobb-Douglas, would not alter much of the essential points of the reasoning.

¹⁵ To include Public expenditure, Net exports, and, possibly, components of an “autonomous” consumption not linked to productive incomes.

$$2) Y^D = m (I + Z)$$

where “m” is an aggregative parameter for the “multiplier”, explicitly derived in the appendix.¹⁶

From 1) and 2), the equilibrium locus, or what we define here as “Domar’s path”, along which additions to capacity brought forth by investments are exactly matched by its effects of demand expansion, may be simply obtained by equalizing:

$$AK = m (I + Z),$$

$$A = m (I/K + Z/K) = m (g + z A),$$

$$3) A = \frac{m}{1 - mz} g$$

where:

$g = I/K$: rate of accumulation,

$z = Z/Y$, share of other autonomous expenditure on output.

Fig. 1 describes the “Domar’s locus” as a straight line in a (A, g) quadrant; to points above the line will correspond situations of excess supply, i.e. demand-constrained outcomes for the economy; below the line, situations of excess demand and potential inflation.

The use of the simple scheme as a tool for interpretation of real world experiences would require collections and comparisons of the quantitative parameters involved, rates of accumulation, factor productivity, saving propensities, etc. Let us allow, for the moment, to go only through some intuitive and un-rigorous considerations, at the light of the experiences, during the last decade of the XX century, in the greater economies of the developed world.¹⁷

¹⁶ For those worried about the lack of specification of a price variable, we might at the moment suggest to keep the hypothesis of 1) and 2) as expression in real variables, although this should not check further consideration of adjustments in disequilibrium involving changing price levels.

¹⁷ We are implicitly approximating, here, a hypothesis of a relatively stable capital/output ratio in the medium-run, allowing to identify, with the “g” in the horizontal axis, also for the rate of growth of output/income of an economy.

Let us associate intuitively, to three positions of the graph, corresponding stylized situations for an economy:

- a) high (or increasing) levels of a technological capability “A”, together with a high propensity to consume on the demand side (i.e. low inclination of the equilibrium locus) would result in a high value for the steady growth rate; however, should a consumption propensity get too high, such an economy would run the risk of slipping into the excess demand region; inflationary pressure might be checked in this case, not only by a good performance of factors productivity, but also through net imports eventually covering a domestic demand gap;¹⁸
- b) a policy priority, or constraint, for stabilization programs involving reductions of fiscal deficits would imply lower values of the “z” parameter with the equilibrium locus declining to the right; the effects of “incomes policies” pursued in coherence with disinflation, allowing nominal wage increases only in the measure of some “target” level of inflation, with productivity increases not fully followed by real wages, might reinforce demand restraint through “Kaldorian” effects on average propensity to consume. For the supply-side, let this stylized economy be characterized by a somewhat lower technological dynamism than A). The combination of the parameters would then define a lower warranted growth for this economy, with the risk of falling, in the event of some productivity catch-up *ceteris paribus*, into the region of excess supply, with a possible “export dependence” as a compensation to deficits of domestic demand;
- c) an economy, that experienced once a period of “overaccumulation”, and with a good level of a technological capability, given, among other factors, a high propensity to save of its population, might find itself locked into a situation of chronicizing excess supply, feeding eventually into investment decline, and a pattern reminiscent of a Harrodian, negative, cumulative process.

The reference to recent experiences in the United States, European Union and Japan, for the above three situations, is incidental and un-rigorous.

¹⁸ If we include in “Z” net trade balance, in an open market environment, the balanced growth line would rise (lower) with increasing net exports.

Some further complications and considerations

We hope that, within its simplified hypotheses, the scheme outlined might maintain an intuitive heuristic power. Surely, exercises in dynamic modeling, starting from the proposed definitions for equilibria and disequilibria, should be a target for further research. For those unsatisfied with the “AK” formulation, an alternative derivation of the “Domar’s path” under a Cobb-Douglas technology is briefly outlined.

$$1 \text{ bis) } Y^S = A K^\alpha L^{1-\alpha}$$

$$2) \quad Y^D = m(I + Z);$$

simple algebraic manipulations¹⁹ will bring to :

$$3 \text{ bis) } A = \frac{m}{1 - mz} k^{1-\alpha} g$$

the essential implications of the original scheme are thus maintained, with the addition of a role for „k“, the capital intensity of the technology, which in Fig 2. is seen as originating possible rotations of the Domar’s locus. The outcome is easily justified from the point of view of formal analysis: more capital intensive economies would require higher investments in a steady-state for a given “g”, with a Domar’s locus rotating upwards and widening the area of a potential excess demand/inflation. The dynamic consequences of changing capital intensities, the traditional equilibrating parameter in neoclassical models, are not however straightforward. Approaching equilibrium would in fact require, in a situation, e.g., of ED-inflation, lowering a capital intensity; behavior supporting such an outcome, say a Kaldorian hypothesis of higher rigidity of nominal wages with declining labor costs in inflation, might be imagined, but we maintain some doubt on their heuristic relevance in explaining the actual course of events in the industrialized world.²⁰

A whole set of hypotheses for the effects of “supply-side” shocks, affecting parameter “A”, and demand-side ones, causing variations of the “m” and “z” values, could be considered at this

¹⁹ See appendix note b).

²⁰ Note however that an economy with a lower “A” and a higher “k” would be associated with a lower warranted growth: this may be plausible for the 1990’s within an US-EU comparison.

point and their implications be drawn in terms of intuitive or comparative static exercises. The interested reader is referred to an older, longer, draft.²¹

We conclude the section with some further consideration explicating for labor market behavior. Better, or worse, records for (un)employment in the various countries, in the recent years, have been, in fact, associated with the institutional characteristics of the national labor markets, within analyses framed in the context of partial equilibria of the latter. Factors as degree or coverage of “Employment protection legislation”, or unemployment benefits, have been brought into attention. A “Keynesian” causation, in which employment is, rather, a derived demand for labor requirements given level of activation of the output potential, was again left as admissible only as a factor for short-run fluctuations. Adding a further quotation from an influential text:

*“In the long run, unemployment is determined entirely by supply factors and equals the NAIRU. In the short-run, unemployment is determined by the interaction of aggregate demand and short-run aggregate supply.”*²²

However, as the debate on the evidence of “hysteresis” has testified, it seemed that “short-run” shocks had projected persistent influence on the medium-term, reducing the heuristic power of longer-run notions of equilibrium.

A few contributions, aiming at an interpretation of the causes of low employment activation of the European countries in the 1980’s and early 1990’s, have, on another line of research, put emphasis upon other factors, such as the interaction between functional distribution and “biases” in the technological change, and (un)employment.²³ Falling shares for labor income, during this period, have been in fact jointly observed with declining (raising) (un)employment rates.

Within the approach as described in the previous section, the observation of a correlation in the medium-term between a redistribution unfavorable to labor and negative employment balances would have found a more straightforward rationalization, unconditional upon “*ad hoc*” hypotheses on biases of technology or settings of the industrial relations system. “Kaldorian” effects on consumption growth, and real investment decisions not following automatically the availability of

²¹ Piacentini(2001), on particular pp.18-20.

²² Layard, Nickell and Jackman(1994), p. ...

²³ See Blanchard (1997), Rowthorn (1999).

savings, but sensitive instead to demand and capacity considerations, would be quite obvious candidates for demand-side interactions justifying the facts.

Indicative evidences

A reinterpretation of growth and employment records in the Western economies in the recent decades, according to a viewpoint less biased, a priori, towards “supply-dominated” explanations, would require a through vision of comparative data. The scanty evidence presented here below are not meant to be substitutes for empirical analyses in depth, but as only exemplifying aspects deserving broader consideration.

As indicative evidence, the graphs A1-A4 and B1-B4 show cross diagrams, for income shares of (dependent) workers, the private consumption to GDP ratio, and the employment to population ratio (gross employment rate) for a number of OECD countries.²⁴ A correlation between the two key demand-side factors influencing the “multiplier”, and the index of employment activation, appear to emerge more neatly in the more recent period. Hazardous conclusions will not be attempted on the basis of occasional evidence; we are satisfied, however, with a preliminary result for which, recently, intuitive “Keynesian” correlations would have performed not worse than that of synthetic indicators of some “labor market flexibility”, for the rate of employment.²⁵

The associations between these parameters are further described in the graphs C1-C6, in terms of cross-diagrams, for the United States and three greater countries of Continental Europe, for each year within the period 1971-2000. We have joined, with thick lines, on the cross diagrams of the labor share and the rate of employment, groups of subsequent years describing cyclical episodes in the 1980’s and early 1990’s. For the three countries of Continental Europe, Germany, France and Italy, more clearly for the 1980’s and a lesser intensity in the 1990’s, emerge phases of concomitant decline of the wage share and the rate of employment. This “procyclical” behavior of the wage share, for periods of slowdown, is in contradiction with the standard implication of the neoclassical model, and with prevalent opinion that labor market rigidities might have hindered in Europe employment and real wage adjustments over the cycle. The evidence, in particular in the mid-1980’s is rather compatible with the effect of a “labor shake-out” linked to industrial restructuring and biased technological progress. But “Kaldorian” effects acting through the consumption side cannot be excluded, at least for the sequences of years joined with lines on the cross-diagrams for the employment rate and the average consumption ratio to national income.

²⁴ For 1971 and 2000, the initial and final year of availability, at the moment of the writing, of OECD homogenized series of National Accounts, and for two intermediate years (1980 and 1990).

²⁵ As often has been proposed in recent literature. See, for example, the graph reported in OECD(1999b), p.157, where frankly it is difficult to see any correlation at all.

The scatters reveal quite a different scenario in the United States: while in the 1980's a procyclical behavior of the wage share appears to be confirmed both for phases of slowdown and recovery, there is an impressive and steady correlation, between rises of the average consumption propensity and the rate of employment, over the whole period covered by the data (see graph C6) . The rise in the C/Y ratio, by almost seven points between 1980 and 2000, seem to have more than compensated the effect of a decline of the wage share, although smaller than elsewhere.

The directions and lags in a causality between growth, activity rates and consumption propensities certainly need a specialized investigation. At this stage, we are satisfied with these preliminary evidences, suggesting the relevance of inclusion of demand-side and distributive parameters, for the investigation of differential growth and employment performance across periods and among countries.²⁶

Concluding remarks

The demand side interactions above considered appear relevant within comprehensive reinterpretations of the low growth of output and employment, as experienced during most of the 1980's and 1990's in Continental Europe. A policy orientation which, in front of a priority given to targets of disinflation and reduction of fiscal deficits, has sacrificed in some measure a "multiplicative potential" of the internal components of demand, should have contributed to this result. Our scheme, however, does not exclude roles for supply-side factors: a delay, or increasing gaps, of a "technological capability" , with respect to the other side of the Atlantic, may have contributed to a restriction of margins for demand expansion given the stability constraints.

At the light of the more recent debates on the impact of commercial and financial integration at a "global" level, we wish to add here a final consideration. A situation, in which smaller "national systems" compete, on the front of trade performance and of capability of attracting (or

²⁶ In our representation of "Domar's problem", we had shown that an outside the equilibrium path could be originated from changes in parameters on both demand and supply side. In the case of an "AK" setting, the latter is explicated by a single indicator, "A". The quest for empirical measurements of "A" (or its reciprocal, a notion of a capital-output ratio) meets difficulties in data availability and comparability. OECD has discontinued the publication of its series of gross and net capital stock since 1997 (see OECD(1997)). Some graphical analysis of trends in K/Y , until that date, were reported in Piacentini(2001), pp.24-26.

keeping home their own) financial resources, a priority given to policies targeted at avoiding risks of excess demand and inflation becomes almost unavoidable. But if one considers a final interaction within the context of wider areas of economic integration, towards which key policy decisions in the macroeconomic and other fields (e.g. regulation, tax systems, etc.) are being transferred, it becomes, somewhat paradoxically, more important not to neglect the relevance of factors affecting the potential of components of demand which are internal to the area. Trade balance between members countries cancels out in the context of an Economic Union: aggregate demand, within the latter, will consist more and more of “internal” components. In the seminal article of 1931, in which, for the first time, the notion of an “employment multiplier” was introduced, R.Kahn wrote:

“The more a country approximates a closed system,, the greater is the ratio of secondary to primary employment. A perfectly closed system, to go one step further, is the world as a whole.”²⁷

In Kahn’s terminology, “primary” employment is what is being activated by the exogenous components of demand; “secondary” employment is what is linked to the increases of an induced component, i.e. consumption. These words should make us aware that, precisely in a “globalized” world, the growth of the consumption potential and the variables having an influence on it should be carefully kept in mind. A strategy of compression of domestic demand, to be compensated by efforts towards “export drive”, might be a success story for localized contexts and smaller countries; if these policies were adopted as the joint priority of a wide group of countries belonging to a bloc, the risks are those of slower growth and deflationary bias in the whole area. The most noticeable example of a growth supported by internal components is, besides, the recent story of the United States.

²⁷ Kahn(1931), p.185.

Appendix Note a)

The multiplier derivation, for the simple model, is here developed in detail.

Given:

$$Y^D = C + I + Z$$

and

$$C = c_w wN + c_r (Y^D - wN) ;$$

$$Y^D = c_w wN + c_r (Y^D - wN) + I + Z$$

Division by Y^D gives:

$$1 = c_w \omega + c_r (1 - \omega) + I/Y^D + Z/Y^D$$

with ω for the wage share. We are writing simply Y for Y^D below.

$$\begin{aligned} I/Y + Z/Y &= 1 - [(1-s_w) \omega + (1-s_r) (1 - \omega)] = \\ &= s_r + (s_w - s_r) \omega \end{aligned}$$

$$Y = 1 / s_r + (s_w - s_r) \omega (I + Z)$$

We impose $m = 1 / s_r + (s_w - s_r)$

Appendix Note b)

Consider in fact :

$$Y^S = A K^\alpha L^{1-\alpha}$$

$$Y^D = m (I + Z)$$

$$A K^\alpha L^{1-\alpha} = m(I + Z)$$

$$A k^{\alpha-1} = m(I/K + Z/K) = m(g + z A k^{\alpha-1})$$

From which 3) bis follows.

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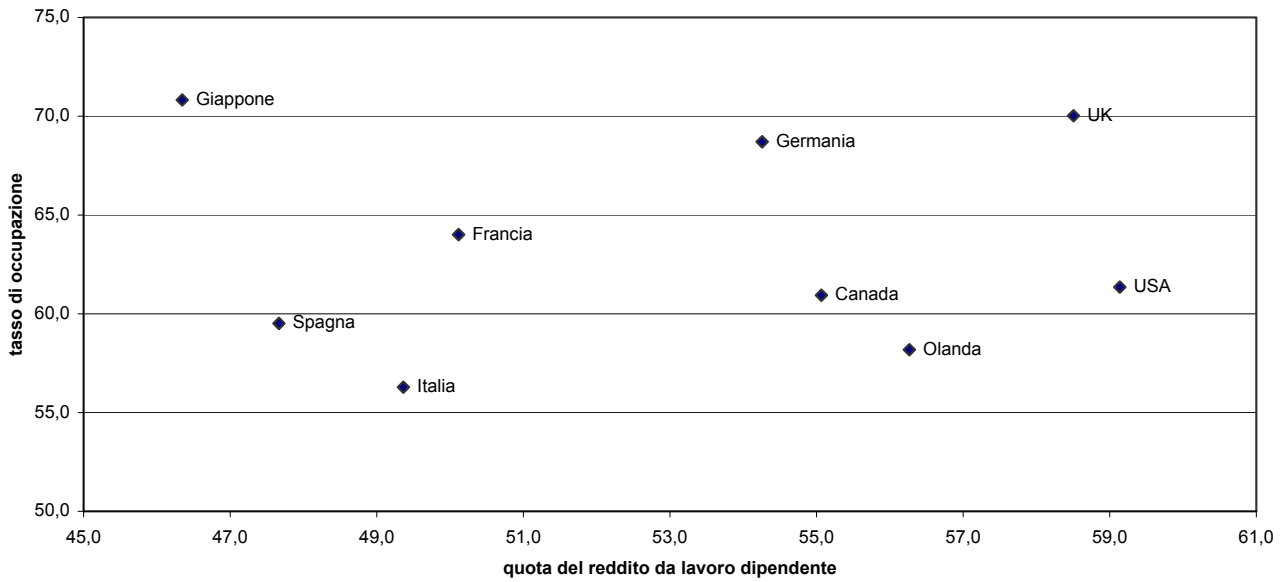
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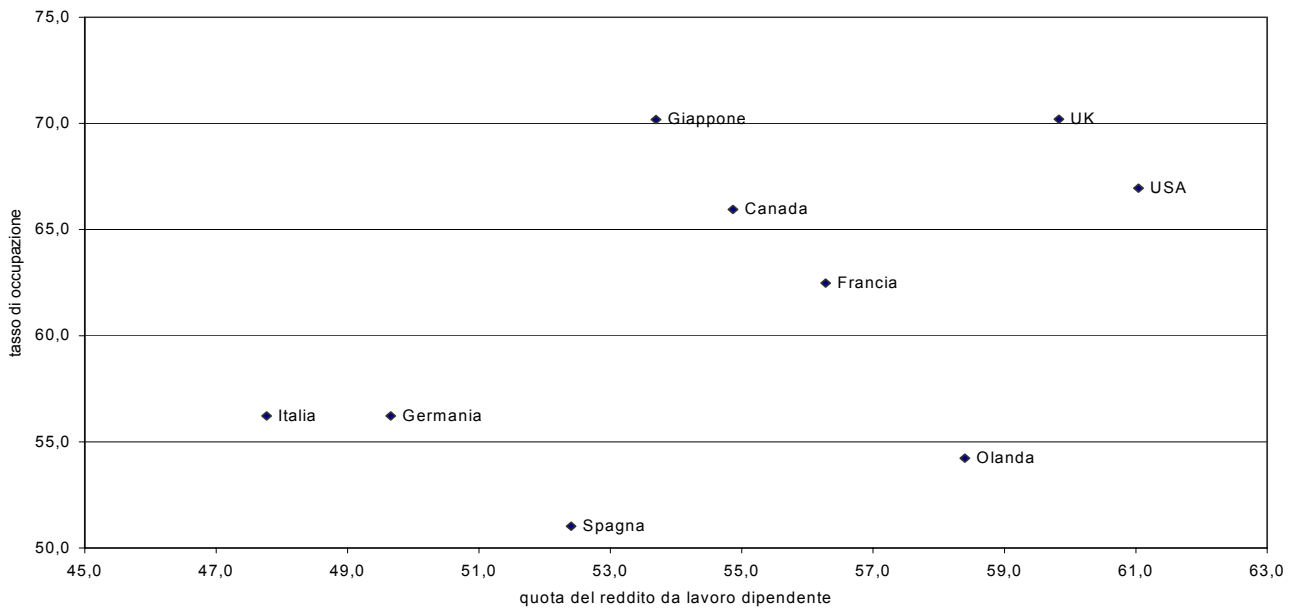
Graf A1

Quota del reddito da lavoro dipendente/tasso di occupazione: 1971
(valori %)

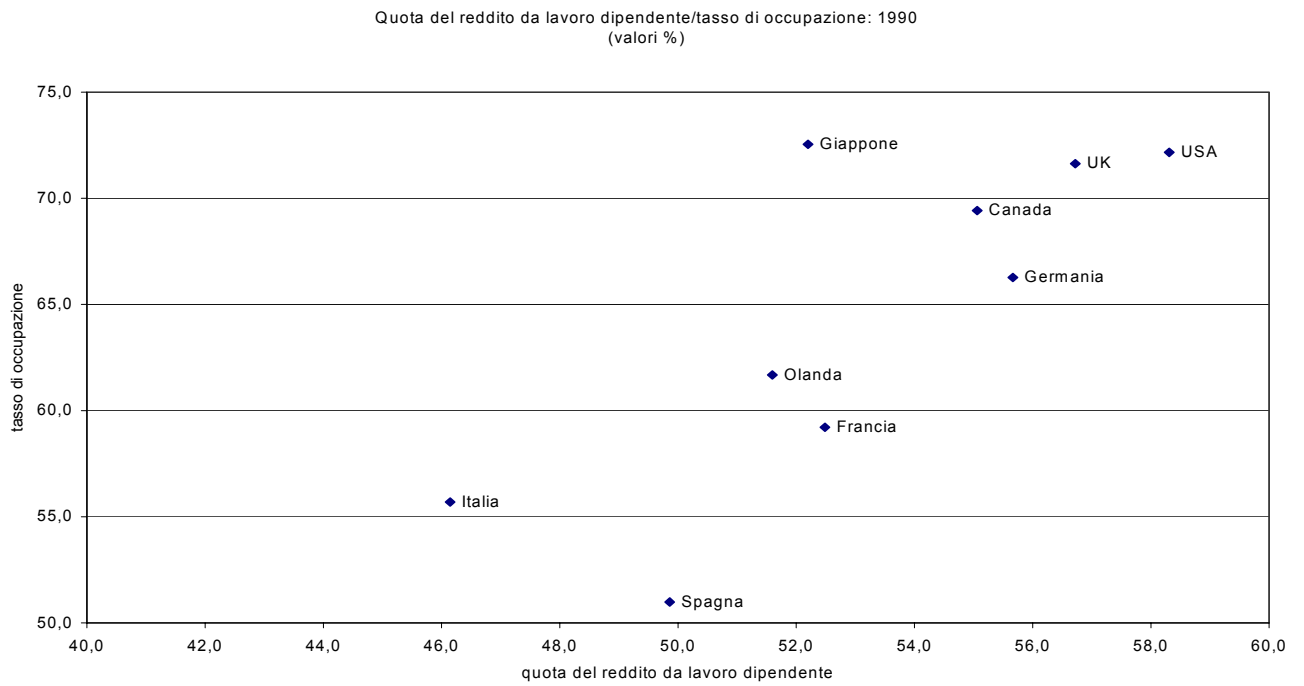


Graf. A2

Quota del reddito da lavoro dipendente/tasso di occupazione: 1980
(valori %)

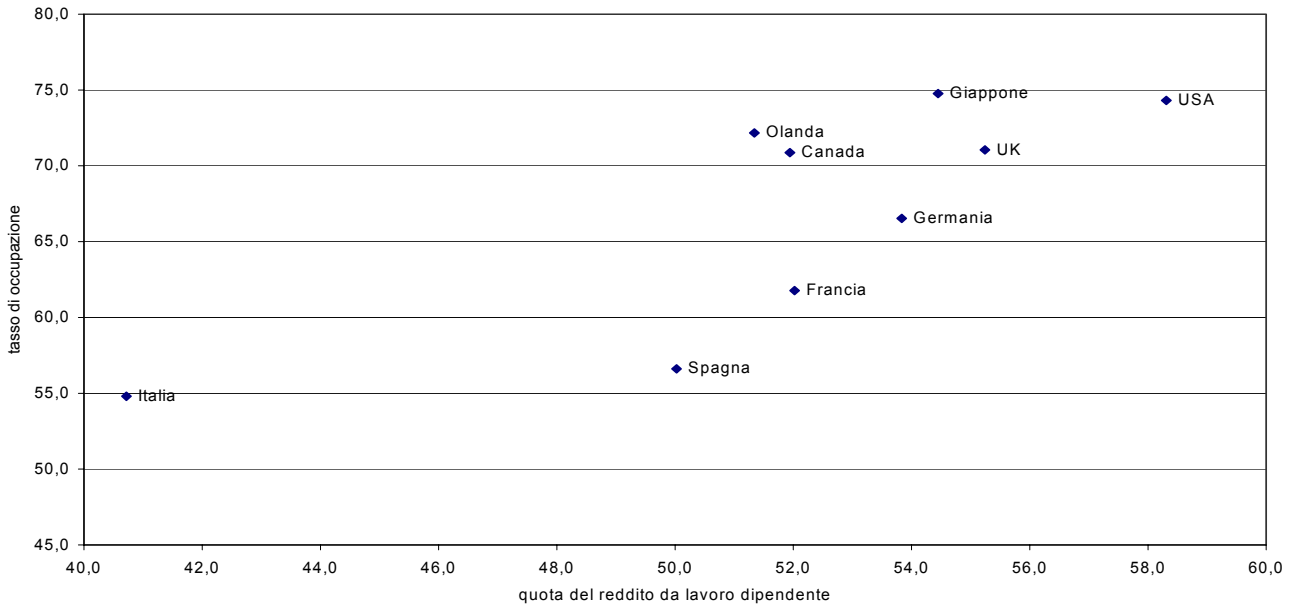


Graf. A3



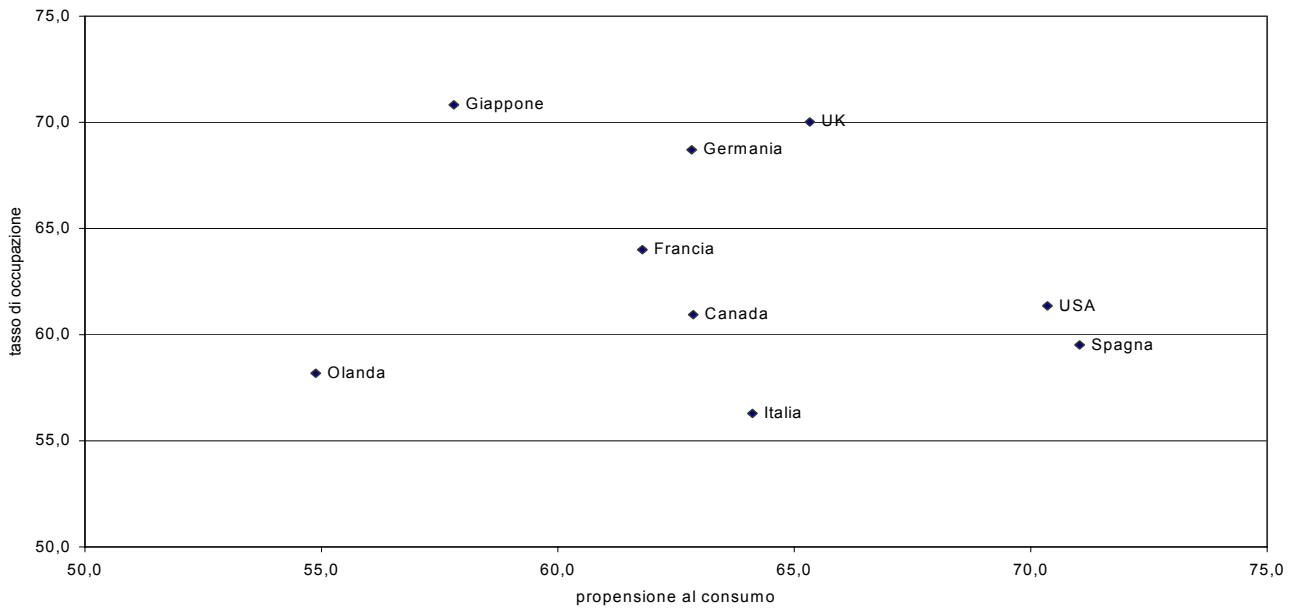
Graf. A4

Quota del reddito da lavoro dipendente/tasso di occupazione: 2000
(valori %)



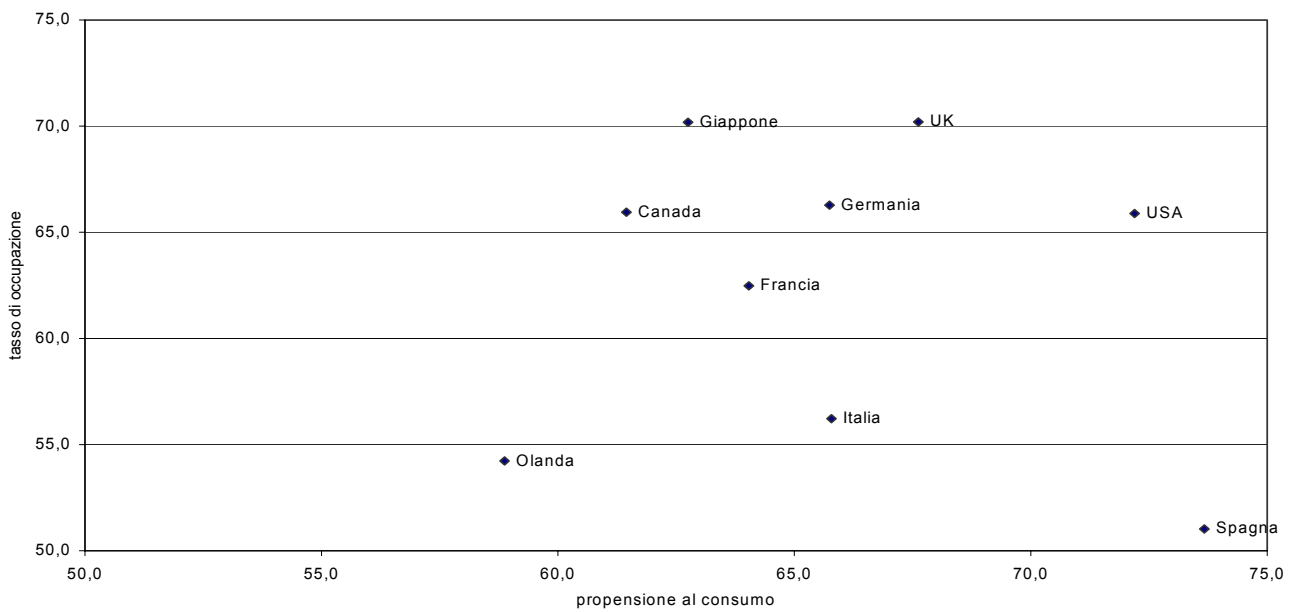
Graf. B1

propensione al consumo e tasso di occupazione: 1971
(valori %)

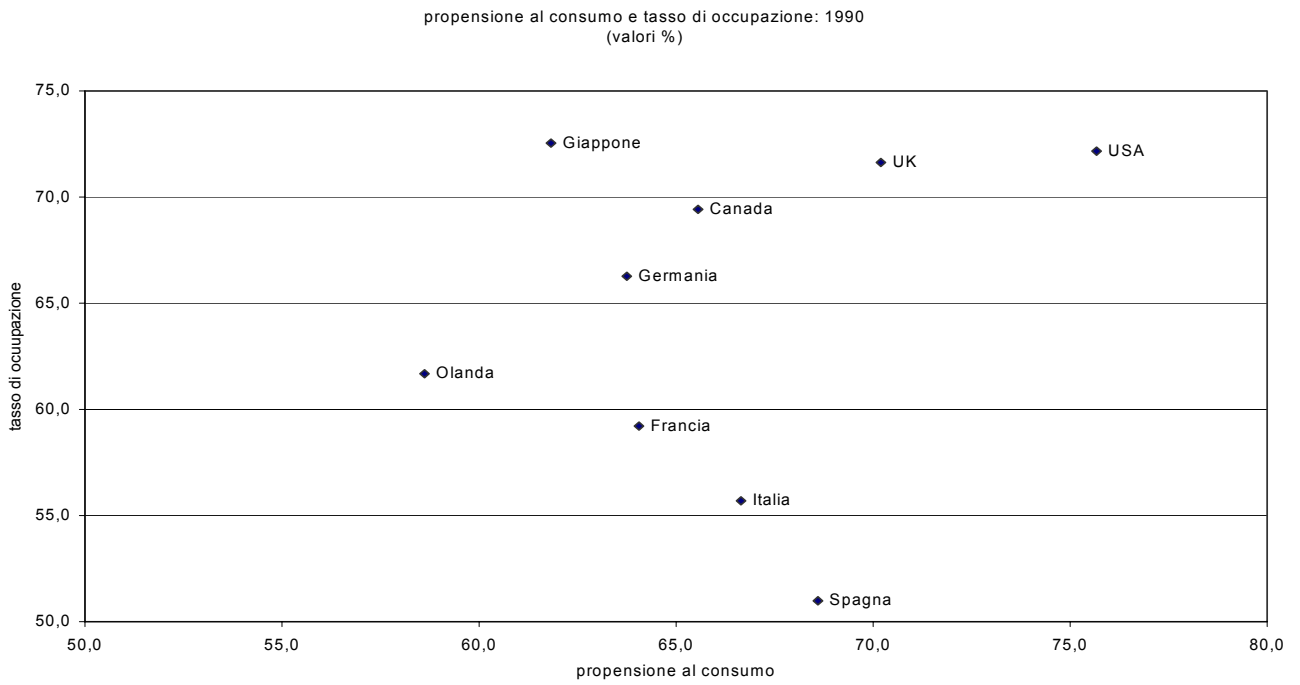


Graf. B2

propensione al consumo e tasso di occupazione: 1980
(valori %)

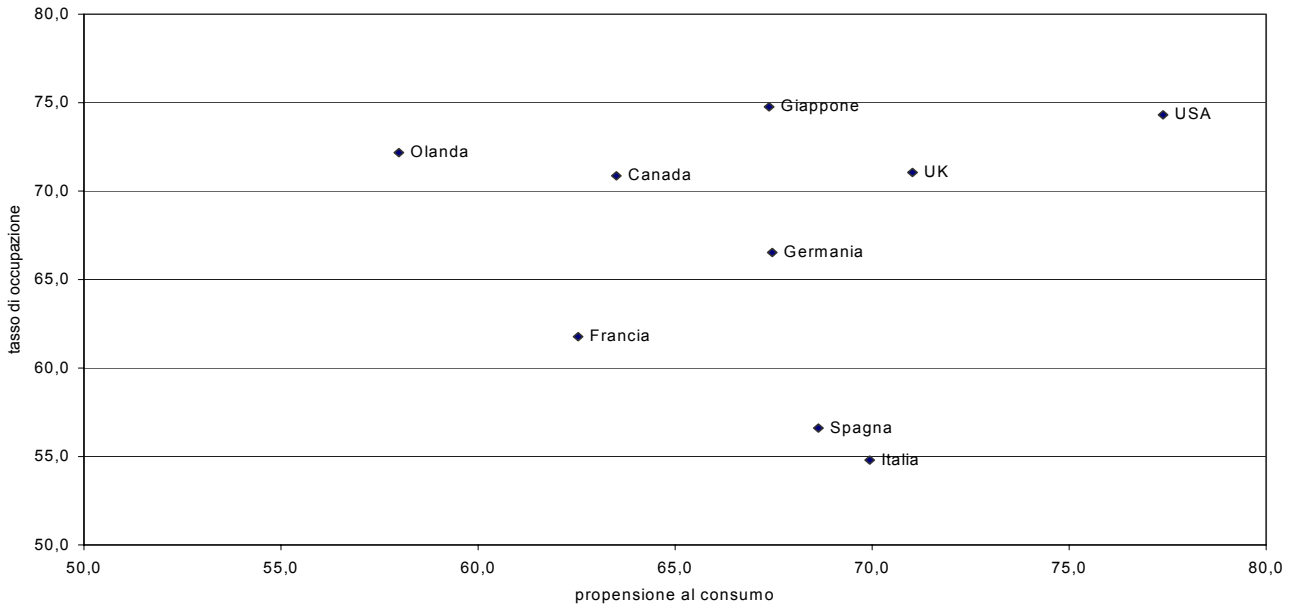


Graf. B3



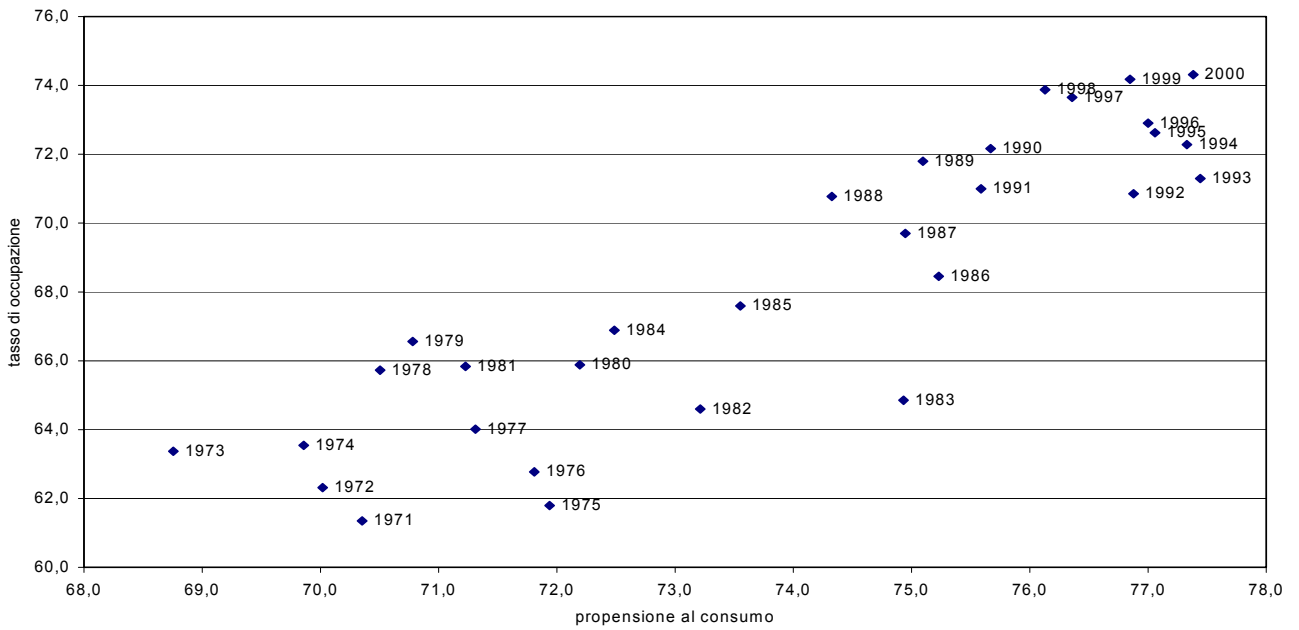
Graf. B4

propensione al consumo e tasso di occupazione: 2000
(valori %)

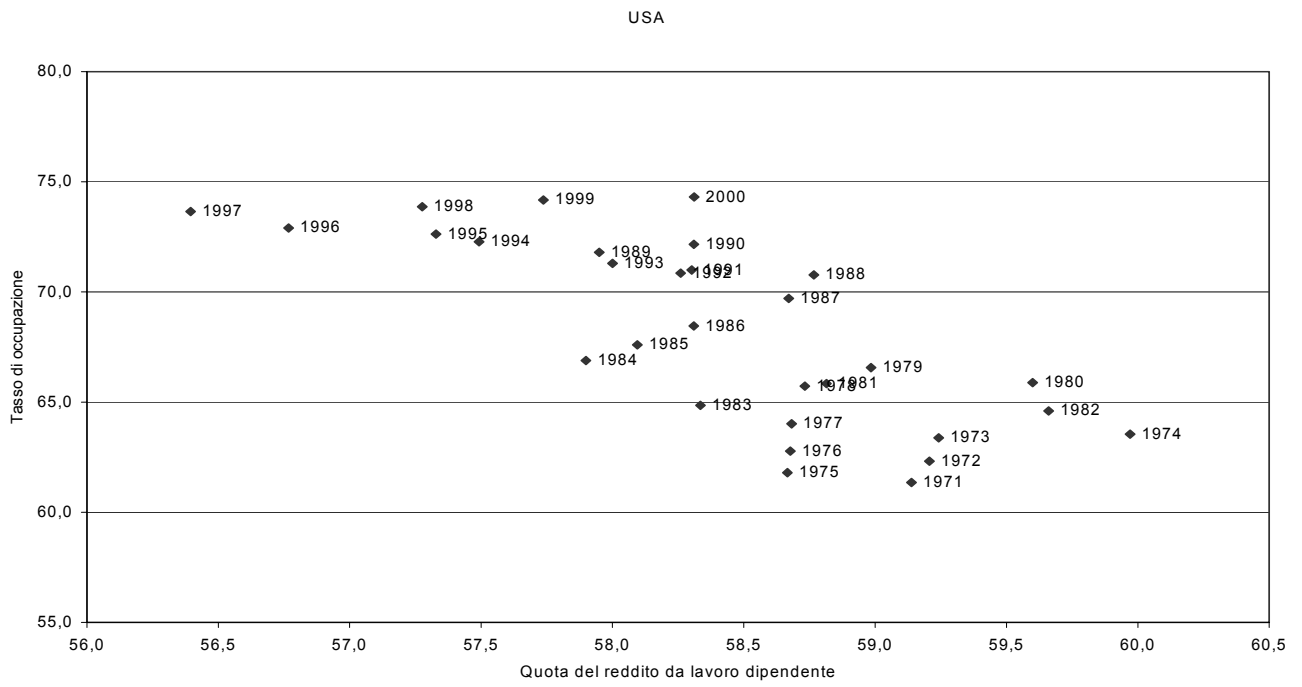


Graf. C1

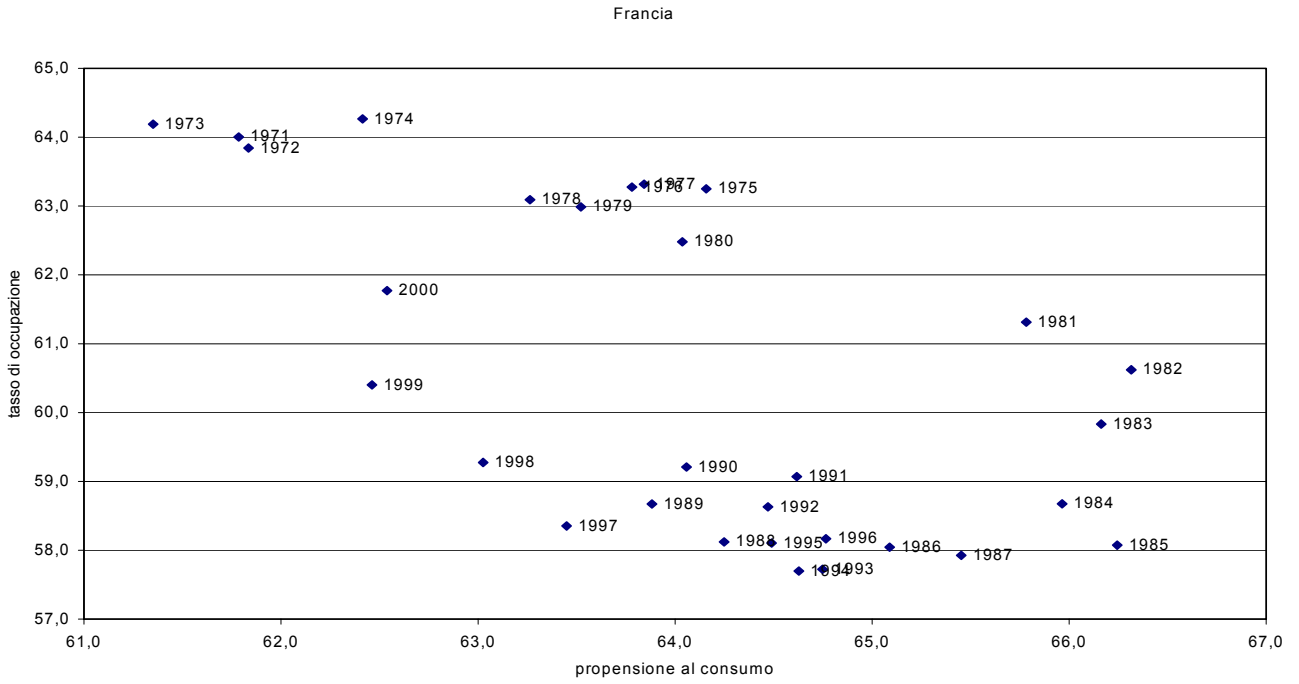
USA



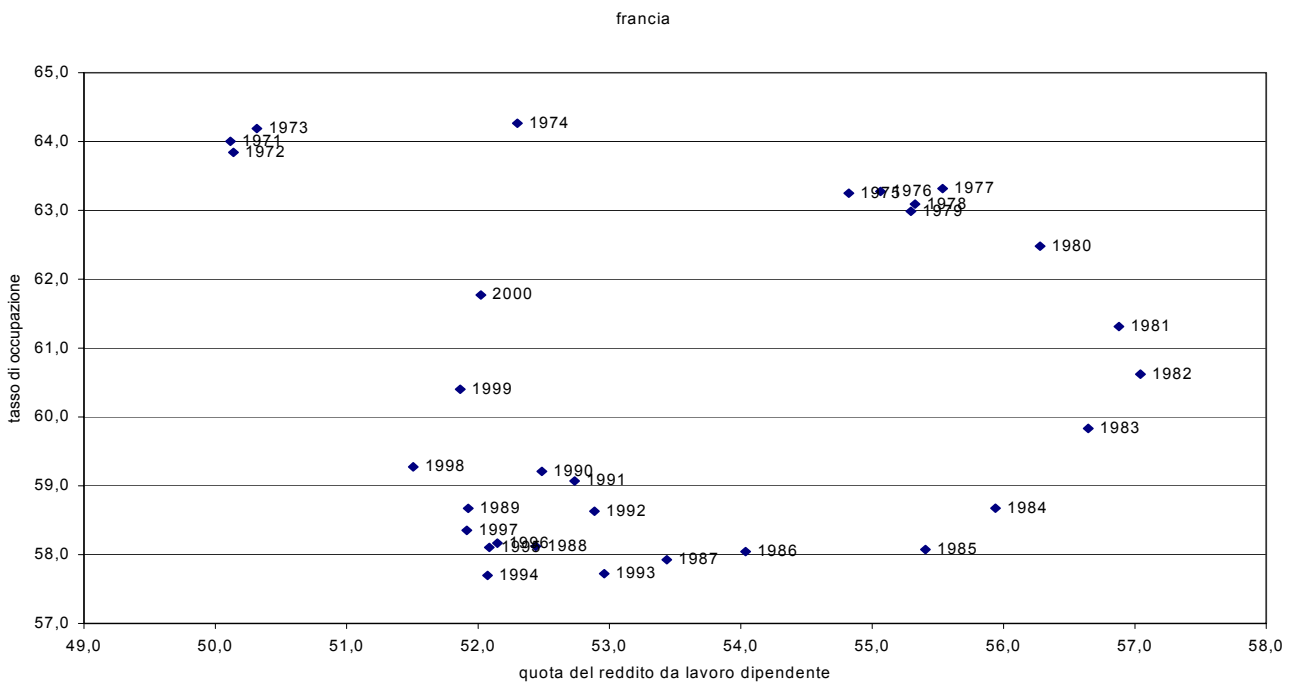
Graf. C2



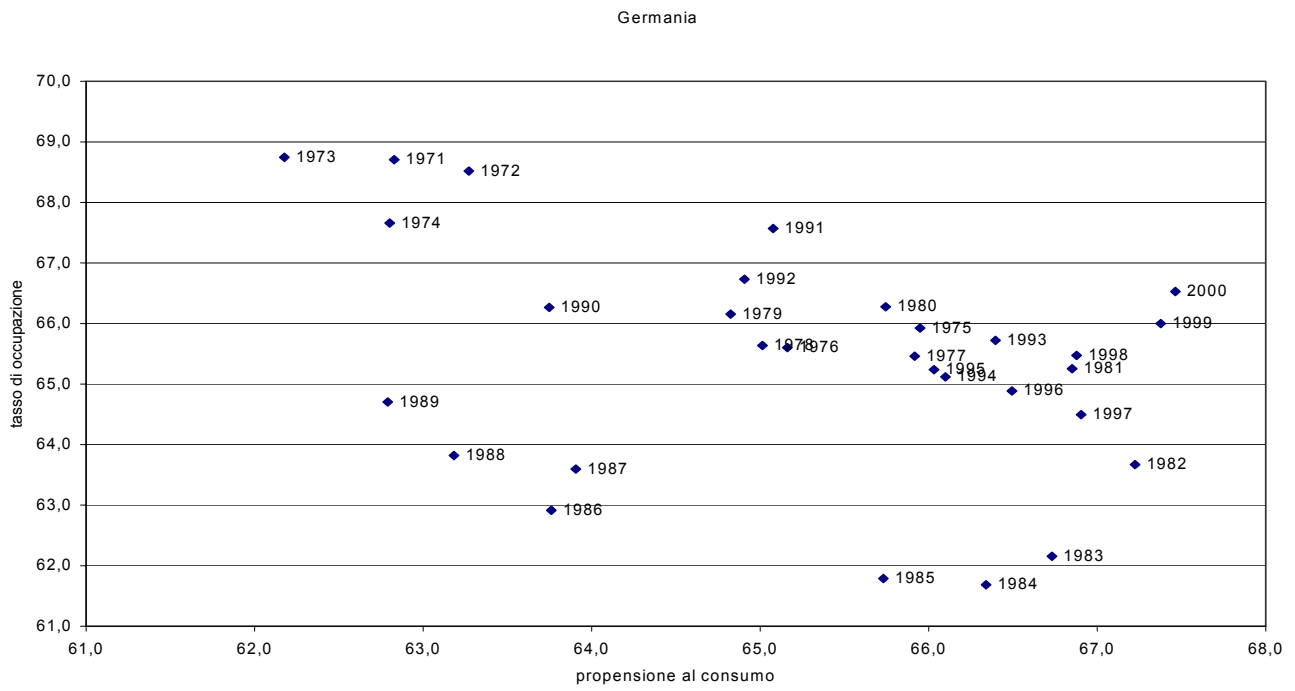
Graf. C3



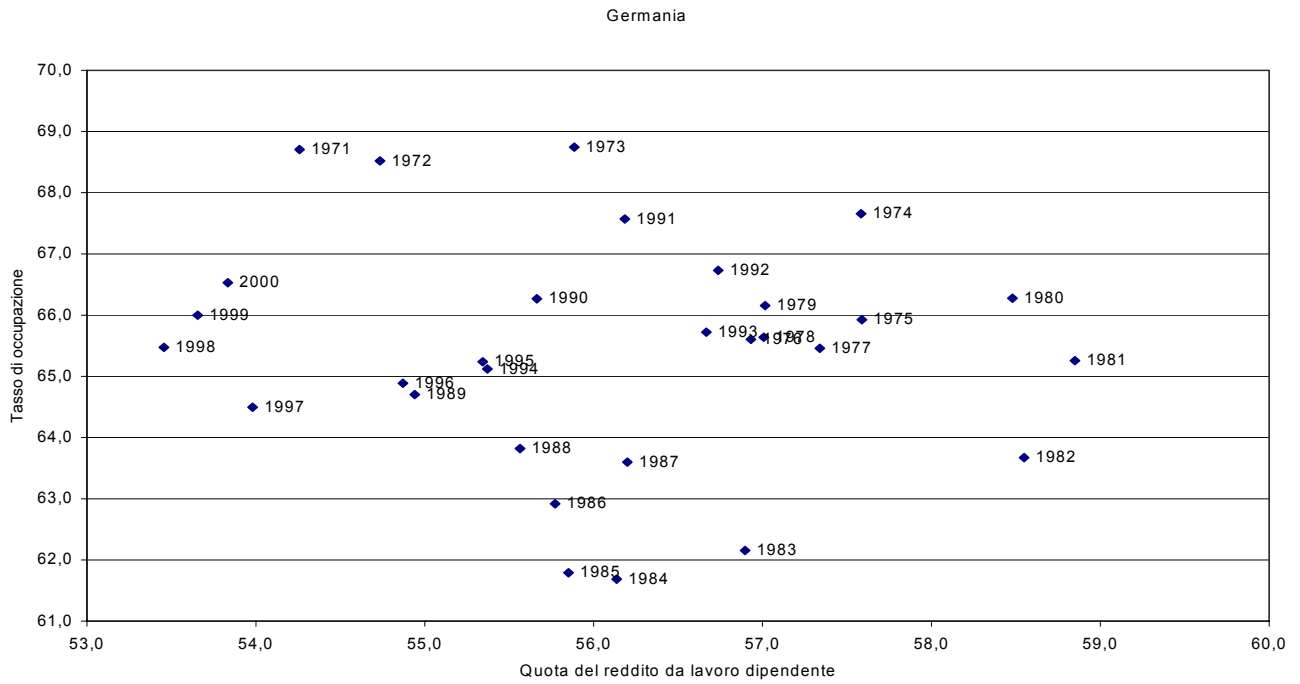
Graf. C4



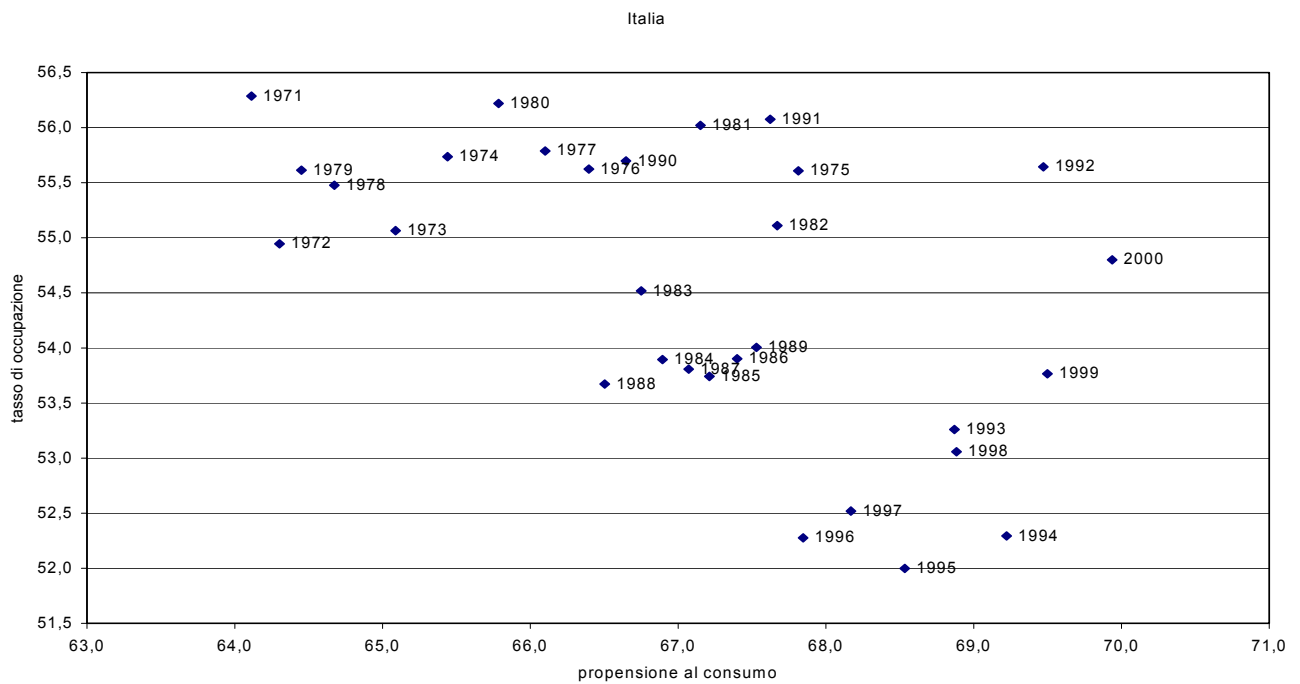
Graf. C5



Graf. C6



Graf. C7



Graf. C8

