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The roots of the Italian stagnation

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Italy is now facing its worst recession in recent history, having lost about 7% of GDP in 2007-2012 cumulatively, with an estimated additional fall of 1.5% in 2013. The current situation is to a large extent the result of the Eurozone Crisis and of the tough fiscal austerity measures introduced simultaneously in Europe, and particularly in Italy. Since 2007 the Italian primary balance improved by 3.3 points of potential GDP according to the OECD, so that, assuming a reasonable fiscal multiplier (around 1.5), the fiscal consolidation can account for more than half of the Italian GDP loss.

And yet, the roots of the recession and of its persistence lie in the past – a 'lost decade' of missed reforms in product, labour and credit markets, perpetuated a stagnant economy characterised by an ailing productivity growth and by a labour market where average earnings are completely decoupled from productivity and demand conditions. At a time when Italian trading partners, notably Germany, were introducing productivity-enhancing structural reforms, and when the easy escape-route of competitive devaluation was shut, this reform inertia left a legacy of large competitiveness gap, the consequences of which Italy would be paying for even without the Crisis – albeit perhaps in lower instalments.
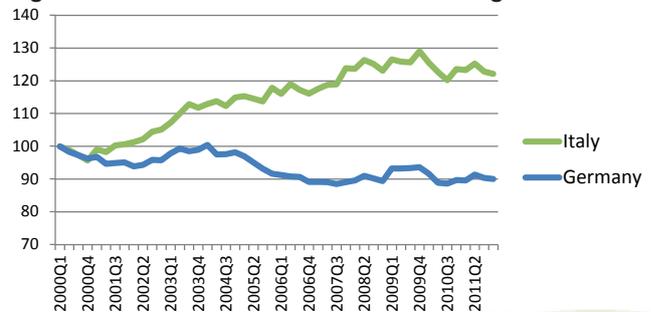
Competitiveness …

Competitiveness is a simple concept but is difficult to measure (see Chinn 2006). Simply stated, competitiveness is the price of foreign goods relative to that of domestic goods. If foreign goods become more expensive than domestic goods, competitiveness rises and the terms of trade deteriorate. Different measures of competitiveness (or its reciprocal, the real effective exchange rates, REER) rely on consumer prices or on unit labour costs, and use weights derived from trade shares to compute a 'foreign goods' basket. The unit labour cost measure of competitiveness is particularly interesting, because this index focuses on the

underlying costs and its determinants, wages and productivity, and is not affected by firms' pricing policies which may vary over time and markets.

The unit labour cost-based indexes for Italy (green line) and Germany (blue) are shown in Figure 1. Between the first quarter of 2001 and the last of 2011, unit labour cost in Italy rose by 23 percentage points more than in its trading partners (a real appreciation), while unit costs in Germany declined by 9.7 percentage points (a real depreciation). These numbers are impressive and lead us to the question: what explains the huge rise in Italian unit labour costs?

Figure 1 ULC-based real effective exchange rates

Source: Darvas (2012)

And beyond…

In order to answer this question I decompose 'competitiveness' – i.e. the relative price of foreign goods to domestic goods – into its determinants (see appendix 1 for a formal definition). The price of foreign goods (imports) can be broken down into four elements:

- The labour cost of producing one unit of output (the hourly wage multiplied by the hours of labour required per unit of output);

- The social-security contributions paid by the foreign firms who produce the good;

- The mark-up of price over production costs;

- The domestic taxes on sales paid by domestic consumers;

All this is then converted into domestic currency with the exchange rate. The price of domestic exports for foreign consumers has similar determinants.

This observation identifies sources of competitiveness changes. Italian competitiveness improves if the Italian:

- Wage per hour falls,

- Labour productivity rises;

- Consumption tax rises; and

- Social security contribution rate falls;

with all these changes relative to the foreign ones. Finally if the (trade weighted) nominal exchange rate weakens, Italian competitiveness increases.

In this context, a country can improve its competitiveness by a 'fiscal devaluation', that is by raising the VAT tax rate, which exempts domestic exports but hits imported goods, and by cutting social-security contributions (which benefits domestic but not foreign producers). Next, I discuss the contributions of these components to the change in unit labour cost in Italy and Germany. Given the focus on Eurozone members, exchange rates issues do not arise.

## Hourly labour compensation and labour productivity

Figure 2 shows the evolution of the average cost of one hour of work in Italy and Germany in the last decade. In 2000, the price of one hour of work in Germany was almost double than in Italy (about 19 euros compared to 10.9). In following decade nominal wages per hour converged, although not completely: they rose by 39.5% in Italy against 21.1% in Germany.

Figure 2   Hourly labour compensation
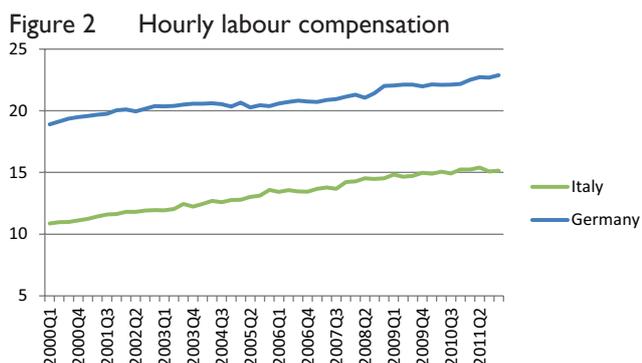
Source: Darvas (2012)

This developments notwithstanding, Italian workers were not much better off at the end of the decade: consumer prices in Italy rose about 31.2% cumulatively (against 21.5% in Germany), and hours worked declined by 3% (and were stable in Germany).

Labour productivity, however, did not follow wages. Figure 3 shows that labour productivity completely stagnated in Italy (+2.7% in the entire period) while it rose considerably Germany (+16.7%). As a result, net of taxes, unit labour costs in Italy rose about 32.5% more rapidly than in Germany.

Figure 3   Hourly labour productivity
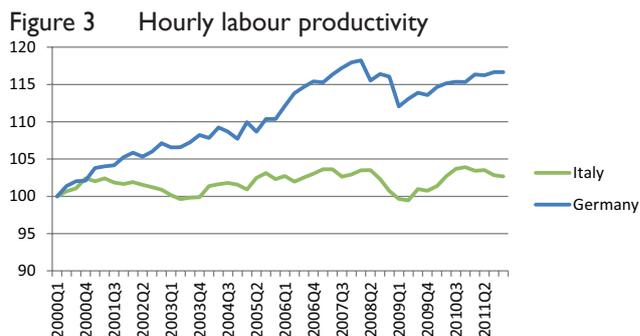
Source: Darvas (2012)

Social-security contributions and consumption taxes

Figure 4 plots the average tax rate on social security contribution paid by employers. The difference between the levels Germany and Italy contribution rates is striking, although it is quite stable (the Italian rate fell by two points and the German by one point between 2000 and 2012).

Figure 4   Average rate of employers' social-security contributions
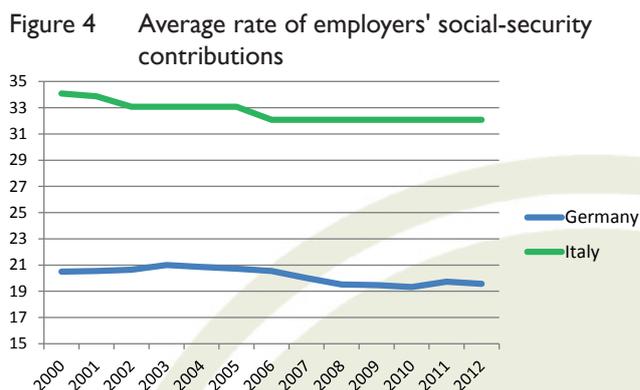
Source: OECD.

Consumption taxes show a different dynamics. Figure 5 plots the ratio of VAT revenue to GDP in Italy and Germany. Ideally, we would like to measure an average tax rate. In practice, however, VAT has multiple tax rates/exemptions so that obtaining an average rate is quite complicated. Provided the ratio of consumption (the tax base) to GDP does not change across countries in a different way, we can infer the relative change in tax rates from the differences in the ratio of Tax Revenue to GDP (this

because the tax rate, t, is given by t=(tax revenue/ GDP)*(GDP/Consumption). Starting in 2006, Germany raised its reliance on VAT considerably, thus engineering a 'fiscal devaluation' of around one percentage point, while, from 2006 to 2009 Italy did the opposite. Over the entire period, however, the changes in tax rates were rather small.

Figure 5   VAT revenue over GDP
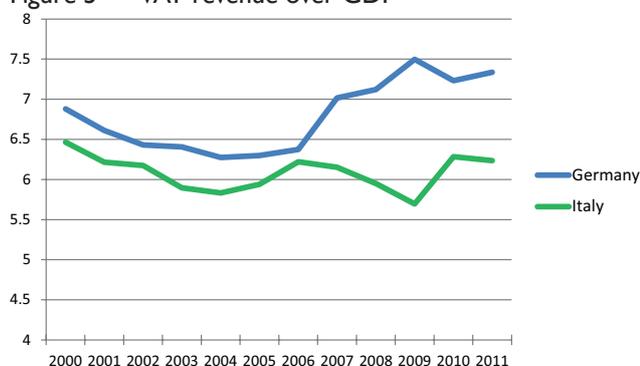
Source: OECD.

Table 1 summarises the contribution of different factors to the Italian competitiveness' loss. Unit labour costs in 2000-2012 rose in Italy by 35.3 percentage points while only by 3.17 points in Germany, resulting in a competitive loss of more than 32%. The largest share of this competitiveness loss in accounted for by the difference in the dynamics of the hourly wage rate, which rose in Italy by 18.4 percentage points more rapidly than in Germany. Since labour was much cheaper in Italy at the beginning of the period, we had partial wage convergence. The problem was that labour productivity did not follow: to the contrary, it grew much slower (14 points) in Italy than in Germany. Overall, changes in the structure of taxation had a negligible impact on competitiveness. Finally, if we compare the developments in relative unit labour costs in Italy and Germany, with the dynamics of the real effective exchange rates described above, we can see that that other factors that affect competitiveness, such as changes of the composition of trade and of the nominal exchange rates (with respect to non-EU trade) did not play a significant role in explaining the Italian competitive gap.

Table 1   A decomposition of unit labour costs

2000-12 Cumulative rise in:	w	π	s	t	ULC*/ ULC
Italy	39,5	2,7	-2	-0,23	35,3
Germany	21,1	16,7	-1	0.5	3.17b
-/+ contribution to the change in ULC*/ULC	-18,4	-14	1	-0,73	-32,13

What 'should have happened' and why it didn't

A simple way to think about the implications of productivity growth, relative wages and changes in competitiveness across countries is the Dornbusch, Fischer, Samuelson Ricardian model (1977); see the appendices for a formal exposition.

- There are two countries where consumers consume a continuum of tradable goods,

- Goods are produced by employing labour which is in fixed supply.

- The international allocation of production depends on differences in unit labour costs.

A good is produced domestically, and exported, if it can be produced at home at a lower unit cost, while otherwise the goods are imported.

Consider the consequences of productivity-enhancing reform in the foreign country, which becomes more efficient in producing all goods. As a result, some industries will move from the domestic to the foreign country; moreover, there will be an excess demand for labour in the foreign country and an excess supply in the domestic one so that the domestic wage rate must fall relatively to the foreign wage rate. Interestingly, the rise in foreign productivity also benefits the domestic country, because its terms of trade improve and the real wage rises (as the prices of imported goods fall). But what would happen if relative wages did not adjust? Then there would be an even larger reallocation of sectors toward the foreign innovating country, since the competitiveness loss of the domestic country would be even larger. If this story is correct, we need to think about why wages did not adjust in Italy.

Phillips curves

A visual confirmation that Italian wages do not respond to market conditions, possibly due to the complex nature of the centralised bargaining system, comes from Figure 6. Here I have plotted the annual percentage change in the hourly wage against the unemployment rate in the previous year. Although the figure is built on little more than a decade of observations, it conveys a clear message: Germany (red points) displays a well-behaved 'Phillips curve' with wage growth negatively correlated to past unemployment rates; conversely the Italian data are scattered all over the place, suggesting the nominal-wage growth in Italy is not meaningfully (and statistically) related to labour-market pressure.

Figure 6   Phillips curves
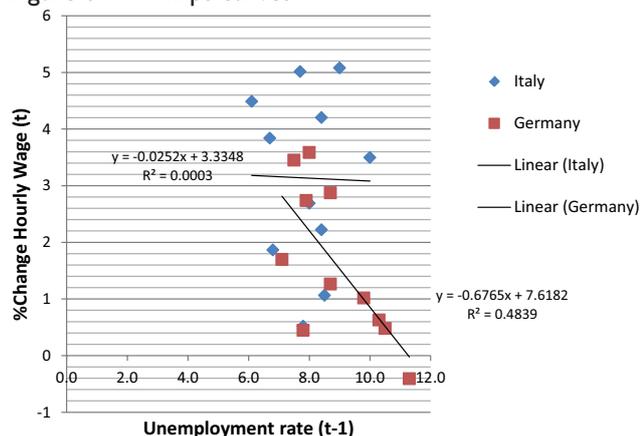
Source: Eurostat for unemployment rates, and Darvas (2012) for hourly wages.

Conclusions

It's is currently very trendy in Italy to blame Angela Merkel, Mario Monti, the euro and austerity for the current recession, the worse and most prolonged of the postwar period. While the severity of the downturn is clearly a cyclical phenomenon owing much to the fiscal contraction, its persistence, that is, the inability of the country to grow out of it, is the legacy of more than a decade of lack of reforms in credit, product and labour markets, which suffocated innovation and productivity growth, and resulted in a wage dynamics completely decoupled from labour productivity and demand conditions.

In a 'rapidly changing world' where trade and non-trade barriers were falling and commercial partners were rapidly innovating, the Italian reform inertia has built up a competitive gap that the crisis has brought to the fore with dramatic, and probably long-lasting, consequences.

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Appendix 1

In this appendix I decompose the measure of competitiveness, C, into its main determinants:

The numerator of the expression above represents the price of foreign goods (imports) for domestic consumers. This is given by (a mark-up over) the labor cost of producing one unit of output in the foreign country (the hourly wage, w* , multiplied by the hours of labor required per unit of output, a*), grossed up by social security contributions paid by foreign firms, at rate s*, and by domestic taxes on consumption , at rate τ, and converted in domestic currency by the nominal exchange rate e (units of domestic currency for one unit of foreign currency). The denominator is the price of exports for foreign consumers. The second equality follows by considering that labor productivity π (output per hour) is the reciprocal of the labor requirement a. Thus competitiveness improves with the foreign relative wage, w*/w, the domestic relative labor productivity, π/π*, the domestic relative tax rate on consumption, τ/ τ*, and the foreign relative social security contribution rate, s*/ s. In this context a country can improve its competitiveness by a "fiscal devaluation" (see (3) and (4)), that is by raising the VAT tax rate, which exempts domestic exports but hits imported goods) and by cutting social security contributions (which benefits domestic but not foreign producers) .

Appendix 2

In this appendix I give an interpretation of consequences of productivity growth in a trading partner, based on the Fisher, Dornbusch, and Samuelson (1997) Ricardian model.

$$C = \frac{ew^*a^*(1+s*)(1+\tau)}{wa(1+s)(1+\tau*)} = \frac{ew^*\pi(1+s*)(1+\tau)}{w\ \pi^*(1+s)(1+\tau*)}$$

Assume two countries, H, F producing a continuum of tradeable goods z in the interval (0,1), by employing a single factor of production, labor, that comes in fixed supply (L,L*). Let a(z) denote the number of hours required to produce one unit of output z, (the inverse of labor productivity in z), and order goods so that for z close to 0, the Home country is very efficient (a(z) low relatively to a*(z)) and the opposite for z close to 1. Define A(z) as the ratio of the foreign to domestic labor inputs:

Equation 1

$$A(z) = \frac{a*(z)}{a(z)} \qquad A'(z) < 0$$

So that *A(z)* is also the ratio of domestic to foreign labor productivity of labor in *z*'s production. The production of *z* is located in the country whose unit cost of production is smaller. So that the Home country will produce and export all goods *z* for which *w a(z)<w*a*(z)* that is:

Equation 2

$$w/w* < A(z)$$

While the foreign countries will produce goods for which the reversed inequality holds. With logarithmic preference and denoting by *P* the price of the consumption basket *C*, the optimal expenditure on goods in the interval (0,*z*) can be shown to equal *zPC*. Then we can write the global goods market equilibrium condition as the equality between world output and consumption:

Equation 3

$$P(C + C^*) = wL + w^*L^*$$

We also require income and expenditures (on all goods) to be equal:

Equation 4

$$wL = zP(C + C^*) = z(wL + w^*L^*)$$

From which we have:

Equation 5

$$\frac{w}{w^*} = \frac{z}{1-z}(L^*/L)$$

This expression says that if the Home country produces a larger range of products (*z* rises) the resulting excess demand for labor (and the excess supply in F) will drive up the relative domestic rate. Equation 5 is shown as the upward sloping curve in Figure 1, together with the negatively slope *A(z)* curve of Equation 1. Their intersection in point A determines the equilibrium relative wage rate and the international division of production: the Home country will produce and export the goods between 0 and z_A, for which the relative domestic productivity *A(z)* more than compensates the relative wage, and the Foreign country will produce goods in the interval (*zA, 1*). Consider now what happens if the foreign countries improves productivity across all products. The *A(z)* curves shifts down and equilibrium moves to B. The sectors between A and B migrate from the

domestic to the foreign country and the excess demand (supply) for labor in the foreign (domestic) economy must drive down the domestic relative wage rate. The home country loses competitiveness and market shares, but its real wage rises, since foreign products become cheaper. Overall, it benefits from the improved terms of trade. If wages in the two countries did not adjust and remained at the initial level, the equilibrium would move to point C: the home country would experience a larger loss of market shares, and a larger real appreciation (loss of competitiveness).

Figure 1   Increase in productivity in the foreign country
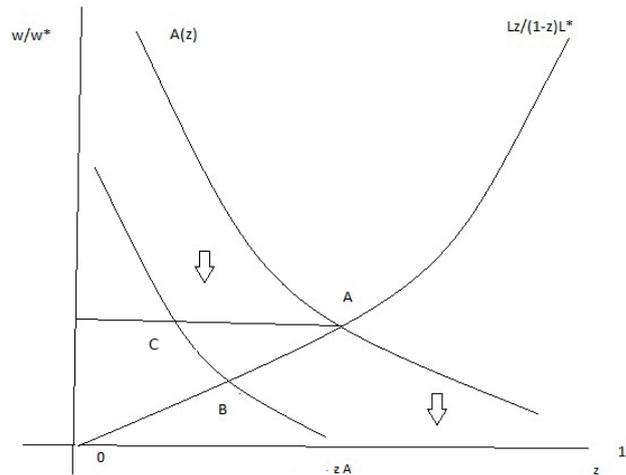
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