

Appendix to chapter 10

Foreign knowledge workers in the Netherlands.

Definition of a knowledge worker

This appendix describes the definition of knowledge workers used for the analyses in this chapter. We shall also compare our measure to a number of other common definitions used for knowledge workers, and show that it performs considerably better than most of these definitions. After we have discussed what we consider a knowledge worker to be, it is just a small step to defining a foreign knowledge worker: a knowledge worker born outside the Netherlands who immigrated aged 18 years or older.

Drucker (1959; 1989) was one of the first to use the concept 'knowledge worker'. In his view, a knowledge worker is someone employed in seeking, interpreting, and processing knowledge. The skills and knowledge of knowledge workers are an important resource, and because they are to some extent non-transferable they are in the hands of employees rather than the organisations they work for. Many of the definitions used in the literature emphasise the intellectual and non-repetitive nature of the work performed by knowledge workers (see Horwitz et al., 2003, for an overview).

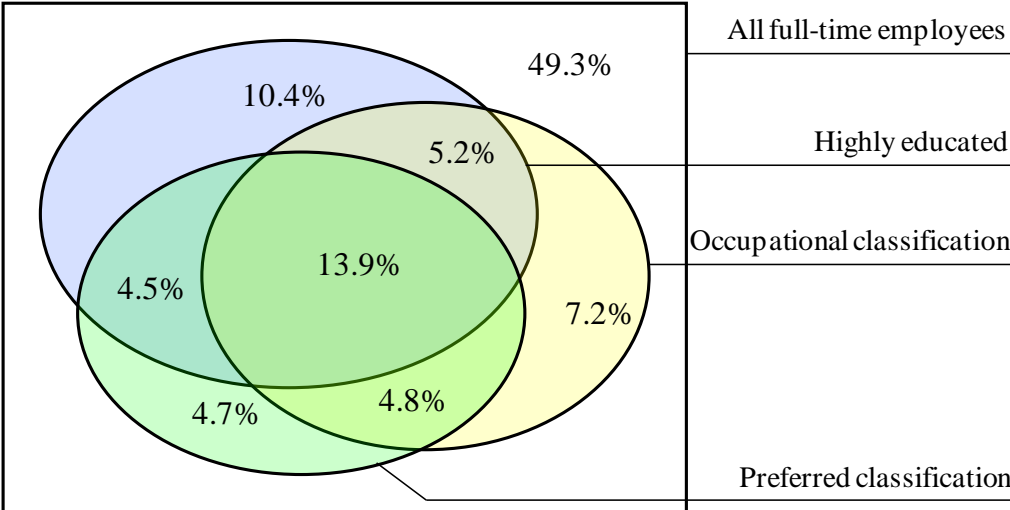
From a theoretical point of view, a definition based on tasks performed by individual employees would be preferable. However, given the lack of data at the required level of detail, such a definition is unfeasible for empirical research. In the empirical literature, three different types of operational definitions have emerged, based on income, level of education, and the knowledge intensity of occupations. None of these criteria are optimal. Some employees perform knowledge-intensive work but earn low wages (for example, postdoctoral researchers); others earn a high wage for work that is not knowledge intensive. Similar drawbacks emerge when using a definition based on level of education: although the number of low educated employees who perform highly skilled and knowledge-intensive work may be small, the number of highly educated workers who perform low-paid non-intellectual work is large. In choosing an appropriate definition, data availability is an important constraint of the available options: it is no use defining knowledge workers based on education or occupation if available data do not include a breakdown by education or occupation.

Even though data on both level of education and occupations are available from the labour force survey (EBB), only a small percentage of employees are included in this dataset and foreign workers – especially if their stay is short – are not adequately represented. For many of our analyses, only wage data are available. Therefore, we used the 2000–2010 EBB cross-sections to analyse the relation between wages and level of education within different age cohorts: 28–31, 32–35, 36–40, 41–50 and 51–60 years. After using the CPI price deflator to deflate wages to 2011 prices and normalising wages to full-time equivalents, we determined an income criterion for each cohort that ensures that at least 50 percent of employees with that wage (+/– percentile) has a high education level (i.e. at least an HBO or university degree). This resulted in the following minimum wages for a worker to be qualified as a knowledge worker: 37,841 euros (ages 28–31 years), 45,240 euros (32–35 years), 49,100 euros (36–40 years), 53,490 euros (41–50 years) and 54,797 euros (51–65 years). The large differences between younger and older workers clearly illustrate the need to take age into account when defining knowledge workers based on wage levels: even highly skilled and promising employees earn relatively low wages at the start of their careers. We excluded workers younger than 28, as labour

participation of higher educated individuals is so low for these ages that their share is well below 50 percent in all percentiles of the wage distribution.

Figure 1 compares our preferred classification of knowledge workers to two other definitions of knowledge workers: one based on education – where knowledge workers are defined as those who have an HBO or university degree – and one based on the average wage earned in occupations. In this comparison, all employees in 4-digit ISCO-1988 occupations with an average wage of at least 51,183 euros (the required wage for residence under the so-called *Kennismigrantenregeling* in 2011) are defined as knowledge workers. The percentages in Figure 1 represent the share of each subset in the total number of full-time employees in the Netherlands. About 49 percent of all employees are not highly educated, do not work in a highly skilled occupation, and do not earn enough to be qualified as a knowledge worker. About 14 percent of all employees, on the other hand, are knowledge workers according to all criteria. The overlap of our preferred classification with the two other classifications is relatively good: about half of knowledge workers according to this definition are also highly educated and work in an occupation requiring high skills. About one sixth of the workers who fall within this definition do not have a higher education, another sixth do not work in lower skilled occupations. Only one sixth fall outside both other classifications. However, in all these cases employers apparently see something special enough in the employees within our preferred classification to justify a high wage. For classifications based only on level of education or occupation, the non-overlapping areas with other classifications are much larger: for example, a very large share of highly educated workers do not work in a high skilled occupation or earn a high wage.

<Figure 1 Venn diagrams for different classifications of knowledge workers>



Note: the sum of all full-time employees in our sample is 100%.

Literature

Drucker, P (1959) Landmarks of tomorrow: a report on the new “post-modern” world, Harper & Bros, New York.

Drucker, P (1989) The new realities, Heinemann, Oxford.

Horwitz, F.M., C.T. Heng and H.A. Quazi (2003) Finders, keepers? Attracting, motivating and retaining knowledge workers, Human Resource Management Journal, 13, 23–44.