SPECIAL ANALYSIS

Updated View of Potential Output and Employment

To prepare forecasts of the actual development in the longer term, the NIER makes assessments of the potential levels of output and employment. One important element is the assessment of the level of equilibrium unemployment. This special analysis presents an updated view of these variables, with a focus on 2013–2017. In the new assessment, the level of potential GDP is somewhat higher in 2017 than in the previous assessment from December 2012.

Potential GDP – Level of Output When the Economy is in Cyclical Balance

The NIER regularly publishes medium-term forecasts (in this case 2013–2017) and therefore needs to assess the development of the potential levels of important macroeconomic variables like GDP and employment during this time frame. The potential level of output affects, among other things, the margin for permanent unfunded measures in the central government budget, or the so-called scope for reforms (see the special analysis "The NIER's Assessment of the Scope for Reforms" in this chapter).

The NIER's assessment is that potential GDP grew by an annual average of 2.3 percent during the period 1980–2012. In the period ahead, the NIER assesses that potential GDP will grow more slowly, by an average of 1.8 percent per year in 2013–2015, and then increase by more than 2 percent per year in 2016–2017 (Table 12). Underlying the relatively low growth rates in 2013–2015 is a weak tendency in potential producitivity and slower growth in the potential labour force.

The NIER's assessment of potential GDP, however, is somewhat higher in 2017 than in the previous assessment (see Table 13).[10] The explanation is a changed view of the level of potential productivity as well as a different assessment of the potential number of hours worked.

Potential Variables

Potential GDP refers to the level of output that would be achieved if the economy were in cyclical balance.

In the NIER's assessment, potential GDP is divided into potential productivity and the potential number of hours worked. By potential productivity is meant the level of productivity that would have been observed in the absence of cyclical variations.

The potential number of hours worked is determined by potential employment, that is, the number employed when there is cyclical balance on the labour market, and by their average hours of work. Potential employment is determined in turn by the potential labour force and by equilibrium unemployment, that is, the labour force and unemployment when the labour market is in balance.

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[10] The previous assessment refers to the forecast in *The Swedish Economy*, December 2012.

Table 12 Potential Variables

Percentage change and percent, respectively

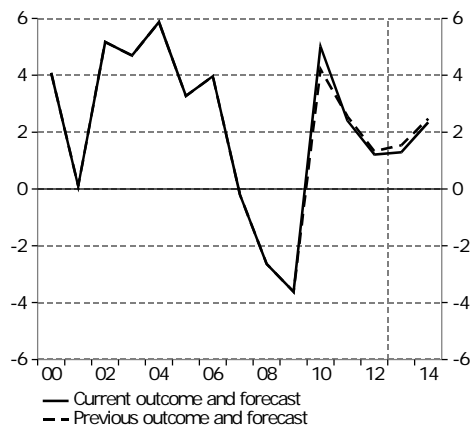|	2012	2013	2014	2015	2016	2017
Potential GDP[1]	1.5	1.7	1.8	2.0	2.1	2.1
Potential productivity[2]	0.8	1.2	1.3	1.4	1.6	1.6
Potential productivity, business sector	1.5	1.5	1.6	1.8	2.1	2.1
Potential hours worked	0.8	0.5	0.5	0.5	0.5	0.5
Potential employment	0.7	0.6	0.5	0.5	0.5	0.4
Potential labour force	0.8	0.6	0.5	0.4	0.3	0.3
Equilibrium unemployment[3]	6.9	6.9	6.8	6.7	6.6	6.5

[1] Market price. [2] Whole economy, market price. [3] Percent of potential labour force.

Source: NIER.

Potential Productivity

Diagram 39 Productivity, Business Sector

Percentage change, calendar-adjusted values

— Current outcome and forecast
-- Previous outcome and forecast

Sources: Statistics Sweden and NIER.

LONG-LASTING SLUMP IN PRODUCTIVITY GROWTH

There are different mechanisms that explain why the actual level of productivity may be either higher or lower than potential productivity. The differences be due primarily to variations in the growth and composition of demand. They may arise from economies of scale or rigidities in the production processes of firms. One such rigidity is when firms do not adjust staffing to temporary fluctuations in demand.

The NIER assumes that potential productivity in the business sector in the long run, after the year 2020, will increase in line with its historical average of 2.3 percent per year since 1980. Potential productivity in the business sector rises more slowly in the preceding years, and by only 1.5–1.8 percent per year in 2012–2015. Growth in productivity is driven primarily by technological development. It is the NIER's assessment that the contribution of technological development to productivity growth in recent years been less than in the 1990's and early 2000's, and that this will continue to be the case for some years to come.[11]

NEW ASSESSMENTS OF PRODUCTIVITY GROWTH

New data published since the previous forecast point to higher productivity growth in the business sector. The principal revision is in growth in 2010 (see Diagram 39). This has led to a new assessment of potential productivity growth in the business sec-

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[11] See *Report on Wage Formation*, 2012, for a discussion of the factors on which the assessment is based.

tor. It is primarily the estimated growth during the years 2009–2013 that has been revised, whereas potential productivity growth in the business sector in subsequent years is largely unchanged (see Diagram 40).

In addition, productivity growth in public authorities and nonprofit organizations in the long run is assumed to increase by an average of 0.2 percent per year, which corresponds roughly to the historical average rate of increase since 1980. Taken together, the new assessments mean that the potential level of productivity in constant prices for the economy as a whole in 2017 is expected to be somewhat higher than the estimate at the time of the previous forecast.[12]
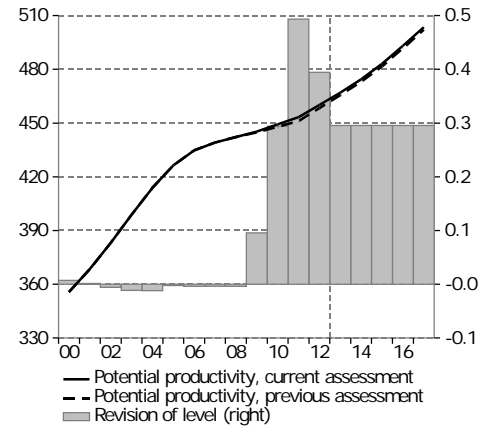
The level of GDP in current prices is not significantly affected by the rate of productivity growth in public agencies. The reason is that the value added in public agencies is calculated from the development of labour costs and the costs of capital consumption, and the development of labour costs in public authorities largely follows the development of earnings in the business sector.[13] The assessment of the long-term growth of productivity in public authorities is thus of negligible significance for the assessment of the level of potential GDP as measured in current prices, nor has the calculated level in current prices in 2017 been revised upward to the same extent as potential GDP in constant prices (see Table 13).[14]

Potential Number of Hours Worked

The rate of growth in the potential number of hours worked will drop beginning in 2013, primarily because the potential labour force will be growing more slowly than it has done through 2012 (see Table 12). Compared with the previous assessment, however, the rate of growth in potential hours is somewhat stronger, with the result that the level will be higher in 2017 than before. This will contribute to a higher potential level of GDP in 2017 (see Table 13).

Diagram 40 Potential Productivity, Business Sector

SEK per hour, constant prices and percent, respectively

— Potential productivity, current assessment
- - Potential productivity, previous assessment
▪ Revision of level (right)

Source: NIER.

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[12] It was previously assumed that there would be no productivity growth for public authorities and nonprofit organizations. In constant prices refers to volume in 2011 price levels.

[13] Public agencies can choose to take out productivity gains in the form of higher quality for an unchanged number of hours worked at the same cost, or obtain lower costs for unchanged quality with fewer hours worked. In the first case, the value added of public agencies in current prices is unaffected by productivity growth. In the latter case, value added will be lower in public agencies, but labour is freed up to work in the private sector, where value added is thus higher.

[14] Potential GDP in current prices is calculated on the basis of the actual development of the GDP deflator.

Table 13 Revisions to Potential Variables

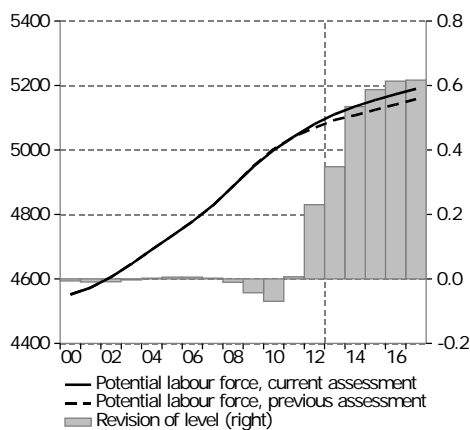Revisions to levels compared to previous assessment, percent

	2012	2017
Potential GDP, current prices	0.2	0.3
Potential GDP, constant prices [1]	0.3	0.7
Potential productivity, whole economy[1]	0.2	0.4
Potential productivity, business sector[2]	0.4	0.3
Potential hours worked	0.1	0.3

[1] Market prices, 2011 price level. [2] Basic prices, 2011 price level.

Note. Previous assessment is the forecast in *Konjunkturläget* (*The Swedish Economy*), December 2012.
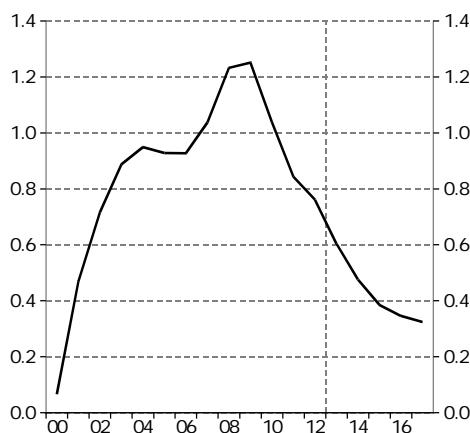
Source: NIER.

STRONG GROWTH IN POTENTAL LABOUR FORCE IN RECENT YEARS

The labour supply has grown strongly in recent years despite the fact that demand for labour has been weak from time to time. This is partly explainable by the demographic development, where the number of people of working age has been rapidly increasing. At the same time, the Government's economic policy reforms to increase the labour supply have probably had their intended effect.[15] According to the NIER's assessment, the potential labour force has increased strongly, and its level is higher than in the previous assessment (see Diagram 41).

The growth in labour supply the past two years has been largely among persons 65–74 years of age, with the result that the labour force participation rate in this group has risen rapidly. In the NIER's assessment of the potential labour force, labour force participation among older persons will continue to rise in the period ahead. The reason is that younger cohorts show a higher rate of labour force participation than older cohorts, which gradually increases the average rate of labour force participation.

However, the growth of the potential labour force will drop to a lower level in coming years (see Diagram 42 and Table 12). This will be due to a changed population structure and to the fact that the reforms are likely to have had their full effect. The continued trend of increased labour force participation among older people, though, will contribute to a somewhat higher rate of growth than would otherwise have been the case.

Diagram 41 Potential Labour Force
Thousands and percent, respectively

— Potential labour force, current assessment
--- Potential labour force, previous assessment
▨ Revision of level (right)

Source: NIER.

Diagram 42 Potential Labour Force
Percentage change

Sources: Statistics Sweden and NIER.

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[15] According to the NIER's assessment, the economic policy reforms implemented since 2007 are increasing the potential labour force by 2.6 percent. See the special analysis "Long-Term Effects of Economic Policy Reforms on the Labour Market" in *The Swedish Economy*, December 2011.

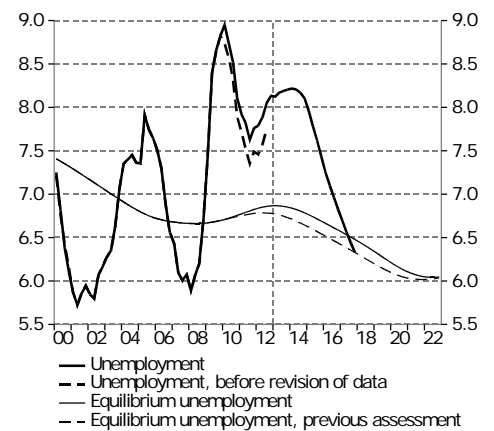## THE NIER'S ASSESSMENT OF EQUILIBRIUM UNEMPLOYMENT

Equilibrium unemployment is determined mainly by structural factors such as how effectively job openings are matched with jobseekers and by the actions of the social partners.[16] Equilibrium unemployment is also affected by the degree to which extended periods of high unemployment give rise to so-called persistence effects. A deep and prolonged recession may have long-lasting effects on unemployment and employment, partly because prolonged periods of unemployment make the unemployed less competitive on the market.[17]

It is the NIER's assessment that the prolonged period of high unemployment will raise equilibrium unemployment by almost 0.6 percentage point (about 30 000 persons) in 2016. This is somewhat higher compared to the previous assessment, which is explainable primarily by the fact that Statistics Sweden has revised upward the level of unemployment for the period 2010–2012 (see Diagram 43).[18] Long-term unemployment is also at a somewhat higher level. At the same time, unemployment has risen during the course of 2012 and is expected to be at a high level in the next few years as well.

For this year equilibrium unemployment is forecast to be almost 7 percent (see Table 12). Persistence effects are not anticipated to affect equilibrium unemployment permanently. By 2020 most of the persistence effects are expected to have subsided, and equilibrium unemployment will be about 6 percent (see Diagram 43).[19] The reason why equilibrium unemployment will be decreasing is that previously implemented economic policy reforms, such as the tax credit on earned income (jobbskatteavdraget) and the changes in the unemployment insurance system, will reduce equilibrium unemployment gradually. The adjustment to the new equilibrium, however, is expected to take time, one reason being that wages and salaries are rigid.[20]

[16] See *Wage Formation in Sweden* 2012.

[17] See, for example, Guichard, S. and E. Rusticelli, "Assessing the impact of the financial crisis on equilibrium unemployment in OECD countries", OECD Economic Department Working Papers no. 767, 2010.

[18] The number employed has averaged 17 000 persons fewer, and unemployment has averaged 0.3 percentage point higher than was previously known; see www.scb.se/lfs

[19] For a more thorough description of the driving forces that contribute to lower equilibrium unemployment, see *Wage Formation in Sweden* 2012.

[20] See the special analysis "Long-Term Effects of Economic Policy Reforms on the Labour Market" in *The Swedish Economy*, December 2011.

Diagram 43 Unemployment and Equilibrium Unemployment
Percent of labour force, seasonally adjusted quarterly values

Sources: Statistics Sweden and NIER.