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MARKETIZATION OF PRODUCTION AND THE US-EUROPE EMPLOYMENT GAP

Richard B. Freeman
Ronald Schettkat

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ABSTRACT

Women work much more in the US than in Germany and most other EU economies. We find that the US-German employment gap is not strongly related to cross-country differences in the level of pay or social benefits. The difference in employment is due to the different marketization of activities between the two economies: German women work as many hours as US women when we consider time spent in household production as well as in market production.

For instance, German women spend more time preparing meals while US women use take-out and restaurants more intensely. The organization of some social activities, such as schooling, and the dispersion of skills, as well as pay differences, affect the degree of marketization.

Richard B. Freeman
NBER
1050 Massachusetts Avenue
Cambridge, MA 02138
freeman@nber.org

Ronald Schettkat
Department of Economics and Policy Studies
Utrecht University
PO Box 80.140
NL-3508 TC Utrecht
The Netherlands
R.Schettkat@fss.uu.nl

Marketization of Production and the US-Europe Employment gap

The US and major EU countries such as Germany¹ had very different employment records in the 1980s and 1990s. In the early 1970s the employment population rate was similar in the US and in major EU countries while unemployment rates were lower in the EU. But in the 1980s and in the 1990s, the employment rate rose in the US to exceed that in the EU while the US unemployment rate fell to roughly half the EU level.

The two most popular explanations for the employment gap are that on the demand side the EU lost jobs because its wage-setting institutions compressed wage differentials below market levels; while on the supply side EU welfare state provisions led many to remain jobless longer than would otherwise be the case. Our analysis and that of others shows that these hypotheses cannot explain the bulk of US-EU employment differences. If the most popular explanations do not work, what does economics have to say about the causes of the differences?

This paper argues that the low employment rate results from the greater marketization of work in the US than in the EU -- **the marketization hypothesis**. It presents evidence that the EU produces relatively more goods and services through household production and less through the market than the US and analyzes how this difference directly reduces employment in low-skilled service sectors and indirectly reduces the employment of highly educated women.

Empirically, we use time budget data, consumer expenditure data, and measures of attitudes toward work along with wages and employment by sector to demonstrate the differing levels of marketization in the US and EU and assess the contribution of differences in marketization to the employment gap. We argue that an advanced economy can achieve a low employment-population rate/high share of home production equilibrium per the EU; or a high employment-population rate/high share of market production equilibrium per the US. While our data deal with Germany and the US, our findings reflect the difference between EU and American models of capitalism more broadly.

1. Conventional Wisdom and the Employment gap

In the 1980s and 1990s the US had a 10 percentage point higher rate of employment to adult population than Germany. The difference is due to a higher employment population rate in service sectors (see table 1). Throughout the period Germany had more employees per adult in manufacturing and agriculture than the US but fewer employees per adult in services than the US. From 1970 to 1995 manufacturing and agricultural employment per adult fell by 0.15 points in Germany compared to 0.05 points in the US while service sector employment per adult grew in Germany by 0.10 points compared to 0.15 points in the US. Service employment per adult and industry and agriculture employment per adult in Germany in 1995 were comparable to US levels in 1970. If we view the increase in service sector employment as the “natural” path for advanced capitalist systems, Germany is roughly 25 years behind the United States. The fact that the US-German jobs gap occurs in the service sector raises the fundamental issue from the 1960s structuralist-aggregate demand debates over whether the composition of employment can affect the aggregate level of joblessness.

The smaller number of service jobs per adult in Germany than in the US shows up in both the least skilled service sectors and in high-tech and high skilled service sectors. The conventional explanation of the US-EU employment gap focuses on the relative dearth of low skilled service sector jobs in the EU because of the consequences on joblessness and social exclusion. It links the employment gap in those sectors to low demand for low skill service work due to excessively high EU wages for low skilled workers and to low supply of low skill service workers due to high social benefits. This supply-demand story fits with the aggregate differences between the US and EU. But it does not fit with disaggregated data on sectoral wages and employment or estimates of the elasticity of demand and supply for workers with differing skills. The implication is that the conventional analysis can only tell a small part of the employment gap story.

One other feature of the US-German employment gap deserves attention. This is the concentration of the gap among women. In 1995 the ratio of female employment to the female population was 55.3% in Germany vs. 65.8% in the US, producing a 10.5 percentage point gap;

¹ If not stated otherwise, Germany refers to West-Germany in this paper.

while the ratio for men was 73.9% in Germany vs. 79.5% in the US, producing a 5.6 percentage point gap. Table 2 shows that the lower employment of women in Germany than in the US occurs for women with and without children; for women in all skill categories. In addition, it shows that a substantial and rising proportion of American women are in the top earnings categories. For example, among those who earn over 1.66 times the mean earnings the share of women is 19.5% (up from 8.4% in 1970). By contrast, the share of German women among those who earn 1.66 times mean earnings is just 0.3% (up from 0.0% in 1970). There are some differences in the magnitude of the employment gaps – they are highest for women without children and for those in the lowest skill categories, but what is striking is that there are large gaps for all groups. Since women who do not work in the market sector usually work in the household sector, this difference reflects differences in the marketization of the economies. It is an important clue as to why the US and Germany differ so much in service sector employment.

the labor demand side story

The demand side of the conventional story is that among low skilled workers employment rose in the US because real or relative earnings fell along a given demand curve while in the EU employment fell along a given demand curve due to institutionally determined real wage increases.

Many studies have tried to find the posited inverse relation between wages and employment growth at the sectoral level in the EU [Card/ Kramarz/ Lemieux (1994); Katz/Loveman/ Blanchflower (1995); Krueger/ Pischke (1999); Freeman/ Schettkat (1999)] and could not find such in the data. Noting that that unemployment rates were higher for all groups in the EU than in the US Nickell and Bell (1996) also rejected the demand side story.

The problem that industry level data poses for the conventional story can be seen in Figures 1 and 2. Figure 1 compares differences in employment-population rates and in relative wages by industry between Germany and the US. If the conventional story were correct, we would expect that the Germany-US employment-population rate gap would be larger when the German-US relative wage ratio was larger. The figure shows no such pattern. Figure 2 links the difference in changes of the national employment-population rates per industry to the difference in changes of industry-specific wage in a difference in difference analysis. Again, if the conventional story was correct, the change in the employment gaps by industry would be related to the change in wage gaps by industry.

But the scatter plot shows little relationship between the change in relative wages across the countries and the change in relative employment.

Furthermore, in Freeman/Schettkat (2001a) we find that despite the well-known differences in wage-setting institutions relative industry mean wages (the mean wage of an industry divided by the overall mean wage) are very similar in the US and in Germany. The correlation of the relative industry mean wage between the countries is 0.78. But behind the similar relative industry mean wages are very different intra-industry wage distributions, which are generally much wider in the US.

Freeman/Schettkat (1999) made several estimates of the elasticity of demand for skilled vs. unskilled workers for Germany and the US and came up with a modestly-sized elasticity for the US and a negligible one for Germany that could explain little of the differential employment experience between the two countries. Estimates of the elasticity of demand for US minimum wage workers hover around -0.10. If we apply this estimate to aggregate less skilled worker employment, at most 5 percent of the German-US employment-population gap can be attributed to the 20-25% differences in real wage growth between the US and Germany over the 1970-1995.²

Some may argue that the data for industry-occupation comparisons across countries is too weak to weigh heavily in rejecting the standard demand story. But evidence from the US also contradicts the story: employment and hours grew among workers whose wages went up the most, not among the less skilled whose wages fell relative to the average (Freeman, 1995). The huge rise in female employment was accompanied by a rise in the female/male earnings gap, not by a fall in that ratio. The positive association of changes in relative wages and relative employment are not readily consistent with a story of employment that makes movement along a demand curve the major factor in job creation. And in both Germany and the US, employment grew more in high wage industries than in low wage industries.³

² Assume as a rough approximation that 20% of the German work force is low skilled. Then a 25% wage reduction would increase employment by 2.5%. This would increase the total employment population ratio by 0.5 points (= .20 x 2.5).

³ We regressed the difference in country-specific changes in employment-population rates on the difference in relative industry wages in 1970 and obtained positive coefficients on the difference in relative wages. High paying industries were growing more than the low-paying industries. That low-wage industries are growing faster than high wage industries is a myth, both in the US and in Germany.

the labor supply story

The supply side story that social benefits reduced the supply of workers to low wage service sector jobs in the EU runs into serious problems when we examine the German benefit structure. (see table 3). In 1995 the German social assistance program offered a monthly benefit of 1105 marks to single jobless persons, to which they could add 200 marks through earnings before they lost benefits. Given average monthly working hours of 169 this translates into 7.7 marks per hour. Workers should thus reject any jobs that offer less than 7.7 marks per hour. As workers receive paid vacation time as well as hourly pay, however, the minimal reservation wage should be somewhat lower – about 12% lower by our estimate, or 6.9 marks. Adding the workers' social security contributions of 20% in 1995 produces a social minimum determined reservation wage of 8.24 marks, which is about 29 percent of the average wage. Even ignoring the impact of paid vacation time, the social minimum determined reservation wage is 9.3 marks or 32% of the mean wage. In the US social benefits are virtually non-existent for single men, but the US has a minimum wage that effectively rules out most very low-paying jobs. In 1995 the minimum was 34% of the average wage. These calculations make it hard to argue that Germany has fewer low wage workers than the US because of the social minimum. In neither country are many workers paid a third or less of the average wage. The largest group of minimum wage workers in the US are teenagers, who in Germany would be in apprenticeship programs and thus out of the job market.⁴

2 The Marketization Hypothesis

If the demand and supply parts of the conventional story cannot explain the US-EU employment rate gap, what else could account for the divergence in employment rates?

We hypothesize that the missing factor is the different marketization of the US and EU

⁴ Social assistance could still affect the employment structure through the demand side. Tax charges for social assistance on employers of low wage workers are considerably higher in Germany than in the US. German employers pay 20 percent social security charges (compared to 7.5 percent for US employers) and about 12 percent higher wages because of legally required vacation time (compared to about 4 percent higher wages due to vacation in the US). These differences could reduce employment among low wage workers in Germany compared to the US. But the lack of any relation between changes in employment and wages by sector suggests that this will be a difficult proposition to establish empirically.

economies. The **marketization hypothesis** explains the US-German difference in employment in terms of the way the differing locus of production between the market and household impacts the market demand for labor. By producing goods in the market, the US creates demand for low skill labor; whereas by producing goods at home, Germany does not create such demands. Firms combine high skilled workers and lower skilled workers to produce commodities and services; whereas households rely on the skills of their members. As long as some skilled and educated persons produce in the household, rather than buying in the market, the demand for low skill labor will be less in the economy with greater household production. At the same time, market alternatives to household production the US makes it easy for educated women to work in the market, whereas in Germany the lack of such alternatives makes full-time employment of women difficult. Differences in work time fit well with the marketization story. By working long hours and taking short vacations, Americans earn money to buy goods in the market. By working fewer hours and taking long vacations, Germans have more time to produce goods at home.

To the extent that the US economy offers greater opportunities to substitute market production for household production, we also expect greater responsiveness of Americans than Germans to factors that increase the incentive to work and conversely smaller responsiveness of Americans than Germans to factors that decrease the incentive to work.

To what extent does data support the claimed greater marketization of the US than Germany?

consumption

If Americans buy goods in the market that Germans produce at home, we would expect Americans to spend a larger proportion of their incomes on private consumption than do Germans. That Americans consume more and save less than Germans is well-established, though there are other explanations for this pattern. The marketization hypothesis also predicts, however, differences in the way Americans and Germans combine market goods and time to produce final consumption and in the pattern of consumption items. Americans should spend more on market-produced final goods while Germans spend more on intermediate goods to produce final commodities in the household.

Table 4 contrasts the distribution of non-medical consumption expenditures in the US and Germany in current prices as recorded in national income accounts.⁵ We exclude medical expenditures because of the drastically different way the US and Germany provide medical services. The US uses private spending paid by private insurance to a relatively greater extent than public medical expenditures, while Germany like most EU countries relies largely on public spending.

Consider first expenditures on the broad food, beverages, tobacco, and miscellaneous category. In 1994 both American and German households spent about 30% of their incomes on food and beverages. But they spent this money in different ways. In the US more than half of spending in this area (16.7 points out of 30.3 points) went to restaurants and miscellaneous goods and services. In Germany only 25% of the spending (7.3 points out of 30.2 points) went to restaurants and related goods. By contrast, in 1994 Americans spent 12.3 percent of non-medical consumption expenditures on food & beverages compared to 20.7 percent in Germany. The 9.4 percentage point difference (16.7-7.3) in spending on restaurants and related services implies that at comparable levels of income the US demands considerably more production in that sector, and thus has greater derived demand for labor there.⁶

The pattern of change in expenditures on restaurants also fits with this interpretation. Between 1970 and 1994, the restaurant and miscellaneous share of US consumption increased by 4.2 percentage points, whereas the restaurant and miscellaneous share of German consumption increased by 2.8 percentage points.

The proportion of consumer spending on the broad furniture, furnishing, and household equipment is also higher in Germany than in the US, but this does not reflect differences in the stock of durable household consumption items, which are similar in American and German households. But the Americans have larger refrigerators and, presumably, other appliances as well. These differences imply that Americans substitute household capital equipment for time in taking care of

⁵ The distribution of expenditures in constant (1990) prices tells a comparable story.

⁶ It is often argued that Germans and other Europeans spend their vacation in other countries and thus create service demand outside the domestic economy, i.e. in National Accounting terms they import services. German households spend 4.9% of their overall expenditures abroad compared to only 1.4% of American households. At the same, however, on residents purchase goods and services amounting to 3.3% of overall final consumption expenditure in Germany, the comparable US figure is 1.9%. Thus the net effect of 'consumption trading' (for all products not only services) is -1.6 percentage in Germany but 0.5 in the US.

their homes. Finally, expenditures on personal care show that Americans spend proportionately more on this item, 3.5 percent of consumption versus 1.9 percent spending by Germans.⁷

Overall, Americans buy more services in the market than do Germans, who buy more goods used in household production.

time use

The marketization hypothesis links differences in the allocation of time between Germans and Americans to the observed differences in market spending. Germans should spend more time preparing food at home and in other forms of household production than Americans, who should spend more time working in the market. To examine the differences in time use in the two countries, we turn to time budget studies. The German data are derived from the scientific use file (Statistisches Bundesamt 1999) 'Wo bleibt die Zeit?' It was collected by means of diaries and personal interviews as described in the Appendix. The US data was collected by the Survey Research Center at the University of Maryland. It was collected by telephone interviews, based on a 24-hour diary, again as described in the Appendix.

Table 5 shows the hours per week spent on meal activities in Germany and the US. Germans spend 1.8 hours more time eating than Americans and 2.2 hours more time preparing meals, for a total of 4 hours of extra time per week eating and preparing meals. Among women the difference is especially great -- 2.1 hours more time eating and 4.1 hours more time preparing meals, for a differential of 6.2 hours per work. Hours of shopping time, by contrast, differ only modestly between the countries. Germans spend a bit more time shopping than Americans even though stores are open for fewer hours in Germany than in the US. But Americans spend more time travelling for personal need than Germans. If we sum all of these activities on the notion that they are all household production, we find that Americans spend less time than Germans in total.

Table 6 displays time-use pattern in an average week for Americans and Germans in total and by gender. The table differentiates between hours worked in the market, hours worked in household production, including childcare, cleaning, preparation of meals, and repairs, and hours spent on

⁷ This result confirms our conclusion that the US-German service employment differences is not caused by differential rates of outsourcing of intermediate business services (see Freeman/ Schettkat 1998, Russo/ Schettkat 2001).

personal time. Americans spend 5.3 hours more in market work than do Germans and spend 6 hours less in household production than Germans. If we sum market time and household time and reported time spent on voluntary work, however, we get nearly same total hours worked, 53.6 hours in the US and 54.6 hours in Germany. The difference is that 59% of American work time is in the market compared to 48% of German work time.

The allocation of time between the market and household differs most among women. American women spent 7.7 (44%) more hours in market work than German women, while German women spent one third more hours in household production. The higher average market-work time of American women reflects the higher female labor force participation in the US and the greater hours worked by employed women in the US than in Germany. Because the joblessness rate in Germany is higher than in the US, comparisons of time budgets that include the unemployment will overstate the time spent in home activities by employed Germans. However, this effect appears to be modest. Time use budgets limited to employed persons give results similar to those in table 6.

Table 6 divides leisure time into TV use and other activities. Americans watch 5.5 hours more TV per week than Germans. From one perspective, watching TV is a home activity. It takes place in the household rather than in a market setting. But from another perspective, it is consumption of a market-produced item. Employment per adult in the entertainment sector is, in fact, larger in the US than in Germany (see table 1).

family composition and child care

The presence of children is a key determinant of the allocation of time between the market and the household. Women with young children spend more time in household production than other women. Men with young children, by contrast, work more hours in the market. In the US in the 1950s women with children left the job market to be full-time at home. This pattern disappeared in the latter half of the 20th century, so that many women with young children worked. German behaviour has changed less.

Table 7 compares the allocation of time by women with and without children. German women in families with at least one child under 6 years spend over 20 hours a week taking care of their child. American women in families with at least one child under 6 years just 11 hours a week taking care of their child -- a 9 hour per week difference. The difference in time spent taking care of

children diminishes when we shift to women with children under 18 but there still remains a sizable 4.5 hours. Since Americans have more children than Germans these huge differences diminish when we look at the entire adult population. But the fact that with fewer children, German women average more hours in child-rearing than Americans is striking. Even men in Germany report spending more time in child care than American men.

attitudes toward market work

The greater American than German attachment to market work shows up in responses to a variety of questions on attitudes toward work. Table 8 summarizes data on work attitudes from the International Social Science Program (ISSP) surveys for the US and Germany. The ISSP is a cross-country survey of attitudes toward issues of social import. All countries are responsible for their own surveys but they ask the same questions on agreed-upon issues of social import and seek to maintain comparability in wording and design. In 1989 and 1997 the ISSP focused on work and attitudes toward work.

The ISSP asked workers about whether or not they worked so hard (in the market) as to interfere with their lives. In 1989 many more Americans than Germans said that they worked sufficiently hard so as to interfere with their lives. But in 1997 the proportions are similar. The ISSP also asked workers in both countries their preferences between working more or less hours. In 1989 Americans were far more likely to say that they wanted to work more hours than Germans. In 1997, the pattern was similar but the difference between the countries was less. Another question that casts light on the differential attachment of workers to the market is whether or not workers viewed their job as „just a way to earn money“. In 1989 and in 1977 Germans and Americans answered quite differently. In 1989 39% of German men agreed that their job was „just a way to make money“ while 46% disagreed with this statement -- a 7 point difference. Twenty-six percent of German women agreed while 58 percent disagreed -- a 32 point difference. By contrast, just 24% of American men agreed with the statement while 59% disagreed -- a 35 point difference; and just 20% of American women agreed while 62 percent disagreed -- a 42 point difference. Between 1989 and 1997 the difference in responses between Germans and Americans declined, but still Americans were more likely to view their job as more than a way of earning money than Germans. In 1989 the percent disagreeing minus the percent agreeing was 7 points for German men and 32 points for

German women compared to 35 points for American men and 42 points for American women. The ISSP also asked workers if (assuming they had income to live on) they would continue at their job even without pay. In 1989 proportionately more Americans were likely to respond positively than Germans, but in 1997 Germans were more likely to respond positively.

In short, the attitudinal questions indicate that Americans are more attached to market work than Germans in 1980, but that the differences diminished from 1989 to 1997.

3 Does Marketization Explain the Employment Gap?

The data examined thus far support the claim that the US has marketized more production than has Germany. To estimate the extent to which marketization of activities contributes to the US-German employment gap, we undertake a two part analysis. First, we estimate how many extra jobs Germany would have in the low skill service sector if Germans produced goods and services in the market to the same extent as Americans do. Then, we contrast the impact of education and children on the allocation of time of German and American women in order to assess the possible “knock-on” effects that increased market production of low skill goods and services might have on the labor supply of more educated German women.

Household production and less skilled market work

If Germany reduced goods and services in the household to US levels and shifted production of those goods and services to the market, it would create additional demand for low skill workers. Absent a full model of the routes by which such a shift occurs – through lower savings; spending shifts from less labor intensive to more labor intensive activities; increases in incomes created by increased marketization – we make “back of the envelope” estimates of the order of magnitudes that might be involved.

Our rough estimates suggest a large impact of marketization on the employment gap. We assume that labor input coefficients in the sectors are constant so that a percentage increase in market spending produces a comparable increase in employment.⁸ With our data, we can undertake such an

⁸ With a fixed coefficient b , $dE = E_0 (dS)/S_0$, where dE is the change in employment, E_0 is employment before the change, dS is the change in sales, and S_0 is sales before the change.

analysis for restaurants and related businesses. Table 4 shows that US consumers spent twice as much on food in the market sector as Germans. Table 5 shows that US adults spent 2.2 hours less preparing food in the household than Germans. If Germany doubled its spending on restaurants to US levels and reduced household production of food, it would increase employment per adult in the restaurant sector by 3.5 employees per adult – 35% of the 10.0 employment gap (see table 9). Assuming that employees in the sector worked 30 hours per week, the marketization would increase weekly employee hours per adult by 105. In turn, the reduction of 2.2 hours in household time implies a drop of 220 hours of household work. Since the same amount of food would be consumed in either case, this suggests that the market is approximately twice as productive as the household in producing meals.⁹ This number seems plausible given that Germany has a sizeable “wedge” between producing something at home and paying no taxes on household production and buying a product in the market and paying income taxes and various charges on labor. We estimate that the market would have to be at least 50% much more productive to compete with the household.¹⁰ If we take this analysis a step further and assume that Germans reduced all of their household production time to US levels, and that productivity in the market was twice that in the household, the switch from household to market would close the entire employment gap.

In short, as far as we can tell from a rough and ready calculation, increased marketization in Germany would effectively resolve the employment gap with the US. From one perspective, this is not surprising. Table 5 showed that total work time of Germans and Americans was essentially the same. It was the division between household and market that differentiated the economies. Thus, changing that division should bring German employment in the market closer to that of the United States. Our restaurant and food example shows that marketization would directly raise employment in an affected less skilled service sector by a considerable amount. But it is not only the less skilled

⁹ Since the substitution is one from time spent in home cooking to time spent in restaurant cooking, this change should have only minimal consequences for employment in the rest of economy. There may be some reduction in employment in retail food stores but there will be potential increase in employment in wholesale food stores due to the increased purchase by restaurants.

¹⁰ Because workers pay a tax on their incomes and pay taxes on goods bought in the market, for the market to provide goods and services, it must have a productivity advantage on average. Highly paid workers may buy goods and services in the market even if they are more productive in household production than the market, because of the difference between the own wage and the wage for a professional provider. This is a story of comparative not absolute advantage.

service sectors that are likely to expand were Germany to marketize activities currently performed in the household.

Market production and female workers

Increased marketization of household production would “free up” the time of women to engage more fully in market activities. Highly educated women and women with children, would likely be the biggest beneficiaries of such a change. The highly educated would benefit because they could increase working time and investment in their careers by reducing household production. Women with children would benefit by being able to enter the job market more easily with market-provided alternatives to home production, notably childcare facilities.

To obtain some insight into the likely impact of increased marketization on the work done by German women, we have estimated equations relating work time to the demographic characteristics of women in Germany, where market alternatives are limited, and in the US, where market alternatives to household production abound. With market alternatives available, educated women should work disproportionately more in the US and women with children should be less deterred from work in the US. In statistical terms, the positive coefficient on education in a work equation should be greater in the US than in Germany while the negative coefficient on presence of children should be smaller in the US than in Germany.

Table 10 presents two sets of calculations designed to test this implication of the greater availability of substitutes for household production. The top calculation gives the coefficients in a logit analysis of whether or not someone works. It shows that education raises the employment of US women more than of German women, with a coefficient (0.109) in the US equation that is substantially and significantly higher than that (0.068) in the German equation. When we look separately at university graduates (not shown in the table), the differential effect of education is even stronger. In addition, we obtain a modestly smaller coefficient on the presence of children in the US than in Germany for women with children 6-18 but effectively no difference among women with children aged 6 or less. The difference among women with 6-18 year olds may reflect the greater provision of after-school programs in the US,

The bottom calculation in table 10 gives the coefficients on the ln of the percentage of work time in the market from an analysis limited to women who are in the job market. It also shows that

education has a greater impact in increasing market work relative to household time in the US and that presence of children less than six years of age is less of a deterrent to work in the US than in Germany. The calculations do not demonstrate that the reason for the differences in the impact of education and presence of children are the greater availability of market alternatives in the US. They are, however, what we would expect in that situation.

4. Conclusion

The primary implication of our analysis is that changes in market employment in Germany are intrinsically tied to the marketization of household activities. As long as Germany maintains a more extensive household production sector than the US, it is unlikely to reach US levels of employment per adult. This, in turn, directs attention at the features of the German economy that have led to less marketization of production in Germany than in the US.

One such factor is the greater size of the tax wedge between working and producing at home in Germany than the US due to higher rates of taxation and higher non-wage labor charges in Germany. Our estimates in Table 3 suggest that the loss of income from working and buying products in the market as opposed to producing at home is 0.30 ln points in Germany compared to .07 ln points in the US, for a sizable 0.23 ln points difference. Another factor is the smaller dispersion of earnings in Germany than in the US, which reduces the benefit of working in the market for higher paid workers. The more narrow distribution of skills in Germany than in the US shown in scores on adult literacy and numeracy (Freeman and Schettkat, 2001b) also helps explain the lesser marketization of household activities. Just as there is less gain from international trade when countries have similar factor endowments, there is less gain to be had from market transactions when persons have similar skills.

Another important potential cause of the employment gap among women is the greater proportion of US than of German women with bachelor's or higher degrees. About 22% of the American women in working age had a bachelors or higher degree compared to only 11% of German women.

In addition, differences in life style – in how people want to spend their time and money – which may reflect more than economic incentives may also play a part. Although Germans show a higher preference for shorter working hours, the differences in attitudes toward work have diminished

between the US and Germany suggesting that the 'hard variables' gained importance. The tax-wedge, the lower share of women among high-wage workers, and smaller share of highly educated women are key concomitants for the high share of German household production.

Assuming that we are correct and increased marketization is necessary for any increase in employment-population rates, what micro-economic policies might raise employment in Germany? One policy would be to reduce the wedge between market and non-market activity, through some alteration in tax rates and social charges on low skill workers. Another would be to develop additional after-school programs to allow mothers of school-age children to work or to work longer. For university graduate women, yet additional policies might be needed that our study does not address: affirmative action and flexibility in working hours. The bottom line is that increasing the employment-population rate to US levels requires substantive changes in the way people allocate their time and lives, which goes beyond the conventional wisdom on how to create more jobs.

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Appendix I: The data

The data used in this study is based on time budget surveys. The German data are derived from the scientific use file (Statistisches Bundesamt 1999) 'Wo bleibt die Zeit?'. The data used covers the former West Germany because the special situation in East Germany (in 1991/ 1992) may be not representative for time-use. The data is representative of German households only; i.e. households of non-Germans living in Germany were not included. The data was collected by means of diaries and personal interviews between autumn 1991 and summer 1992 and covers about 32,000 diaries, representing about 16,000 individuals (each person kept diaries for 2 consecutive days). In the present study, only the adult population (18 to 64 years) is included. This left 17,998 diaries.

The US data (for details, see Triplett 1995) was collected by the Survey Research Center at the University of Maryland and covers the period from September 1992 to October 1994. The data was collected by means of telephone interviews. Each quarter of data collection was an independent random sample but multiple chances of selection across quarters were avoided. Weekend and weekdays were distinguished. The interviewees had to list all their activities for the day before the interview in a 24-hour diary with detailed activity and location coding together with information on demographic background. In households with more than one adult, the interviewee was selected at random. A total of 9,386 interviews were conducted, 6,316 representing weekdays and 3,070 representing weekends. The present study has used only the time of adults (18 years to 64 years), leaving us with a sample size of 6,062. The Wissenschaftszentrum Berlin kindly did the computations because we did not have direct access to the individual data.

The two data sets have been made compatible with respect both to the time-use categories and the period covered (in both countries, the whole year). The US data did not provide information on wages and the German data provided only data on net household income in the preceding month. For this reason, we estimated the wages used in this analysis from wage information available in the CGAS (Comparable German American Structural Database, see Freeman/ Schettkat 2000). Although wages are only estimated, the advantage of this procedure is that potential wages are assigned to those persons who are not actually in employment. The correlation between the estimated wage and the net household income for those households with a single income was .64 (significant at 1%).

Table 1: Employment-population rates by detailed service industries in the US and West-Germany [% of the population 15-64 years]

	overall		men		women	
	1970	1995	1970	1995	1970	1995
USA						
industry (incl.agriculture)	23.4	18.7	36.9	28.5	9.8	9.4
services	38.5	53.8	41.6	51.1	32.6	56.4
health	3.7	6.6	1.7	3.0	5.2	10.1
transport	3.9	3.8	6.8	5.8	1.0	1.8
communication	1.6	1.3	2.0	1.5	1.1	1.0
public utilities	1.0	0.9	1.8	1.6	0.2	0.3
wholesale trade	2.6	2.7	4.1	3.9	1.1	1.5
retail trade	6.4	8.8	6.7	8.5	5.7	9.1
eating, drinking, care	2.5	5.6	1.9	4.8	2.9	6.3
finance	2.7	3.6	2.6	2.7	2.6	4.4
advertising	0.1	0.2	0.2	0.1	0.1	0.2
services dwellings	0.1	0.5	0.2	0.5	0.1	0.4
business services	0.7	1.9	0.7	2.0	0.5	1.8
computer, data processing services	0.1	0.7	0.2	0.9	0.1	0.5
auto-repair	0.3	0.6	0.6	1.2	0.0	0.1
other repair	0.2	0.4	0.4	0.7	0.1	0.1
private households	0.9	0.5	0.1	0.1	1.5	0.9
personal services	1.0	1.0	0.7	0.6	1.1	1.3
entertainment, sports	0.6	1.5	0.8	1.7	0.4	1.3
education, research	5.6	6.8	4.5	4.3	6.2	9.2
membership organizations	0.6	0.7	0.7	0.7	0.5	0.8
engineering, architecture services	0.3	0.5	0.5	0.7	0.1	0.2
legal, management consult.	0.5	1.6	0.5	1.5	0.6	1.7
government	2.3	3.3	3.0	3.6	1.4	3.0
national security	0.7	0.5	1.0	0.6	0.4	0.4
miscellaneous services	0.0	0.0	0.0	0.0	0.0	0.0
total	61.9	72.5	78.5	79.5	42.4	65.8

source: OECD and CGAS data base

Table 1 continued

	overall		men		women	
	1970	1995	1970	1995	1970	1995
	Germany					
industry (incl.agriculture)	38.6	24.9	56.3	36.4	22.3	13.1
services	29.1	39.8	33.2	37.4	25.4	42.3
health	2.0	4.2	1.1	2.2	2.9	6.3
transport	2.8	3.0	5.0	4.7	0.7	1.2
communication	1.2	1.2	1.8	1.5	0.8	0.9
public utilities	0.6	0.8	1.0	1.4	0.1	0.3
wholesale trade	2.5	1.8	3.4	2.2	1.6	1.3
retail trade	5.2	6.5	4.0	4.5	6.4	8.4
eating, drinking, care	1.9	3.5	1.3	2.5	2.4	4.4
finance	1.7	2.6	1.9	2.5	1.6	2.7
advertising	0.1	0.3	0.2	0.2	0.1	0.3
services dwellings	0.2	0.4	0.2	0.2	0.2	0.6
business services	0.1	0.2	0.1	0.3	0.1	0.1
computer, data processing services	0.0	0.4	0.0	0.6	0.0	0.2
auto-repair	0.6	0.5	1.0	0.9	0.1	0.1
other repair	0.1	0.1	0.1	0.1	0.0	0.0
private households	0.3	0.3	0.0	0.0	0.6	0.5
personal services	1.0	1.3	0.8	0.9	1.2	1.8
entertainment, sports	0.3	0.8	0.4	0.8	0.2	0.7
education, research	2.1	4.0	2.0	3.4	2.1	4.6
membership organizations	0.5	0.8	0.5	0.6	0.6	0.9
engineering, architecture services	0.4	0.5	0.6	0.6	0.2	0.4
legal, management consult.	0.4	1.0	0.4	0.8	0.5	1.3
government	4.6	5.0	6.7	5.5	2.6	4.5
national security	0.0	0.1	0.0	0.1	0.0	0.0
miscellaneous services	0.4	0.6	0.6	0.7	0.3	0.6
total	67.7	64.7	89.5	73.9	47.7	55.3

source: OECD and CGAS data base

Table 2: Women by skill, earnings and children

	USA			Germany		
	1970	1989	1995	1970	1989	1995
employment population rates (15-64 years)						
all women	46.0	64.4	66.5	47.8	51.5	55.9
by child¹						
all mothers with child < 6		54.0	61.5		42.6*	51.1
mothers in couples with child < 6		55.7	60.6		49.4*	54.4
all women without children (20-60 years)		79.9	85.2		65.0*	67.3
by skill equivalents²						
skill equivalent I		57.7	54.0		37.7	38.9
skill equivalent II		72.2	71.5		57.0	61.9
skill equivalent III		77.8	77.6		66.6	74.1
skill equivalent IV		84.3	83.4		72.8	75.9
other measures						
composition of couples with a child < 6¹						
man and woman full-time		32.3	36.5		23.3	20.9
man full-time, women part-time		18.3	18.6		19.4	26.3
man full-time, women not working		38.8	35.2		44.4	41.6
earnings						
share of women in the wage-class [% , in parantheses of the wage-class in overall distribution]³						
>= mean <1.33 mean	16.8 (24.7)	37.2 (20.5)	39.1 (19.3)	16.3 (34.5)	24.5 (35.7)	30.1 (34.1)
>= 1.33 mean < 1.66 mean	19.2 (9.9)	33.8 (11.5)	41.3 (11.9)	5.0 (11.6)	3.7 (12.2)	5.14 (12.2)
>= 1.66 mean	8.4 (7.2)	15.4 (9.3)	19.5 (9.8)	0.0 (1.4)	0.3 (1.8)	0.3 (1.4)

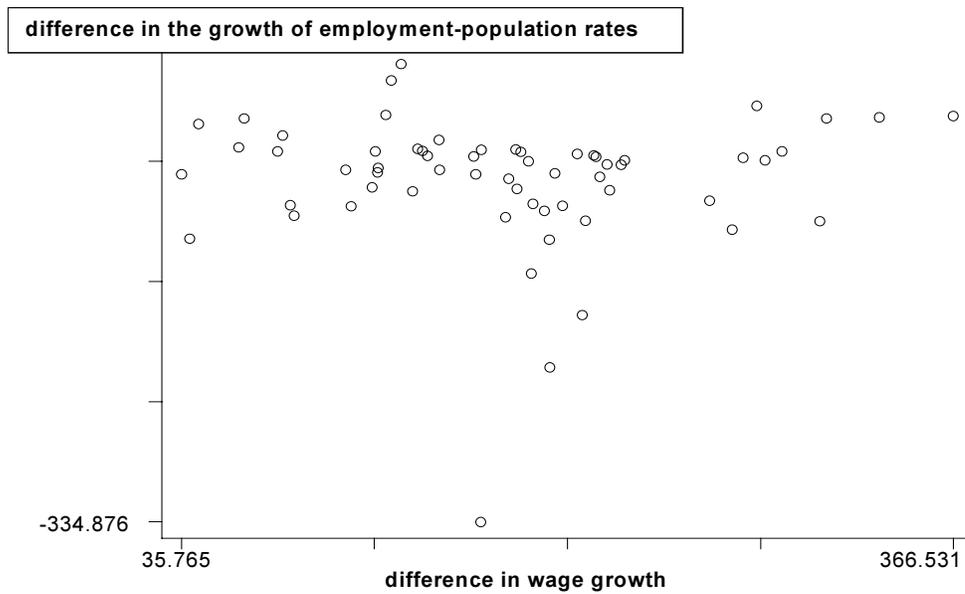
Source: OECD Labor Force Statistics for employment-population rates, ¹ from OECD Employment Outlook 2001: 134/ 135, ²Skill equivalents according to Freeman/ Schettkat 2001 computed from CGAS, ³the mean wage is the mean of the overall wage distribution, computed from CGAS.

* for Germany 1991

Figure 1: Scatterplot of the US-German difference in industry-specific employment-population rates and the US-German differences in industry-specific relative wages (1995)



Figure 2: Scatterplot of the difference between the US and Germany in the difference of industry-specific employment-population rates versus the difference in wage growth (1970-1995)



Source: computations based on the CGAS

Table 3: The German reservation wage as derived from social assistance and the US minimum wage

	1995
Germany	
Social assistance (including a rent subsidy)	1105
Earned income allowance	200 (18%)
Net monthly reservation income	1305
Hourly net reservation wage	
Average monthly working hours	169
Uncorrected net hourly reservation wage	7.72DM
Vacation days per year	31 (12.4% of working days)
Vacation corrected hourly net reservation wage	6.87DM
Social security contrib. Employee	(20%)
Gross reservation wage	8.24DM
Mean	28.66DM (German mean)
In % of the mean	0.29
Wage costs per hour	
Social security contr. Employer	20%
Paid vacation time	12.4%
Wage costs per hour	11.11DM
USA	
US minimum wage	4.25\$
Vacation days per year	10 (4% of working days)
Vacation corrected minimum wage	4.42\$
In % of the mean	.34 (US mean)
Social security employers' contribution	7.5%
Wage costs per hour	4.75\$

Sources: social assistance level from German statistical yearbooks; earned income allowance: Scharpf 1997, vacation, working hours, and social security contribution from Bundesminister fuer Arbeit und Sozialordnung 1997. Income taxes are not included in the calculations.

Table 4: Private final consumption expenditure in the US and in Germany, current prices (shares in %)

	United States			Germany		
	1970	1980	1994	1970	1980	1994
Food, Beverages, Tobacco and Miscellaneous	32.9	31.9	30.3	35.1	31.1	28.6
Food & Beverages	18.6	16.5	12.3	27.9	22.9	18.4
Tobacco	1.9	1.4	1.3	2.8	2.2	1.8
Expend. in Restaurants etc. & Misc. goods and services	12.5	14.0	16.7	4.5	6.1	8.3
Clothing and Footwear	9.1	7.6	7.2	10.5	9.5	7.7
Gross rent, Fuel and Power	19.9	21.7	22.8	16.6	19.7	23.5
Fuel and Power	3.4	4.7	3.4	3.9	5.7	3.9
Other	16.5	17.0	19.5	12.7	14.0	19.5
Furniture, Furnishing and Household equipment	8.0	7.3	6.7	10.3	10.1	9.5
Transport and Communication	16.5	18.3	17.2	14.3	14.9	17.0
Personal transport equipment	5.3	4.8	5.9	4.0	3.9	5.2
Other	11.1	13.5	11.4	10.4	11.0	11.8
Recreational, Entertainment & Cultural Services	9.4	9.6	12.8	10.4	10.6	10.4
Personal Care	3.5	3.3	3.4	2.0	1.8	1.8
Final Domestic Cons. Exp. (excl. Medical care)	99.2	99.8	100.5	99.4	97.8	98.4
Direct purchases abroad by residents	1.2	1.0	1.4	3.1	4.2	4.9
Direct purchases in the domestic market by non-residents	0.5	0.8	1.9	2.5	2.0	3.3
Final Cons. Exp. (excl. Medical care) by residents	100.0	100.0	100.0	100.0	100.0	100.0

Source: OECD National Product and Income Accounts, CD-Rom

Expenditures of non-profit institutions serving households are included in household expenditures

Medical care expenditures are excluded from Final Domestic Consumption Expenditures and Total

Original category "Miscellaneous Goods & Services" is included in "Food etc.", except for sub-category

"Personal Care"

Table 5: Allocation of time to eating, preparing meals and shopping [hours per week]

	US			Germany (West)		
	total	men	women	total	men	women
total time eating, preparing meals	11.5	9.3	13.3	15.5	11.6	19.5
eating	7.5	7.6	7.4	9.3	9.1	9.5
preparing meals, cleaning after meals	4.0	1.7	5.9	6.2	2.5	10.0
travelling for personal need	2.0	2.0	2.0	.4	.4	.5
overall shopping time	5.5	4.2	6.7	5.8	4.8	6.8
Total, these forms of household production	19.0	15.5	22.0	21.7	16.8	26.8

source: time-use data sets described in appendix

Table 6: Time-use in the US and in Germany, mean hours per week, annual average, 18-64 years¹

time use category	total		men		women	
	US	Germany	US	Germany	US	Germany
	1	2	3	4	5	6
total working time	53.6	54.6	54.2	54.6	53.0	54.7
market work	31.7	26.4	39.1	35.2	25.4	17.7
household production	21.0	27.0	14.1	17.9	26.8	36.1
personal time	75.2	74.3	73.3	73.1	76.7	75.6
leisure	38.9	38.2	40.1	39.5	37.9	36.9
TV use	17.3	11.8	18.2	12.7	16.6	10.8
total hours per week	168	168	168	168	168	168

Source: Time-Use Data. For details see data section in Appendix I.

market work includes: actual time at work (including breaks), commuting time

household production includes: child care, housework (cleaning, preparation of meals, repair)

personal time/ leisure includes: groom, eating, sleeping, leisure

¹ share of employment statuses in 1991/92 (Germany), 1993/94 in the US

	total	employed	full-time	part-time	not employed
	Germany				
men	100.0	81.7	79.0	2.7	18.3
women	100.0	55.5	36.3	19.5	44.2
	USA				
men	100.0	84.6	76.4	8.0	15.6
women	100.0	68.8	54.0	14.8	31.2

Table 7: Time allocated to child care by gender, and children [hours per week]

	US				Germany			
	men	total	women at least 1 child under 18 years	with at least 1 child under 6 years	men	total	women with at least 1 child under 18 years	with at least 1 child under 6 years
share in population (%)	46	54	26	11	50	50	17	7
time spend on child care	1.3	4.1	7.1	11.0	1.8	4.8	11.6	20.4

source: time-use data set

Table 8: Market Work-orientation of Germans* and Americans, by Gender

	Males				Females			
	1989		1997		1989		1997	
	G	USA	G	USA	G	USA	G	USA
How Hard do You Work?								
A Only as hard as I have to	15	9	8	11	18	6	6	6
B Hard but not if interference with rest of life	48	29	41	36	50	34	36	40
C As best as I can even if it interferes with rest of life	31	62	52	53	31	59	57	55
Difference C-A	16	53	44	42	13	53	51	49
Work Hours Preferences								
A More hours/ more pay	12	38	22	32	15	28	19	25
B Same hours/ same pay	77	57	68	58	75	67	70	64
C Less hours/ less pay	11	5	10	9	9	5	11	11
Difference C-A	-1	-33	-12	-23	-6	-23	-8	-14
Job is Just a Way to Make Money								
A Agree	39	24	36	23	26	20	26	25
B Neither Nor	17	17	10	19	16	18	10	15
C Disagree	46	59	54	58	58	62	64	60
Difference C-A	7	35	18	35	32	42	38	35
Would take job even if Money not needed								
A Agree	49	62	68	60	50	61	69	60
B Neither Nor	14	16	9	17	12	17	7	15
C Disagree	37	22	23	23	38	22	24	35
Difference C-A	7	35	18	35	12	39	45	25

Source: Working Hard from ISSP question "Which of the following statements best describes your feelings about your job?" (1) I only work as hard as I have to; (2) I work hard, but not that it interferes with the rest of my life; (3) I make a point of doing the best work I can even if it sometimes interferes with the rest of my life

Hours Preferences from ISSP question, "Think of the number of hours you work and the money you make on your main job, including regular overtime. If you had only one of three choices, which of the following would you prefer (1) Work longer hours and earn more money; (2) Work the same number of hours and earn the same money; (3) Work fewer hours and earn less money?"

Job is Just a Way to Make Money from IISIP Statement, "A job is just a way of earning money - no more", please tick one box: (1) Strongly agree; (2) Agree; (3) Neither agree nor disagree; (4) Disagree; (5) Strongly disagree. Agree: (1) + (2), Neither Nor (3), Disagree (4) + (5).

Would take job even if money not needed from ISSP question, "Do you agree or disagree I would enjoy having a paid job even if I did not the money?"; (1) Strongly agree; (2) Agree; (3) Neither agree nor disagree; (4) Disagree; (5) Strongly disagree. Agree: (1) + (2), Neither Nor (3), Disagree (4) + (5).

* Germans living in West-Germany

Table 9: Potential Employment Effects of Increased Marketization of Activity in Germany

CHANGE IN MARKET SECTOR	
Share of German Consumption on Restaurants, etc	8.3
% increase to reach US share (16.7)	100%
Employment/ Adult in Restaurants etc in Germany	3.5
Effect of 100% increase in consumption share on emp/adults	3.5
Aggregate Increase in hours worked at 30 hours week	105
CHANGE IN HOUSEHOLD SECTOR	
Effect on Household Production time	
Decline from 6.2 hours to 4.0 hours of preparing meals	
Cleaning after meals	2.2 hours
Aggregate decrease in hours in food preparation	220
Implicit Tradeoff in Hours of household work for market work	2.10
Aggregate Increase in "Free time"	105

Source: consumption shares from table 2; employment ratios from table 1; household time from table 3.

Table 10: Regressions of participation in employment and hours in market work and home production on years of education, age, and children, women (25 to 64 years)

Variables	USA		Germany (West)	
	coefficient	standard error	Coefficient	standard error
participation in market work	LOGIT			
independent variables:				
years of education	0.234	0.021	0.080	0.011
age	-0.051	0.004	-0.065	0.003
child < 6	-1.348	0.141	-1.352	0.086
child 6 to 18	-0.233	0.134	-0.283	0.065
constant	0.187	0.359	2.739	0.233
n		2825		7832
Prob Chi2		0		0
Pseudo R2		0.1061		0.0573
ln (hours of market work/hours of total work)	OLS			
independent variables:				
years of education	0.025	0.012	0.018	0.004
age	-0.010	0.003	-0.016	0.001
child < 6	-0.494	0.099	-0.701	0.033
child 6 to 18	-0.377	0.082	-0.376	0.025
constant	1.269	0.226	1.345	0.091
n		1775		4915
Prob > F		0		0
R2 adjusted		0.025		0.092

Source: computations are based on the time-use data files described in the Appendix.